STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION COMMISSION

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

APPLICATION OF KOCH EXPLORATION COMPANY, LLC, FOR AN ORDER AUTHORIZING INCREASED WELL DENSITY AND SIMULTANEOUS DEDICATION ON CERTAIN NONSTANDARD SPACING UNITS IN THE BASIN-FRUITLAND COAL GAS POOL, SAN JUAN COUNTY, NEW MEXICO

CASE NO. 13,841
de novo

2007 MAY 31 PM 3 00

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

COMMISSION HEARING

BEFORE: MARK E. FESMIRE, CHAIRMAN
JAMI BAILEY, COMMISSIONER
WILLIAM C. OLSON, COMMISSIONER

May 17th, 2007

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Commission, MARK E. FESMIRE, Chairman, on Thursday, May 17th, 2007, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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I N D E X

May 17th, 2007
Commission Hearing
CASE NO. 13,841

(Continued...)

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E X H I B I T S

(Continued...)

EXHIBITS (Continued)

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(Continued...)

E X H I B I T S (Continued)

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Additional submission by Koch, not offered or admitted:

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APPEARANCES

FOR THE COMMISSION:

CHERYL BADA
Assistant General Counsel
Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

FOR THE APPLICANT:

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

FOR BP AMERICA PRODUCTION COMPANY:

JAMES G. BRUCE
Attorney at Law
P.O. Box 1056
Santa Fe, New Mexico 87504

* * *

ALSO PRESENT:

James W. Hawkins
Engineer, Regulatory Affairs, BP

* * *

WHEREUPON, the following proceedings were had at 9:23 a.m.:

CHAIRMAN FESMIRE: At this time the Chair will call Case Number 13,841. It's the *de novo* Application of Koch Exploration Company, LLC, for an order authorizing increased well density and simultaneous dedication on certain nonstandard units in the Basin-Fruitland Coal Gas Pool in San Juan County, New Mexico.

Are the attorneys present for this case?

MR. HALL: Yes, sir.

CHAIRMAN FESMIRE: Would you enter your appearances, please?

MR. HALL: Mr. Chairman, Commissioners, Scott Hall, Miller Stratvert law firm, Santa Fe, appearing on behalf of the Applicant, Koch Exploration Company.

MR. BRUCE: Mr. Chairman, Jim Bruce of Santa Fe, representing the opponent, BP America Production Company.

CHAIRMAN FESMIRE: Before we begin, I want to take the opportunity to thank counsel and the people who actually did the work. The exhibits in this case are incredibly professional, and I was totally impressed. Things are progressing in the world of computers awfully quickly, and apparently your clients know how to use them and make those things dance. Both of them are very, very well done. I wanted to express that.

Mr. Hall, do you have an opening statement?

MR. HALL: The briefest of statements, Mr. Chairman.

Koch Exploration Company seeks permission to drill three Fruitland Coal infill wells in three nonstandard spacing units that have been previously approved by the Division.

If you look at the Application that was filed in this case, it contains something of a misnomer, in my view, as it says that the Applicant seeks an increase in density. I don't think that's exactly accurate.

What Koch seeks to do is place itself on a par with all of the other operators in the immediate area in the Basin-Fruitland Coal Gas Pool, and by granting its Application what will result is the development of four wells per section, albeit three of these sections contain irregular sections with nonstandard proration units overlapping sectionally. So that will necessitate the simultaneous dedication of three wells per unit.

But when you look at the overall result, you will see that there will be no violation of correlative rights, that development as requested will be on line with existing development, and we will avoid gaps that currently exist in development, so that additional coal gas reserves will be recovered.

CHAIRMAN FESMIRE: Mr. Bruce, would you like to defer your statement or give it at this time?

MR. BRUCE: I'll be very brief.

Mr. Chairman, Koch has three well units which all have about 325 or 330 acres. They are essentially standard units. The Fruitland Coal Pool rules provide for two wells per well unit. It already has those wells. It has recovered, and is recovering, its fair share of reserves from the pool in this area. And we will present substantial evidence that these wells are simply unnecessary and will give an unfair advantage to Koch over the offsets.

Thank you.

CHAIRMAN FESMIRE: Mr. Hall, do you have your witnesses here?

MR. HALL: Yes, we have three witness this morning. We need to have them sworn.

CHAIRMAN FESMIRE: Would they stand to be sworn, please?

(Thereupon, the three Koch witnesses were sworn.)

CHAIRMAN FESMIRE: Mr. Hall, who is your first witness?

MR. HALL: Mr. Chairman, we would call Connor -- I'm sorry, Morgan Connor.

MR. CONNOR: Good morning.

CHAIRMAN FESMIRE: Good morning, Mr. Connor.

Mr. Connor, you understand you've been previously sworn in this case?

MR. CONNOR: Yes, I have.

MORGAN J. CONNOR,

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

DIRECT EXAMINATION

BY MR. HALL:

Q. Mr. Connor, if you would, state your name for the record and tell the Commission where you reside.

A. My name is Morgan J. Connor, I reside in Denver, Colorado.

Q. How are you employed, Mr. Connor?

A. I'm employed as the land manager for Koch Exploration Company, LLC.

Q. And you've previously testified before the Division and had your credentials accepted; is that correct?

A. Yes, that is correct.

Q. Why don't you give the Commission a brief summary of your educational background and work experience?

A. I have a bachelor of science in business administration from the University of Arizona. I also did graduate studies in international management at the

American Graduate School of International Management in Arizona.

CHAIRMAN FESMIRE: Thunderbird?

THE WITNESS: Yes, sir. Are you an alumni?

CHAIRMAN FESMIRE: No, but I had a good friend who was.

THE WITNESS: Very good.

I was 13 years as land manager for Vessels Oil and Gas Company, which was a privately held company with operations in Colorado, Texas and Wyoming. I left the oil industry, like a lot of people did, back in 1994 and ended up working for US West and Quest for five years as a consultant, three years as a level-five manager responsible for the data administration group. In May of last year I went to work for Delta Petroleum, a public company in Denver, Colorado, as a senior land consultant, and in August of last year I was hired as the land manager for Koch Exploration, where I report directly to the president of the company.

I'm a member of the AAPL, American Association of Professional Landmen, Denver Association of Professional Landmen, and I'm also a real estate broker with the State of Colorado.

CHAIRMAN FESMIRE: Are --

MR. HALL: Mr. -- I'm sorry, Mr. Chairman.

CHAIRMAN FESMIRE: Mr. Connor, are you a certified petroleum landman?

THE WITNESS: No, sir.

Q. (By Mr. Hall) Mr. Connor, are you working the San Juan Basin now?

A. Yes, sir.

Q. And are you familiar with the Application that's been filed in this case and the lands that are the subject of the Application?

A. Yes, I am.

MR. HALL: At this point, Mr. Chairman, we would offer Mr. Connor as an expert petroleum landman.

CHAIRMAN FESMIRE: Is there any objection?

MR. BRUCE: No, sir.

CHAIRMAN FESMIRE: Mr. Connor will be so accepted.

THE WITNESS: Thank you.

Q. (By Mr. Hall) Mr. Connor, if you would turn to your Exhibit 1, by referring to that, briefly explain to the Commission what Koch seeks by its Application.

A. Very simply put, Koch Exploration Company is requesting the Commission approve the drilling of three Fruitland Coal wells in previously approved nonstandard proration units located in irregular sections in Township 31 North, Range 8 West. The wells are to be drilled at standard locations in the northwest quarters of Section 6, 18 and 19, in the existing units.

Koch also seeks authorization to simultaneously dedicate each of these units to the three coal gas wells located thereon. We feel that these wells should be drilled to protect our correlative rights and those of our partners and mineral interest owners and to prevent waste, and by allowing these wells to be drilled the Commission is supporting the continuation of a pattern of development consistent in the Fruitland Coal in this area.

Q. There are pre-existing Fruitland Coal wells on each of these irregular units, are there not?

A. Yes, sir, there are.

Q. And so Koch is seeking approval for simultaneous dedication of the additional infill well?

A. Yes, we are.

Q. Okay. Let's refer to Exhibit 1. Why don't you explain that to the Commission?

A. This area that's shown in yellow represents the Fruitland Coal area that's operated -- partially represents the area that's operated by Koch Exploration.

Each one of these green dots represents the wells that we're asking for exception locations.

These sort of green hachmarked and orange areas are the pooling units that were originally established before I was born, in 1953 in the Mesaverde. Then they were re-affirmed in 1990 and 1991 in the Fruitland Coal and recently, in 2005, in the Dakota.

What you're seeing here is, the red dots represent all the Fruitland Coal wells that are producing in this area. The blue dots represent additional wells that we're going to be drilling or have drilled in this 2007 schedule.

And then if I can draw your attention, what we've done -- It's my understanding that basically, arbitrarily, units were set up back in 1953 and 1954, which stated that we'll keep the east half of these irregular sections whole. So we'll dedicate 320 acres to the east-half units, and then we'll make up -- using the west half, we'll form units in smaller, irregular units with the acreage that's remaining.

What we've done here is, we're showing the acreage that's in each section, and then what we're also showing is, we're showing the acreage in each quarter section.

So the acreage that's in this section here is 541.09 acres. What we're showing here is, if this section had been divided in quarters, each one would have attributed to it 135.27 acres. We've done that for each one of the four sections involved with these irregular units.

Q. Now is the acreage amount for each of these approved nonstandard units reflected on the exhibit?

A. That is correct. In the green on the top two units, you have 32- -- 33.74 acres. I believe that is a typo by one acre. Then in blue you have 330.16 acres, which represents this unit. And then in red you have 326.56 acres, which represents this unit.

MR. HALL: Mr. Chairman, just to shortcut, the acreage amount for the nonstandard unit in Section 6 should be 332.94 acres. It reads .74 acres. It's a typo.

Q. (By Mr. Hall) Does the exhibit also indicate all of the offset operators?

A. Yes, sir, it does.

Q. Okay. Mr. Connor, can you tell the Commission what are the current acreage dedication and spacing wells for the Basin-Fruitland Coal Gas Pool?

A. Two wells per 320.

Q. Okay. And do those rules allow for the dedication of nonstandard units that conform to previously approved Mesaverde or Basin-Dakota nonstandard units?

A. Yes, they do.

Q. Okay. Now the Division has previously approved nonstandard units for each of the irregular units that Koch seeks to develop in the Fruitland Coal; is that right?

A. That's correct.

Q. And they conform, like we say, to the Mesaverde and Dakota units?

A. Yes, sir.

Q. Look at Exhibit 2.

A. Yes, sir.

Q. Is Exhibit 2 a compilation of the Division orders approving the nonstandard units for each of those pools?

A. Yes, it is.

MR. HALL: And Mr. Chairman, I would point out to the Commission, if you look at page 2 of the first order -- it's Order R-3915 -- that sets forth the correct acreage amounts for each of the three nonstandard units.

Q. (By Mr. Hall) Let's look at Exhibit 3, Mr. Connor. Would you explain that to the Commission?

A. Exhibit 3 goes back to some of the other statements that Scott Hall and myself have made. Basically, all we're asking is to be able to develop our wells based on the same pattern that's been established in the Fruitland Coal, not only in this area but in the high-productivity area that surrounds our production. But what we've done is, we've just taken this map and shown that in each one of these sections a polygon would be formed that's very similar to the polygons on the offsetting acreage.

Q. So what you've done to create this exhibit, have you simply connected the dots of all of the existing Coal wells and the proposed locations in each section?

A. Yes, sir, that's what we've done.

Q. And this is without regard to the nonstandard unit, correct?

A. Yes, sir.

Q. Okay. Let's turn to Exhibit 4. What are you showing here?

A. Basically again, all that we're showing here is, we've continued with the polygons, showing them on wells that are surrounding where we're looking for exception location, and this showing that if we aren't granted the exception locations, we feel that there are holes in the northwest quarter of 6, the northwest quarter of 18 and the northwest quarter of 19, where wells haven't been drilled.

Q. All right. By the way, Mr. Connor, are the nonstandard units shown on your map exhibits -- are they drawn to scale?

A. Yes, sir, they are.

Q. Okay. When you compare the development of the Fruitland Coal formation in the area under the Division's pool rules for the Basin-Fruitland Coal Gas Pool, do the irregular sections in the nonstandard units cause there to be three undrilled quarter-section locations?

A. Yes, they do.

Q. All right. When you examine Koch's proposal in the context of the entirety of Sections 6, 18 and 19, will Koch's proposal result in the effective development of four wells per section --
A. That is correct.
Q. -- in each of those three sections?
A. Yes, sir, that's correct.
Q. And is that pattern of development consistent with the overall pattern of development established in the area?
A. Very much so.
Q. Have you determined whether on a section basis there is effectively no increase in development densities for this immediate area?
A. Yes.
Q. Okay. And are all of the wells that are exhibited on Exhibit 4, including the proposed infill wells, located at an orthodox location for the pool?
A. That is correct.
Q. So all are located at least 660 feet from the side of the section; is that right?
A. Yes, sir.
Q. And are any two wells, including the proposed locations, any closer than 1320 feet?
A. No, sir.

Q. And by continuing the current drilling pattern of four wells per section, does Koch seek to develop and produce additional coalbed methane reserves that would otherwise go unrecovered?

A. Yes, sir.

Q. Let's turn to Exhibit 5. Tell the Commissioners what this exhibit shows.

A. Exhibit 5 shows the working interest, royalty interest and overriding royalty interest in each one of the three locations that we're asking for exception locations.

Q. All right. And were each of these interest owners notified of Koch's Application?

A. Yes, sir, they were.

Q. What sort of response did Koch receive to the Application?

A. I had a number of phone conversations with some of the nonoperators in these wells. They supported our moving forward on drilling these wells, with the exception of BP, who is contesting the drilling of these three wells.

Q. Did they ever tell you why?

A. No, sir, they haven't.

Q. Let's look at Exhibit 6. What are we showing here?

A. Exhibit 6 shows a listing of our wells, Koch Exploration's wells, in this area that are direct offsets to the wells that we're asking for exception locations.

Q. So these are Koch-operated offsets?

A. Yes, sir.

Q. And did you notify the working interest owners in each of those Koch-operated wells --

A. Yes --

Q. -- of your Application?

A. -- yes, sir, I did.

Q. Okay. Turning back to the mineral interest ownership in the three irregular units that are the subject of the Application, is the ownership comprised of fee and federal minerals?

A. Yes, we have some fee acreage in Section 7 and in Sections 6, 18, 19 and 30. We also have BLM acreage.

Q. All right. Mr. Connor, in your opinion as a landman, does Koch Exploration have a duty to the interest owners in those units to effectively develop coalbed gas reserves to optimize their recovery and to permit drainage and avoid waste?

A. Yes, we do.

Q. Okay. Let's look at Exhibit 7. What does Exhibit 7 show?

A. Exhibit 7, what we're trying to show here is the number of locations where infill wells have been drilled, resulting in four wells per nonstandard section.

Just to back up a little bit, give you an orientation, here's Colorado, here's our Pump Canyon area. This is not a unit. These areas that are shown in green, salmon and blue, are ConocoPhillips, and these are operated units in the Fruitland Coal.

Then you see the red line here which shows the high-productivity area, and then each one of these red dots represents a well that was drilled in the Fruitland Coal.

Then the areas that are either in purple or in brown are showing nonstandard sections where infill wells have been drilled. And even though some of them are within unit boundaries, they're adjacent to other units, which we feel brings into play the fact that there's offsetting working interest owners that are different as to each one of these locations, as well as the fact that there is some acreage here in the brown that is not dedicated to these units. This acreage is operated by Peoples, this acreage is operated by BP, this acreage is operated by Burlington Resources.

So we feel that these are nonstandard sections, four wells per section, that offset different ownership here, here and here, adjacent to the edge of this units, which have already been approved by the Commission and have been drilled on the same spacing that we're asking for.

Q. Let's turn to Exhibit 8. Is Exhibit 8 a narrative providing the Commission with a summary of the development of irregular sections in the high productivity area?

A. Yes, sir, it is. If I can just go over it very quickly --

Q. Sure.

A. -- out of the 400 possible infill locations, 24 infill wells have been drilled in irregular sections containing less than 640 acres. This represents greater than 5.5 percent of the total number of infill wells. Of these infill wells, 18 were drilled in spacing units near a unit boundary or in a spacing unit adjacent to uncommitted acreage within a unit.

All 18 development wells drilled in irregular sections resulted in a drilling pattern with four wells per section. To our knowledge, none of these locations required a special hearing, correlative rights were not brought up as an issue in the approval of these locations, and the only difference between these locations and Koch Exploration's proposal is the originally defined spacing units.

Q. When we refer back to the map that's Exhibit 7, does it show where those other irregular sections were developed --

A. Yes, sir.

Q. -- that a four-well-per-section development pattern resulted?

A. Again, it's in the purple and in the brown areas. The purple areas are just regularly developed within the unit's adjacent lands, and then the brown were acreage that is not dedicated to the units but is also adjacent to this drilling pattern.

Q. All right. Mr. Connor, turn to Exhibit 9, please, and explain what that shows.

A. Exhibit 9 is a listing of the 18 wells that were discussed in Exhibit 8, and they're shown here on the map. And what we're showing here, from 549.56 acres, is the first one on your list, and then down to one of BP's locations where the section comprises 508.17 acres, you can see that in the red column.

You can also see that Koch Exploration's wells pretty much line up in the center of this list, and shows the number of acres per each section in red, and then just by dividing that number into 4 it shows the acreage in each quarter section for each one of these locations.

Q. All right, and so we see that BP operates at least one infill well within this group, in irregular sections?

A. Yes, sir, that's correct.

Q. If you would turn back to one of your earlier area maps -- Exhibit 1 or 2 is fine --

A. Yes, sir.

Q. -- can you tell us, do you know what the unit configuration is for the southwest quarter of Section 30, down there at the bottom?

A. Yes, the configuration for the southwest quarter of Section 30 and 31 is very similar to the pattern that was developed in these three units. It comprises the southwest quarter of Section 30 and then the remaining west half of Section 31.

So again, 320 acres were designated for the east-half units, and then the remaining acreage was sort of carved up in this unique unit that comprises lands in the section above and in the remaining west half of Section 31.

Q. All right. Now with respect to the three nonstandard units that are the subject of Koch's Application, do you know what the Mesaverde development has been? Has there been any infill Mesaverde development within those irregular units?

A. Yes, sir, there has. As a matter of fact, in one of the sections underlying where we are asking for an exception location, four Mesaverde wells were drilled before the downspacing. So there has been a precedent set in the Mesaverde in this area, where four wells in a nonstandard section was allowed.

Q. All right, Mr. Connor, let me ask you, were Exhibits 1 through 10 prepared by you or at your direction?

A. Yes, sir, they were.

MR. HALL: Let me identify Exhibit 10 for the Commission, Mr. Chairman. Exhibit 10 is a copy of counsel's affidavit giving notice to the interest owner Mr. Connor discussed. And also in there somewhere is a copy of the affidavit of publication in the local newspaper.

With that, we'd move the admission of Exhibits 1 through 10.

CHAIRMAN FESMIRE: Any objection?

MR. BRUCE: No objection.

CHAIRMAN FESMIRE: Koch Exhibits 1 through 10 will be admitted.

MR. HALL: That concludes our direct of this witness.

CHAIRMAN FESMIRE: Mr. Bruce?

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Mr. Connor, if you could go first to your Exhibit 1 --

A. Yes, sir.

Q. -- and let's just pick out Section 6 of -- what would that be, 31-8. When you -- and you have your well unit outlined or highlighted in green, and you list 135.27

acres. The actual size of that quarter-section equivalent is more like 110 acres, isn't it?

A. The quarter-section equivalent or the acreage in the --

Q. The --

A. -- quarter section --

Q. -- the quarter, what would -- Well, let's go back to your --

A. I believe that --

Q. -- ad in this case, where it refers to the west-half equivalent of Section 6 and the northwest quarter equivalent of Section 7.

A. If you take that unit and divide it by three, you're looking at approximately 110, 111 acres for that unit quarter section.

Q. Okay, and that would be the same not only for the northwest quarter equivalent of Section 6, but every single number down the line to the south? These are all 110, 111, maybe sometimes 108 acres?

A. Again, if you're just looking at the unit boundaries, that's correct.

Q. And so really, when you look at the east half of Section 6, when you have 135.27 acres, that's actually 160 acres?

A. Based on how it was originally pooled, yes.

Q. Okay, and the east half is a well unit?
A. Yes.
Q. And the east half is standard acreage?
A. The east half is a 320-acre well unit, yes, sir.
Q. Okay. And is ownership different in the -- in your green well unit, I'll call it -- is that ownership different from the BP well unit in the east half?
A. Yes, sir, it is.
CHAIRMAN FESMIRE: That's the Jacquez 2 well that you're talking about?
THE WITNESS: Yes, that's a standup unit right there.
MR. BRUCE: Correct, Mr. Chairman, I'm talking about the unit for the Jacquez 331 and 331S.
THE WITNESS: I'm sorry, your question was asking me if the ownership is different from the east half and the west half of Section 6, correct?
MR. BRUCE: Yes.
THE WITNESS: Okay, thank you.
Q. (By Mr. Bruce) Let's move on to your Exhibit 2, the Division orders regarding these well units, and page 2 of the order, down in paragraph 4 -- and let me just read it for the record: The Applicant proposes to drill a well at a standard coal gas well location thereon in each of the proposed nonstandard gas proration units to test the Basin-

Fruitland Coal Gas Pool.
How many wells were allowed on a well unit at that time?
A. There was one well per unit at this -- at the time of this order.
Q. And was there later a pool rules change?
A. Yes, it allowed for two wells per 320.
Q. Okay. And that rule is still in effect?
A. Yes, sir.
Q. And then just a few final questions, and let's move to your Exhibit 9 --
A. Yes, sir.
Q. -- which lists 21 wells, and of course the three highlighted in yellow have not yet been drilled?
A. That's correct. Those three wells are the subject of this hearing.
Q. And if I've counted correctly, 13 of these wells are inside of federal units; is that correct?
A. They're inside of federal units, but they're adjacent to lands with different ownership.
Q. And so there's only four nonstandard units on this list that are outside of the federal units; is that correct?
A. I think it's correct, but I don't -- I think it's misleading, the question -- to state it in that manner.

Q. And I think on your -- the last go-around, you informed me that in this high-productivity area, there's approximately 400 well units?

A. Yes, sir, that's what we have in Exhibit 8.

Q. Okay.

A. Infill well units.

Q. And then down at the bottom in the little summary box where it says, Average size of Koch quarter sections, and you have 134.9, again shouldn't that be 110 acres?

A. Again, if we're making a distinction between the spacing unit and the quarter section. In this exhibit, we're showing the quarter-section acreage, not the spacing-unit acreage.

Q. Okay. But again, your well units are comprised of three quarter-section equivalents, the language used in the advertisement, which are about 110 acres each?

A. Yes, sir.

Q. And so what you're using -- you're dividing up sections into arbitrary quarter sections, and you're not using the government survey numbers?

A. No, I disagree. I think that we're being less arbitrary in our designation of the sections by dividing them into four equal parts. The spacing unit that was set back in 1953 and 1954, I believe that was what was arbitrary, where at the time it was designated that 320 acres in the east half would be dedicated to full units, and then we'd have these different units set for the west half.

I think it arbitrarily could have been done with the west half having 320 acres and the east half being divided up into these units, or it could have been split in half right down the center, where we probably wouldn't be having this hearing.

Q. And Koch acquired its interest knowing full well of the pool rules and the shape of these units?

A. We know the pool rules and the shape of the units, but that's why we're here asking for exception locations.

Q. Just one final question. If you'd look at your Exhibit 7, which is your area map --

A. Yes, sir.

Q. -- on this map, or any other map that you have, can you show me a standard well unit that has a 320-acre or so well unit which has three Coal gas wells on it?

A. I don't believe that I can, no, sir.

MR. BRUCE: That's all I have. Thank you, Mr. Connor.

CHAIRMAN FESMIRE: Commissioner Bailey, do you have any questions of this witness?

COMMISSIONER BAILEY: No, I don't.

CHAIRMAN FESMIRE: Commissioner Olson?

COMMISSIONER OLSON: No questions.

CHAIRMAN FESMIRE: Mr. Hall, do you have a redirect?

MR. HALL: Brief follow-up, Mr. Chairman.

REDIRECT EXAMINATION

BY MR. HALL:

Q. Mr. Connor, let's clarify our understanding about what the pool rules allow here. Is it your understanding that the current infill density rules for the Fruitland Coal allow two wells, a parent well and an infill well, for a standard 320-acre section?

A. Yes, sir.

Q. And we're not talking about standard sections here, are we?

A. No, we're not.

MR. HALL: That's all I have, Mr. Chairman.

CHAIRMAN FESMIRE: Anything else from the Commission?

COMMISSIONER BAILEY: Nothing.

COMMISSIONER OLSON: (Shakes head)

CHAIRMAN FESMIRE: Mr. Hall, your witness may be excused.

MR. HALL: Mr. Chairman, we would call Glenn Baack to the witness stand.

GLENN BAACK,

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

DIRECT EXAMINATION

BY MR. HALL:

Q. Mr. Baack, if you would, state your name and spell that for the court reporter, please, sir.

A. My name is Glenn Baack, and the last name is spelled B-a-a-c-k.

Q. Okay, Mr. Baack, where do you reside?

A. Parker, Colorado.

Q. And by whom are you employed?

A. Koch Exploration Company, LLC.

Q. And what do you do for Koch?

A. My title is chief geologist.

Q. All right. You've not previously testified before this agency, I understand. Would you please give the Commission a summary of your educational background and work experience?

A. I have a bachelor's of geology, bachelor of science in geology, from the University of New Orleans dating from 1977. I worked as a geologist with Texaco in their offshore Gulf of Mexico exploration and development group for four years from 1978 to '81. I've worked with Koch Exploration as a geologist for 25 years, and I've worked in various basins, including the San Juan Basin, Gulf of Mexico, Gulf Coast and other Rockies areas. I've handled Koch Exploration geologic analysis of San Juan Basin development projects, acquisitions and divestitures. I've been involved with Koch Exploration Fruitland Coal development since the early 1990s.

Q. All right, and you're familiar with the Application that's been filed in this case and the lands that are the subject of the Application?

A. Yes, I am.

MR. HALL: At this point, Mr. Chairman, we would offer Mr. Baack as an expert petroleum geologist.

MR. BRUCE: No objection.

CHAIRMAN FESMIRE: Any questions from the Commission?

COMMISSIONER BAILEY: No.

CHAIRMAN FESMIRE: Mr. Baack, are you a certified petroleum geologist?

THE WITNESS: I am not.

CHAIRMAN FESMIRE: Mr. Baack will be so accepted.

Q. (By Mr. Hall) Mr. Baack, have you performed an analysis to determine whether drilling of these additional locations are necessary to fully and adequately develop coalbed methane reserves in the Pump Canyon area?

A. Yes, I have.

Q. And what have you concluded?

A. I have concluded that the Fruitland Coal deposition in the Pump Canyon area is highly variable. I have cross-section exhibits that will show the disconnected nature of the coal seams in the Pump Canyon area. The net coal thicknesses range from a low of 41 feet to a high of 88 feet. This is consistent with the regional Fruitland Coal depositional model, which is a highly dynamic peat-swamp environment with lateral facies changes, dissection by complex channel systems. So it's a very changing, dynamic area where these coals are deposited.

And in addition to that, the internal structure and permeability of the coal is further affected by changes in the ash content and maceral content, which is the inorganic and organic matter in the coals which affect the gas content and permeabilities, that ultimately affect the recovery of gas in individual wells.

The unpredictability in the individual coal seam thicknesses and the disconnected nature of the coal seams in the Pump Canyon area cause a significant variation in the volume of gas recovered from individual wells. Parent well cumulative production in the Pump Canyon area ranges from a low of 4 BCF to a high of 25 BCF. By parent well, I mean the original wells drilled in the general area, ranging from a time period of 1990 to 1992.

Parent-child flow rates, comparing the old wells and the new wells in the Pump Canyon area, the flow rates range from a low of 300 MCF a day to a high of 1800 MCF a day. This production variability does not support a conclusion that the Fruitland Coal reservoir is one big connected tank.

Based on the erratic deposition and compaction history of coals in the Pump Canyon area, the proposed exception locations can be expected to lower abandonment pressures of individual coal seams, increase gas recovery and reduce waste.

Q. Now Mr. Baack, have you summarized your conclusions in what has been marked as Exhibit 11?

A. That is true.

Q. Okay. Let's move on, then, since you've discussed that. Would you describe for the Commission the nature of the coal layers found in the immediate area of the Application locations?

A. Well, the coal is of an HVAB type, which stands for high volatile A bituminous coal. It's a very high-quality coal. It has highly variable lateral distribution. And Exhibit 12 that's on the easel is an excerpt from a publication from an *AAPG Bulletin* dated 2002, titled Coalbed Gas Systems, by Walter Ayers. The reason it's up there is just to show a conceptual model of the Fruitland

Coal deposition in the San Juan Basin. It is not drawn to scale.

And what it is showing is the -- Well, at one point about 60 million years ago during Cretaceous time, the San Juan Basin was covered by an inland sea. Over a time period of about 3 million years, this sea receded from the southwest to the northeast. This area here represents the seaway. At its shoreline point, the Pictured Cliffs sandstone was deposited and was deposited as this seaway retreated to the northeast.

Behind the -- or inland of the shoreline is where the Fruitland Coal deposition occurred, in a swampy, marshy area. This marshy, swampy area was dissected by meandering streams, of tidal flooding periods, which all resulted in a dissection of individual swamp areas, which eventually were buried and converted into coal units.

So what this model is showing is a highly dynamic environment with lateral -- with rapid lateral facies changes. And the Fruitland gas is trapped in hundreds of thousands of individual coal seams, as shown on this diagram, and each coalbed is essentially a separate and discrete reservoir.

Q. Would you say that the discontinuous nature of the coal layers in the area predominate Fruitland Coal?

A. Correct.

Q. Okay. Various coal layers that you see in this area, are they correlatable on a very wide basis?

A. For the most part, the answer is no. Some of the thicker coal seams can be confidently correlated from well to well, but more commonly the coal units appear to pinch out from one well to another and are not present in adjacent wells.

Q. What causes that, in your opinion?

A. There are several different causes. One, as I mentioned before, there are channels and associated flood periods, floodplain deposits, that flow between the swamped areas and tend to separate individual coal units. Another example would be a scattered -- or an area of the swamp that happens to be a few feet above sea -- above the swamp water level, where the -- that is too well drained to allow preservation of the organic material which is eventually converted into a coal. And in lower portions of the swampy area there are isolated lakes and lagoons that get filled with fine clastic material, creating points where the coals terminate laterally into mudstones and shales.

Q. Do you find that these coal layers exhibit significant heterogeneity, both on a vertical and lateral basis in this area?

A. Yes, I do, as the model -- as I previously discussed in the model, the depositional model.

Q. Okay. In your opinion, are one or more of the coal layers in this immediate area compartmentalized?

A. Yes, in addition to the vertical and lateral heterogeneity resulting from the terminating coal units, the individual structure and permeability of -- or the internal structure and permeability of individual coal units is further affected by changes in the ash content and maceral content, as I previously discussed. This results in variable gas content and permeability within the individual coal units, which control the ultimate recovery from the individual well.

Q. So the changes in permeability, for instance, do they result in perm barriers --

A. Essentially, yes.

Q. -- in the area?

A. Yes. And there will be a different gas content from one area to the next, which relates to the amount of gas in place in certain sections of the Pump Canyon area, and throughout the Fruitland Coal Basin itself.

Q. And do you find enough areas where you see a higher ash content that that higher will also result in a flow barrier?

A. That's correct.

Q. Okay. What's the basis for your conclusions with respect to the occurrence of compartmentalization in the coal?

A. Evidence of compartmentalization is seen in the variability of the gas volumes and flow rates between wells in the Pump Canyon area. If there were no such compartmentalization, one would expect a better production match between the wells. I'll discuss that issue in more detail in just a bit.

Q. Okay, let's look at your cross-section exhibits, starting with Exhibit 13. Would you orient the Commission with this, please?

A. Exhibit 13 is simply a cross-section location map of the Pump Canyon area. It shows two cross-sections that will be presented as exhibits. One section goes essentially to the northwest, to the southeast, and one section -- and crosses one of the proposed Koch locations. The other section is a north-south location that essentially tracks along all three of the proposed Koch locations.

I'm using the exact same wells as BP is using in their exhibits, just for comparability, but I have a different interpretation of the coal units that I will present.

Q. Let's turn to your first cross-section, Exhibit 14.

A. Exhibit 14 is the northwest-to-southeast-trending cross-section. It crosses one of the proposed Koch locations, which would be located between the first and second wells of this cross-section.

This is a stratigraphic cross-section hung on the Pictured Cliffs formation, represented by the blue line. Each well log has essentially three curves. The curve in the left track is a gamma-ray, which denotes typically sands and shales with its character. The middle track here is the resistivity curve. And the third track is the density curve, which is the one I'll be focusing on.

You'll see these dark areas on the density curve. These areas represent where the density character is less than 1.8 grams per cc. That's a commonly used identifier of coal.

The red-shaded areas represent what I interpret to be the individual coalbeds themselves, and you'll see that some carry across all three wells, others carry across two of the three wells, certain coal seams just are seen in one of the wells, in one well of the cross-section.

Q. Let's look at the next cross-section, Exhibit 15.

A. This is a north-south cross-section that essentially tells the same story. The Koch locations are presented in between these two -- two of the three wells here. Again, it's showing thickening and thinning of the coal units, terminating points of the coal units as seen in the wells. Here's a coal unit that's seen in only one of the three wells. So it's just demonstrating the variability of the coal units themselves.

Q. And what do your cross-sections tell us, again, about the depositional environment that led to this lack of correlatibility in the area?

A. Well, it supports the Fruitland Coal depositional model that I discussed previously. The cross-section shows the discontinuous nature of the coals. Assuming a local original horizontality of depositional units, it's apparent that certain individual coal units are not correlable between wells.

Q. Okay. In your opinion, is there a reasonable probability that additional coal layers will be encountered at the requested locations which are not currently being produced from the parent wells and the offset wells?

A. Yes, as individual coal units are seen to terminate from one well to another, it's logical to assume that there would be isolated coal units in between current Fruitland Coal producers that have not yet been encountered or produced from.

Q. All right. Does the unpredictability of the individual thicknesses of each of the layers and the discontinuous nature of the coal seams in Pump Canyon result in any variability in the volume of gas recovered?

A. Yes, it does. As I've discussed previously, it tends to compartmentalize individual coal units.

Q. Okay, how do you demonstrate that?

A. I have Exhibit 16. Exhibit 16 is a cumulative production bubble map. The larger bubbles represent wells that have produced the largest amount of gas. The cumulative production -- But the larger bubbles also represent the parent wells. These are wells that were drilled during the 1990-through-1992 period.

Production ranges from a low of less than 4 BCF in the Seymour 722 well in Section 24 of Township 31 North, 9 West, to a high of over 25 BCF in the Section 19 well, the Quinn 341.

CHAIRMAN FESMIRE: Can I ask a --

THE WITNESS: Yes.

CHAIRMAN FESMIRE: -- quick question, Mr. Baack?

Are the bubbles intended to represent a drainage area, or are they just relative --

THE WITNESS: No, no, it's just a size representation, and they're proportionately sized based on the production.

So these two wells are little more than a mile apart. One well has a 25-BCF production, cumulative production, another well with about 4-BCF production. These wells were drilled by the same operator, they were essentially operated in similar, identical fashions, so it seems that the reason is probably related to the character and individuality of the coals themselves.

Q. Let's turn to Exhibit 17.

A. Exhibit 17 is a similar display, but this display -- this bubble-map display is denoting production data from November of 2006, so this is looking at the flow rates of individual wells. And this is showing both the parent and the child wells. The parent wells have a red-colored center area and the child wells have no color in the center area.

The flow rates -- the comparable flow rates between the parent and the child wells range from a low of 300 MCF a day in the Nordhaus 715S well, which is located here, to a high of approximately 1800 MCF a day in the Blanco 330 well, located at this point.

The variability in the production in the Pump Canyon area does not support a conclusion that the Fruitland Coal reservoir is one big connected tank.

Q. Turn to Exhibit 17A. Tell us what you've done here.

A. Exhibit 17A is statistical analysis that was done. This compares the cumulative production per net foot of the parent wells to the net feet of coal per parent well in the Pump Canyon area. The blue diamonds represent individual well data points. The solid represents -- the slope of the solid line represents the degree of variation in the data set, which is an R^2 value of .078.

This data shows a poor relationship in the amount of gas produced from a net foot of coal in the Pump Canyon area. In essence, a well with approximately 54 feet -- 53 to 54 feet of net coal, has a cum production rate per net foot ranging from a low of a little over 50 million cubic feet per net foot of coal to as high as 350 feet of net feet of coal.

Again, this is designed to show that the variability in production in this Pump Canyon area does not support a conclusion that the Fruitland Reservoir is one big connected tank. In effect, this analysis is saying that the coal thickness represents only about 8 percent of the variation seen in the well study group, so one must conclude that other parameters control the ultimate production and flow rates in these wells, such as the discontinuity in the coals, the variation in gas content, and permeability within the individual coal units, which result in the compartmentalization of individual coal units.

Q. Well now, why in your view is a statistical analysis helpful to the Commission?

A. Well, it shows just the variation. It gives you a -- just a visual picture of the variation of what I was trying to show with the bubble maps themselves.

Q. It's another --

A. It kind of summarizes the bubble map and the displays I was showing.

Q. Okay. In your opinion, Mr. Baack, if the Commission approves Koch's Application, will Koch be able to recover additional incremental reserves that would otherwise go unrecovered, and avoid waste as a result?

A. Yes, the subject wells will likely encounter some partially drained or undrained seams that are not produced by offset wells. The combination of discontinuous coals, the variable gas content and permeability within the coal units which result in compartmentalization and incomplete drainage of the area, by capturing these reserves Koch will protect its correlative rights and prevent waste.

Q. And in your view, can these incremental reserves be produced without adversely affecting the correlative rights of the other interest owners in the pool?

A. Yes, by virtue of the discontinuity of the coals and the internal variability of the gas content, which compartmentalize the reservoir area.

Q. Okay. Mr. Baack, were Exhibits 11 through 17A prepared by you or at your direction?

A. Yes, they were.

MR. HALL: That concludes our direct of this witness, Mr. Chairman. We'd move the admission of Exhibits 11 through 17A.

CHAIRMAN FESMIRE: Mr. Bruce?

MR. BRUCE: No objection.

CHAIRMAN FESMIRE: Exhibits 11 through 17A will be admitted.

MR. HALL: That concludes our direct of the witness.

CHAIRMAN FESMIRE: Mr. Bruce, do you have a --

MR. BRUCE: Just a couple of --

CHAIRMAN FESMIRE: -- cross?

MR. BRUCE: -- questions.

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Let's look at -- Let's take your Exhibit 14, Mr. Baack. Looking at that, looking at the two wells on the left, in between those wells you've drawn three or four stringers that are not connected to anything else. What basis do you have for that?

A. That's just part of the conceptual idea, that if you see coals terminating from one well to another, it's likely that there will be coals that terminate in between wells. So it is a conceptualization.

Q. Okay, so you don't have any log evidence for that?

A. That's correct.

Q. And I know it's your plat, but if you take the well on the left from the well in the center, about how far are those two wells apart?

A. The well on the left and the well in the center -- it looks like we're looking at a distance of about one mile --

Q. Okay.

A. -- this distance here.

Q. And then the other two wells, the well in the center, and the well on the right, how far are those wells apart?

A. That appears to be about one-third of a mile.

Q. Okay. So what you're saying is, the coal is discontinuous and unpredictable?

A. That is correct.

Q. If you look at your Exhibit 16, your first bubble map, as Koch drilled any wells on this plat or participated on any wells in this plat that had original pressures, virgin pressures?

A. I'm not qualified to answer that. I don't have the knowledge of the -- That would be more of an engineering question to ask. I don't have specific knowledge of the pressures in these wells.

Q. Has -- On this plat, are any of these wells, these Fruitland Coal wells, dry holes?

A. No, with the exception of perhaps some mechanical issues with a well in Section 20, there was a mechanical problem with the original parent well. The original operator sidetracked the well and did not record any production. Again, it is believed to be mechanical-related rather than just a lack of gas in the well.

Q. Because the coal is present?

A. Because coals were present, coal units were present.

Q. Then just one final thing on this plat, and if you'll look toward the lower right-hand corner of Exhibit 16, and let's just pull out Section 29, which is Conoco and BP acreage, your -- the bubbles here are not really -- I mean, let's take BP's Kernaghan B well, produced about 20 BCF, correct?

A. That's correct.

Q. And then down in the southwest corner -- quarter, ConocoPhillips' well has produced about half that amount?

A. That's correct.

Q. But what are you using to construct these bubbles? You're using more of a radius than an area, aren't you, because --

A. It's just a ratio of the -- ratio of the radius from the center point of the well.

Q. Okay, you are using radius, because the well in the northeast quarter has produced twice the amount, but the area of the bubble is about four times the size?

A. Yeah, I don't know the function of the software -- specifically the function of the software I'm using. It is a proportionality function, but I can't state exactly what type of function that is.

Q. Because in geometry, area is to the square of the radius, correct?

A. I would think so.

MR. BRUCE: Okay, that's all I have, Mr. Chairman.

CHAIRMAN FESMIRE: Commissioner Bailey?

EXAMINATION

BY COMMISSIONER BAILEY:

Q. You referred to, or used comparisons of the parents that were drilled in 1990 to 1992, that time period. Was that the time period when Fruitland Coal was -- the completion techniques were just in flux, that there was still a lot of experimentation over how best to complete for highest production and prevent coal fines from entering the -- plugging up the formation and the wells?

A. Not to my knowledge. To my knowledge, all of the Fruitland Coal wells in this Pump -- the parent wells in this Pump Canyon area were cavitated, which is the common way of completing wells in the high-productivity area. So I think they were -- to my knowledge, they were all completed in the same fashion.

Q. Okay, so your comparison is, those wells all have equal completion techniques?

A. Correct.

Q. And drilling techniques?

A. Correct, to my knowledge.

Q. And frac'ing techniques?

A. I don't believe they were frac'd in the common sense of fracture stimulation, but the cavity-completion process has some similarities to frac'ing. But in essence they were all completed in the same fashion.

Q. This is the fairway, but yet you don't talk about fracture systems that run through. Does that have any impact on the production that --

A. Well, the permeability issues that I was talking about can be related to fracturing and fracture patterns. There is cleating within the coals that contribute to the migration of gas from one point -- from some point in the coals to the wellbore of individual producing wells.

Q. And does that play a major part in the production of these wells that have completed in the same techniques?

A. As they were all completed in the same fashion, one would think that the fracturing related to the completion process should be essentially the same in most wells, in the well, the well group, and the difference in production, the variation in production, would come from the individuality of the individual coal seams, the terminating of the coal seams, the internal characteristics of the coals themselves.

Q. I was struck by the fact that you didn't mention fracture systems at all during your presentation, and I was wondering how you saw that as a factor in your interpretation.

A. I consider that less of a factor than the individuality of the coal seams, the fact that one terminates from -- the termination of the coal units from well to well.

COMMISSIONER BAILEY: That's all I have.

CHAIRMAN FESMIRE: Commissioner Olson?

EXAMINATION

BY COMMISSIONER OLSON:

Q. Mr. Baack, do you have any estimate of the net coal in the proposed wells that Koch is looking to drill?

A. I do, I have a net coal map that's constructed from mudlog data of wells that we have drilled. That would be the -- so the Jacquez 331T, I'm predicting approximately 55 feet of net coal; the Quinn 338T, the prediction -- the map prediction is about 58 feet of net coal; the 341T about 62 feet of net coal.

Q. Thank you. You were also talking a lot about the compartmentalization of a lot of the gas through these coals. Do you have any information for us on where the majority of this gas is coming from, which coals through those -- in the net coal zone?

A. It's impossible to tell. In the completion process of these wells, all coal units are open to production, and there's -- to Koch's knowledge, there is no way of measuring -- We have not measured the amount of coal that comes from an individual coal unit itself.

COMMISSIONER OLSON: I think that's all I have.

EXAMINATION

BY CHAIRMAN FESMIRE:

Q. Mr. Baack, I've got two quick questions. Both of them are about Exhibit 17A. This is cumulative production to date --

A. That is correct.

Q. -- on your left axis. Have you done this same analysis on an EUR?

A. No, I have not.

Q. Are you aware of anyone who has?

A. No. I would not expect the slope of the R^2 line to change much if the EURs were included, again using just the parent wells, which would supply the most reliable EUR data for a well.

Q. I'm trying to get my mind around something here. The axes are net coal feet per well, and then you've got cumulative MCF per net coal foot. I'm -- Like I said, I'm having a little trouble getting around that, but shouldn't that line just naturally be nearly flat? Are we showing what you want to show here?

A. Well, if all coal units were equal, you would expect the same amount of production per foot of net coal, and what this is showing is that the amount of production that occurs from a net foot of coal from an individual well varies quite a bit. So a coal unit in one well is not equal to a coal unit -- a net foot in another well, is what I'm trying to show with this display.

CHAIRMAN FESMIRE: Yeah, I recognize what you're trying to show, and you've either shown it very well or -- There's just something there about net coal feet per well on both axes that ought to just be the -- I mean in a perfect world, it would just be an absolutely flat line there, wouldn't it? And what you're showing with this line is that there is some degree of variability, but couldn't that variability be the result of the different completion techniques and the different place you are on the decline curve life of the well?

A. Well, the wells were essentially put on line within a two-year period back from 1990 to 1992, and they were all completed in essentially the same process by the same company, operated under the same conditions. So these wells are about as similarly operated as wells can be, in my opinion.

CHAIRMAN FESMIRE: Okay, that's all the questions I have, Mr. Hall. Did you have any redirect on the subjects of the cross?

MR. HALL: Mr. Chairman, may I lay a foundation for the introduction of this new exhibit?

CHAIRMAN FESMIRE: You may. Is it that 17A?

MR. HALL: Well --

THE WITNESS: Or the one before that.

CHAIRMAN FESMIRE: Oh, okay.

MR. HALL: He was asked by Commissioner Olson whether there was a net coal map, and indeed there was.

FURTHER EXAMINATION

BY MR. HALL:

Q. Mr. Baack, did you create Exhibit 17B?

A. Yes, I did.

Q. And what does it show?

A. It shows a net coal isopach or a net coal thickness map in relationship to the cumulative -- the cumulative production of individual wells.

MR. HALL: All right, Mr. Chairman, we'll mark this and provide the Commission with additional copies for the record. We'd move its admission, 17B.

CHAIRMAN FESMIRE: Any objection, Mr. Bruce?

MR. HALL: I have no objection, so long as we get a copy.

CHAIRMAN FESMIRE: Okay. Exhibit 17B will be admitted.

Any other questions of this witness, Mr. Hall?

MR. HALL: No, sir.

CHAIRMAN FESMIRE: Mr. Bruce, anything else on that subject?

MR. BRUCE: No, sir.

CHAIRMAN FESMIRE: Commissioners?

COMMISSIONER BAILEY: No.

COMMISSIONER OLSON: No.

CHAIRMAN FESMIRE: Mr. Hall, your witness can be excused.

At this time why don't we take a 10-minute break and reconvene at a quarter till 11:00. I intend to go until about 12:30, and we'll decide then -- Commissioner Bailey just told me that we will break for lunch at that time.

(Thereupon, a recess was taken at 10:36 a.m.)

(The following proceedings had at 10:48 a.m.)

CHAIRMAN FESMIRE: At this time we'll go back on the record. Mr. Hall, I believe you were going to call your next witness?

MR. HALL: Mr. Chairman, at this time we'd call Robert Wright.

CHAIRMAN FESMIRE: Mr. Wright, you understand that you've been previously sworn in this case?

MR. WRIGHT: Yes, sir.

CHAIRMAN FESMIRE: Mr. Hall?

ROBERT C. WRIGHT,

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

DIRECT EXAMINATION

BY MR. HALL:

Q. For the record, please state your name.

A. My name is Bob Wright.

Q. Mr. Wright, where do you live and by whom are you employed?

A. I live in Denver, Colorado. I'm employed by Koch Exploration Company, LLC.

Q. What do you do for Koch?

A. My title is senior reservoir engineer.

Q. All right. You've testified before the Division previously. Would you summarize your educational background and work experience for the Commissioners?

A. Yes, sir, I'd be pleased to. I have a bachelor of science in mechanical engineering from Virginia Tech.

As far as my work experience, I've worked for two major oil companies, Amoco at the time and later Phillips Petroleum. A substantial portion of my career was with Louisiana Land and Exploration, and I've also worked for two other independents, including Koch. I'm -- as far as reservoir experience, I've had the opportunity to work in virtually all major basins of the US.

I've also had substantial exposure to international. I was based in London for three years with LL&E, and I've also had some exposure to Canada and some other international arenas.

Finally, I'd like to point out that I am a registered petroleum engineer in the State of Louisiana.

CHAIRMAN FESMIRE: In what state?

THE WITNESS: Louisiana.

CHAIRMAN FESMIRE: Louisiana.

Q. (By Mr. Hall) Mr. Wright, are you familiar with the Application that's been filed in this case and the lands that are the subject of the Application?

A. Yes, sir, I am.

MR. HALL: At this point, Mr. Chairman, we'd offer Mr. Wright as a qualified expert petroleum engineer.

CHAIRMAN FESMIRE: Any objection, Mr. Bruce?

MR. BRUCE: No, sir.

CHAIRMAN FESMIRE: Commissioners?

COMMISSIONER BAILEY: (Shakes head)

COMMISSIONER OLSON: No.

CHAIRMAN FESMIRE: Mr. Wright will be so accepted.

Q. (By Mr. Hall) Mr. Wright, have you conducted an engineering investigation to determine whether the drilling of these three additional locations that Koch proposes is necessary to adequately and fully develop coalbed methane reserves in the area?

A. Yes, I have. If I may, I'd like to provide a kind of an overview of what I'll be showing you today and a brief synopsis of some of my findings.

My testimony today is going to be based predominantly on well performance data throughout the high-productivity area. In particular, I've studied at least 50 parent-child well pairs within the high-productivity area.

One thing that you'll see as kind of a repeating theme in my analysis is that I will show you some things that take a look at a big picture, and then later I will follow them with a more detailed analysis.

The evidence is going to show you that whether you take a broad, wide-scope view or a detailed one leads you to the same conclusion, and that is that infill wells drilled within the high-productivity area have all added incremental recovery.

The technical merits of this case will largely boil down to whether you believe my analysis that's based on well performance, or one that's fundamentally based on estimates of initial gas in place, that actually have substantially more uncertainty than my BP counterparts would have you believe.

With that, I'd like to move to Exhibit 18, if I might, which is some of the summary of my findings. During my testimony I intend to show that the drilling of the requested exception locations will result in incremental recovery and thereby the prevention of waste. The next slide that I will be going to will address the prevention-of-waste issue.

Some other summary conclusions is that the new wells at exception locations will provide the -- protect the correlative rights of our working and mineral interest owners. The infill exception locations will continue the current drilling pattern with four wells per section, as my colleague Mr. Connor pointed out earlier. And also, as stated earlier, we have documented that there are exception locations that have been granted in 18 other nonstandard sections within the HPA, without any special hearings to our knowledge.

The drilling of the exception locations will not adversely impact existing wells, based on the actual experience within the HPA, and also specifically in the Pump Canyon vicinity, and I have evidence to document that later.

Finally, I will provide some details as to the merits of these wells from an economic perspective, and that these wells are economically beneficial to all parties involved.

Q. Well, let's discuss your conclusions with respect to the prevention of waste. If you would turn to Exhibit 18A, explain that to the Commission.

A. In addressing prevention of waste, one of the things that I reviewed was the testimony from the downsized spacing hearings of 2002, 2003. During the testimony that was provided, there were a couple of ranges of reserves or incremental recovery associated with infill wells that were provided by two industry experts, one of whom happens to be in the room, Mr. Hawkins with BP. It cited a range of 240 BCF to 640 BCF associated with around 400 infill locations.

Dr. Jeffrey Balmer of Burlington Resources had cited a similar but slightly different range, with a range of 300 to 600 BCF.

With 205 sections contained in the high-productivity area there are, as I mentioned, 400 possible infill locations on the basis of four wells per section. If you take the wider range of those, Mr. Hawkins' range, it would -- and you -- for example, you take the 240 BCF divided by 400, that would suggest a low incremental volume of 600 million per well, and his 640 on the high side would yield 1.6 BCF.

Now that, of course, is addressing the big picture of the high-productivity area in general. I have done a study of our own results in the Pump Canyon vicinity.

We have drilled 24 wells to date, and I will provide evidence that shows the incremental recovery range is from a low of 253 million cubic feet to a high of nearly 2.4 BCF. The estimated average recovery from this group of wells is around 1.3 BCF.

Now the majority of the 24 wells that I have examined have been in regular sections. As we are talking in this hearing today, the locations, as you are aware, are in irregular-sized and smaller sections than a standard 640.

To address that and make an estimate of the incremental recovery for the proposed locations, what I did was to look at the size of a normal quarter section, being 160 acres, versus the size of the quarter-section equivalents that we would be proposed to drill in, which is around 135 acres. If you take that ratio, 135 divided by 160, apply that to the average incremental recovery from our group of 24 wells, that would give an adjusted incremental recovery in the proposed locations of about 1.1 BCF. For all three locations, multiplying that figure by 3 would result in 3.3 BCF in total. This does represent a very valuable resource to not only Koch, but all parties involved.

Q. Let's turn to Exhibit 18A-1. What are you showing in this exhibit?

A. As I mentioned earlier, I do show the various big-picture stories. This is a big, broad picture. What I'm trying to represent here is the performance of the 391 parent wells that are from the inception of production.

You see the ramp-up of production in the early years, kind of a plateau period, and then the wells have established a very constant decline. My date stems from January of 2000, all the way through current data, with very little variability.

Also plotted on this in black, toward the bottom of the curve, and beginning in -- after July of '03 when the downspacing was approved, is the infill well history. There are 332 wells that are represented on that. That group of wells has not necessarily established a well-established decline. I don't show a forecast for this group as a whole. But the important thing to note is that the 16.4-percent decline rate that I note --

MR. HALL: Just a minute, Mr. Wright, let me check with the Chairman --

CHAIRMAN FESMIRE: -- because we didn't get the new wells.

MR. HALL: That was my question.

CHAIRMAN FESMIRE: Commissioner Bailey did, but Commissioner Olson and I didn't.

THE WITNESS: Oh, I beg your pardon. It was my understanding -- I had made --

CHAIRMAN FESMIRE: Oh, the --

THE WITNESS: -- a revision that --

CHAIRMAN FESMIRE: -- I'm sorry.

MR. HALL: Last-minute substitution exhibits, Mr. Chairman.

THE WITNESS: Yeah, I apologize.

CHAIRMAN FESMIRE: That was my problem, I didn't put the substitute exhibits in. I apologize.

THE WITNESS: So the important thing, I believe, to note here is that for essentially the last two years of the parent well history, there is no change in the decline rate noted, so that from a big-picture standpoint it doesn't appear that there is a rampant problem with interference occurring among the infill wells and the parents.

Q. (By Mr. Hall) Let's look at 18B. What are we showing here?

A. In 18B, this is trying to now narrow the scope a little bit to look at our own experience. In this case we have in blue the 30 original wells that Koch is involved with in the Pump Canyon area as operator. These wells, as -- similar to the high-productivity wells, have established a continuous decline rate that I have extrapolated to the future. In kind of a purplish color are the results of the 24 wells that have been added on top of the production from the parent wells.

This group of wells in total is -- the decline is not quite as well established, but I've extrapolated using the same decline as the parent well. The difference between those two appears to represent the incremental reserves associated with these wells, which would result in 30 BCF of additional gas from this group of wells, or 1.25 BCF per well.

Q. Turn to Exhibit 19 and explain this to us.

A. At this point I'm now providing detailed evidence of our recovery from the 24 wells. I apologize that there is an awful lot of information. I'd like to see if I can help summarize what we're looking at.

On the page there are the 24 wells listed that we have drilled. Before I get into the detail as to how I constructed the table, I would like to point out in the bottom portion in yellow, the average incremental recovery that I referred to earlier is just over 1.3 BCF for this group of wells.

What we might -- Now the other thing that I would point out with this is the accompanying graphs in Exhibits 20, which are -- there are three pages of graphs. On the first two pages there are ten graphs represented. The final one has four, representing --

MR. HALL: And Mr. Chairman, let me point out this is also a recent substitution, Exhibits 20. May not be in your notebook.

THE WITNESS: Now my intention is not necessarily to dwell on these curves individually and go through them in detail. What I would like to do, though, is perhaps run you through an example of how I've calculated incremental recovery for this group of wells.

Might just start at the very top of the list with the Blanco, what I show as the 330S. Now really, what's represented on this line is the parent and child combination. So the parent well in this case was the Blanco Number 330. The 330S, I've noted where it's located as far as the county it's in, section, township and range, the permit date, and then the next four columns are the important ones.

The first column that's represented is the parent well ultimate recovery before the infill well was drilled. What I did here was to essentially remove the history from the parent well before the infill well came on production. I didn't want to be influenced by the additional history for the parent well after the infill well came on. I wanted to examine the parent well in an unbiased fashion.

The next column is to reassess the parent well on a post-infill basis, taking advantage of the entire history of the well through December of last year.

The next column represents the infill well that I've assigned -- the EUR, sorry, for the infill well.

And then finally, the last column is to address what I would represent as the incremental recovery.

Q. (By Mr. Hall) So your example of the Blanco 330S is shown also, the decline curve, on the first page of Exhibit 20 --

A. Yes, I think we --

Q. -- as the first example?

A. Yes, I might like to go through and see if we can show you the data behind that.

In the case of the Blanco 330 and 330S, represented on page 1 of Exhibit 20 in the upper left-hand corner, in red is the full history -- in solid red is the full history of the Blanco 330, the parent well. In solid black is the history to date of the infill well, the 330S.

CHAIRMAN FESMIRE: Is that downspike winter, or is it -- did they do some work on it or something?

THE WITNESS: In that particular case, I'm not sure if I recall if there was specific -- There is a lot of well intervention that does occur over time. Particularly, we had pumping units on all of our wells to remove water from the wells.

We do -- You do see some spikes associated with a pump failure in particular. I don't recall if there was anything more specific on that one at that time that may have caused that spike.

Now the three other curves -- and on this one -- well, there are three forecast curves that are represented as dashed lines. There's a red dashed line, which represents the post-infill forecast. There is also a blue dashed line, which represents the pre-infill forecast. In this particular case, the red and the blue overlay each other. I don't see a distinction in the well's performance, either pre- or post-infill. And finally, for the infill well, I'm showing the forecast for those wells in black.

Now of the group of wells that are represented on Exhibit 19, I really don't see a distinction in the preand post-infill performance on these wells, with the exception of three wells.

The Jacquez 331S, I do show a slight reduction in the post-well performance of that well at 22.6 BCF, versus 23-point- -- roughly -- -3 BCF as a pre-infill. I have applied the difference there as a deduction to the infill well performance to arrive at the incremental recovery for that well of 1.9 BCF.

Two other wells, the parent well actually shows an increase between pre-infill and post-infill. I'd point out the Quinn 342 and 342S go from 17.1 BCF to 17.3. The Seymour 722S and its parent, the 722, goes from 4.7 BCF to 5.2.

Now in those cases, I do not add additional incremental reserves to the infill well to get to my final column on the right. Those increases, I believe, are probably due to some type of operational change on the well, a cleanout, cavitation, that sort of thing.

So again, in total, I would represent that the recovery from this group of wells is 1.3 BCF on average. And again, as -- that was pointed out earlier, that I used that as the basis for assigning the incremental reserves to our proposed locations.

Q. (By Mr. Hall) Exhibit 2 of -- I'm sorry, page 2 of Exhibit 20 is a continuation of the graphical depiction of the decline curves for each of the wells you looked at on Exhibit 19; is that right?

A. Yes, that's correct.

Q. Mr. Wright, if we go back to the Exhibit 9 that Mr. Connor discussed, showing the quarter-section equivalent acreages for each of the infill wells on there, have you taken that information and utilized it in the preparation of the next exhibit, Exhibit 21?

A. Yes, I have. Exhibit 9, as you may have noted, there were four columns that were left blank, which I will now fill in for you. I felt it was very important to address the performance of these irregular-sized sections and whether or not the wells that had been drilled there did result in incremental recovery, and that's what I will walk you through in the next exhibit.

Q. You're referring to Exhibit 21 now?

A. Yes, sir, that's correct.

Q. Tell us what you're showing here.

A. This exhibit was constructed in a very similar manner to what I just showed you for our experience in the Pump Canyon area. But now I'm looking specifically at other wells that are operated in the 18 irregular sections that we have referred to on -- referring back to this map, which was Exhibit -- 7.

So this is an extremely similar format, showing the parent well EUR pre-infill, post-infill, the infill well EUR that I assigned, and then the resulting incremental recovery.

If you look at the far right-hand column, you'll note that all of the figures represent positive values, and that there are no negatives noted.

In this group of wells, as we saw with the wells in Pump Canyon, there are certain cases where the post-infill is less than the pre-infill. I believe there are four such cases in this group of 18. There are also six additional places where the parent well has improved, and the post-infill forecast is actually higher than the pre-infill.

For this group of wells, the average incremental recovery, as I have assigned it, is just over 1.1 BCF. I might point out that that reinforces the incremental reserves I have assigned to our three locations, also being at the same order of magnitude.

Supporting Exhibit 21 are similar graphs in Exhibit 21A, represented on two pages of graphs.

Q. Okay. Let's turn to Exhibits 22 and 23 [*sic*], if you would look at those together and explain to the Commission what you're showing here.

A. What's shown graphically in slides 23 and 24 is a variation of the graphical presentation I made earlier, showing the parent well production in Pump Canyon of our thirty- -- here I'm showing 31 wells. This includes a replacement well that was drilled for a well that experienced mechanical problems. And then layered on top, toward the tail end of the first curve, are the addition of our 24 infill wells.

And then if you look to Exhibit 24, there's a more detailed version of the same slide.

The important conclusion is, what we've already demonstrated from my previous testimony is that there's no apparent interference on a big-picture view of these wells.

Q. I may have jumped an exhibit with you, Mr. Wright. Did we discuss Exhibit 22? What were your findings here?

A. Well, Exhibit 2 [*sic*] summarizes that -- it's showing the actual results from our operated wells, both in detail over a five-year period, as well as the entire history, and that the conclusion is that there has been no detrimental interference to the parent well performance and that the overall infill program results have been economically beneficial.

Q. Okay. Have you examined the economics of recovering these incremental reserves?

A. Yes, sir, I have.

Q. That's shown on Exhibit 25?

A. Yes.

Q. Run through that for the Commission.

A. There's a fair amount of information on this. It's really broken down into several categories.

There's -- if we look at gas prices, I'm starting from an average 12-month NYMEX strip price as of last week at $8.61. We have to make a number of adjustments to get to the gas price that we receive at the lease. The adjustments include a San Juan basis differential; there is an adjustment for BTU content; an adjustment for fuel usage, mainly our compressors at our well sites; there's a gathering fee that we pay. So we go from the $8.61 of a NUMEX forward-looking strip price to $5.19 at the lease level.

If I apply that price to our revenue -- or excuse me, our incremental reserves, that would generate $5.7 million of revenue.

And then taking off royalties, *ad valorem* taxes, operating costs, the cost to drill, complete and equip the wells, it would achieve a net revenue for each of our locations of about $2.6 million. If we combine all three locations, multiplying that figure times three represents a total net revenue of $7.8 million.

Q. So you concluded that the drilling of these three undrilled infill locations is economically justified?

A. Yes, sir, that is correct.

Q. Mr. Wright, do you have an opinion whether the undeveloped quarter-section equivalents in Sections 6, 18 and 19 might be subject to drainage if Koch Exploration's Application is not granted and these locations go undrilled?

A. Well, I have some thoughts on the general question of drainage areas and drainage for this area. In my career as a reservoir engineer, I've often been faced with a dichotomy between initial estimates of hydrocarbons in place, versus reservoir performance. In many cases, reservoir performance seemed to defy the laws of physics with a result of apparently yielding higher recoveries than existed to begin with, based on the initial estimates.

In such cases, as a reservoir engineer, it's very important to re-evaluate why the volumetrics were faulty. It's my feeling that this is no different of a case. The actual well performance tells us -- very strong evidence that there is -- there is more gas in the Fruitland Coal than the standard industry gas-in-place methods would demonstrate.

While I don't have the benefit yet of BP's testimony, I am anticipating that they will repeatedly show diagrams that illustrate overlapping drainage areas with their conclusion that there is a lot of interference among these wells. This does not agree with the evidence that I have already provided you.

To give you just a very brief explanation as to why we believe that there may be additional gas in place, one thing I would point out is that over the years the industry has adopted measures of how to evaluate the gas content in coals. This is really not an exact science, and one of the problems that you have is, when a core sample is removed, cored, and removed and taken to the surface, gas bleeds out of the core. There are various efforts made to -- by the time it gets to the lab, to re-assess the -- and account for the gas that has been lost. But it is an estimate, and it is subject to some uncertainty.

Another thing that I would point out is that there are studies that have been done in other areas that indicate that a substantial volume of gas could be contained within other non-coal areas of the reservoir, particularly from organic shales.

I'd like to make reference to a study that was done in Drunkard's Wash, which is located in Carbon County and Emery Counties of Utah. This is a study that was done by Robert Lamar and Timothy Pratt. It was published in the *Mountain Geologist*, Volume 39, Number 2, April, 2002. They had done a study that compared the original volumetric estimates that were done for this group of wells, and they re-assessed -- did a very detailed look at some of the non-coal portions of the reservoir, and they concluded that there was a dramatic increase in the gas in place, more than doubling the gas in place, 113 percent.

So I'd just like to point out that the gas-in-place figures that may be represented later today, in fact, have a lot more uncertainty than my counterparts may represent.

Q. So does that put an engineer in a position that if you don't have meaningful gas-in-place data, that it makes it more difficult to calculate a reliable drainage radius?

A. Yes, sir, I would agree with that.

Q. Okay. What is the quality of the log data that's available to an engineer to analyze the Pump Canyon area?

A. Well, there's not a tremendous amount of data in general for this reservoir, whether you're dealing with logs or pressure data. The vast majority of wells that have been drilled out here may only have a mudlog available to them, as far as trying to identify the thicknesses of coals, and that in and of itself is subject to a lot of uncertainty.

Q. And will that make it more difficult for you to determine gas in place for the area?

A. Yes.

Q. And will that result in a wide range of results by analyzing the area, areaswise?

A. Yes, I believe it could.

Q. Okay. Mr. Wright, in your opinion -- Let me ask you one thing. Let's turn back to Exhibit 17A, if you have that in front of you.

A. Yes.

Q. It's in the notebook.

A. Yes.

Q. The statistical analysis. Is this sort of analysis helpful at all to an engineer in evaluating Pump Canyon?

A. Yes, I believe it is. What this represents to me -- I know that Mr. Chairman had some questions regarding the line that was represented here. I guess the important thing to me -- well, a couple of things.

One, the R^2 term of .078, what that represents, you would have a range essentially between zero and one for an analysis of this type. The closer the data is to one, means that the data falls on that line. The line represented there is a best-fit of the data. The fact that the R^2 term is so low, it represents that the data shows kind of a shotgun, where there's been a blast of data showing a tremendous variability in the results here. So it does reconfirm the heterogeneous nature of the reservoir.

Q. All right. Let's refer to Exhibit 26, and let me ask you, Mr. Wright, if the Commission approves Koch's Application, will Koch be able to efficiently and economically recover additional incremental reserves that would otherwise go unproduced here?

A. Yes, it is my assessment that the approval of these three locations will result in incremental recovery at an economical benefit to us and all parties involved.

Q. Why don't you summarize your conclusions for the Commission here, from Exhibit 26?

A. Exhibit 26 offers some fairly broad conclusions as to why you would expect incremental reserves due to infill drilling in general.

As you're well aware, coalbed methane gas recovery is very different from a conventional reservoir. There's a tremendous amount of gas that is locked in place, even at low reservoir pressures, and it's very important to do everything you can to lower the reservoir abandonment pressure. Infill drilling does -- has this effect of lowering the abandonment pressure. And even very small decreases in the reservoir pressure do liberate very significant quantities of gas.

Even if a coal reservoir was homogeneous, a big tank, there still is additional gas that would be recoverable through infill drilling, and that is by virtue, primarily, of lowering the abandonment pressure. As my colleague, Mr. Baack, has testified, the Fruitland Coal is not homogeneous.

Some other reasons we would expect additional recovery, as he has already testified to, is the fact that we would encounter zones not necessarily intersected by existing wells or from zones that are not effectively in communication from existing wells, and also from pockets within producing zones that may be isolated by permeability restrictions.

Finally, there has been some testimony that was presented in the '02 and '03 hearings that have demonstrated that the Fruitland Coal has shown differential depletion occurring in different layers of the coal with varying pressures in a vertical sense that demonstrate ineffective drainage in these layers. It was concluded at that time that additional infill wells would be necessary to improve the drainage efficiency, and it's through some of these conclusions as to why I believe that we will see incremental reserves for our specific locations.

Q. Mr. Wright, where you've taken pressure data into consideration in reaching your conclusions, you say you relied on prior testimony from the earlier Commission hearing on the downspacing for the pool; is that right?

A. Yes, that's correct, yes.

Q. And have you compiled a bibliography with copies of testimony excerpts --

A. Yes, I have that available.

Q. -- from that?

And we can make that available to the Commission if the Commission wishes, but it is available. We're not seeking to make it a part of the record at this time.

CHAIRMAN FESMIRE: Would you like the Commission to consider it in their decision?

MR. HALL: I believe we ought to have it into the evidentiary record, is what we will do.

CHAIRMAN FESMIRE: Okay.

MR. HALL: What I'll ask the Commission to do, I'll provide the court reporter with a bibliography and attach to that our hearing excerpts and ask that you take administrative notice of that.

CHAIRMAN FESMIRE: Mr. Bruce, would you have any objection to that? Upon Mr. Hall's assertion that it's all part of the past record, past hearing record?

MR. BRUCE: If it's part of the past record, I don't mind the Division [*sic*] taking administrative notice of the testimony. And I would note for the record two things. It's five-year-old data and, secondly, it was done to justify a second well on a standard well unit.

CHAIRMAN FESMIRE: Okay, given Mr. Bruce's caveats, the Commission will take administrative notice of the record as compiled and the copy that's given to us.

MR. HALL: The Rules say I'm obliged to give each of the Commissioners a copy --

CHAIRMAN FESMIRE: Right.

MR. HALL: -- for their reading pleasure.

Q. (By Mr. Hall) Mr. Wright, were Exhibits 1 through -- I'm sorry, 18, 18A, 18A-1, 18B, 19, 20, 21, 21A, 22 through 26 prepared by you or at your direction?

A. Yes, they were.

MR. HALL: At this point, Mr. Chairman, we'd move the admission of all of those exhibits.

CHAIRMAN FESMIRE: Mr. Bruce, do you have any of those objection?

MR. BRUCE: No objection.

CHAIRMAN FESMIRE: The exhibits as enumerated by Mr. Hall are admitted and made part of the record.

MR. HALL: That concludes our direct of this witness.

CHAIRMAN FESMIRE: Mr. Bruce?

MR. BRUCE: Just maybe one or two.

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Have you calculated gas in place, Mr. Wright?

A. I have looked -- examined that in an area -- in units that are adjacent to the three proposed locations, in the proposed locations as well.

Q. But you're not presenting any of that today as such?

A. Not at this time.

Q. Now when you are evaluating the results of your well, wouldn't it be common to compare recovery to gas in place?

A. It might be. We don't see the direct relevance at this time.

Q. And with respect to pressure, a couple of questions. I asked your geologist this. Of the wells Koch has drilled in this area or participated in, have you seen original pressures in any of those wells?

A. To my knowledge, we have not taken any specific pressure measurements, so I can't assess specific layers within the wells. I'm not necessarily representing that we would anticipate seeing virgin pressures in any of our proposed locations, but I don't have any direct evidence as to what the actual pressures may be at this time.

Q. So when it comes to pressures, you're pretty much -- and gas in place, you're relying on the five-, six-, seven-year-old data that was presented at the prior pool rules hearing on the Fruitland Coal?

A. For gas-in-place figures, yes, it is based on in-house data.

MR. BRUCE: That's all I have, Mr. Chairman.

CHAIRMAN FESMIRE: Commissioner Bailey?

COMMISSIONER BAILEY: I don't have any questions.

CHAIRMAN FESMIRE: Commissioner Olson?

COMMISSIONER OLSON: I just have one question.

EXAMINATION

BY COMMISSIONER OLSON:

Q. Mr. Wright, you're talking about approval of this Application would increase the efficiency of drainage in that area. Do you have any calculations of drainage from adjacent existing wells?

A. I have not focused on drainage areas. I believe that there's -- in -- As a reservoir engineer, doing volumetric analyses is done initially, before you have other data. As you have performance data, that tends to -- not displace the initial data of gas in place figures and so on, but you do have to re-evaluate and make sure that the volumetric data still makes sense.

At this time it's my feeling that any drainage calculations that may be done may result in erroneous conclusions based on industry-standard methods that have been done. It's my feeling that the performance is telling us that there is not interference, by and large, being seen throughout this area, and I think drainage area calculations can be somewhat misleading here.

COMMISSIONER OLSON: Okay, that was the only question I had.

EXAMINATION

BY CHAIRMAN FESMIRE:

Q. Mr. Wright, continuing sort of along the lines that Commissioner Olson started on, granted a traditional volumetric drainage-area calculation wouldn't work here, but you can use the reservoir data that was developed for this coal to calculate drainage area, can't you?

A. Yes, you can calculate a number, yes.

Q. And have you done any of that work?

A. I have examined that. I would be prepared to present some data at a later time.

Q. Okay. But I could be probably pretty safe in assuming that since it wasn't presented at this hearing, that that data probably didn't support your position; is that correct?

A. In a wide sense, it does.

Q. You're going to have to explain "wide sense".

A. Well, as an average recovery in the immediate adjacent sections, the average drainage area that I'm calculating is consistent with the size of our quarter-section equivalents that we are seeking to drill. And if you take into account that there may well be substantially more gas than has been represented by current methods, the drainage area would shrink considerably.

Q. Okay, could you elaborate on that, because I'm not sure I follow it?

A. I have -- and is that something that we need to bring forward at this time?

Q. I asked the question, not your attorney.

A. I'm sorry.

MR. HALL: Mr. Chairman, we have prepared some exhibits for rebuttal that touch on this. I think Mr. Wright could probably refer to that in answer to the Chair's questions.

CHAIRMAN FESMIRE: Well, that's kind of an important question to leave for rebuttal.

MR. HALL: Let's go ahead and address that, then.

CHAIRMAN FESMIRE: Why don't we make sure Mr. Bruce has no objection to that?

MR. BRUCE: Well, they obviously had the exhibits yesterday --

CHAIRMAN FESMIRE: -- and they weren't presented to you, so --

MR. BRUCE: -- I would --

MR. HALL: We --

MR. BRUCE: -- object to --

MR. HALL: -- we're almost certain that there will be grounds for discussing them in rebuttal.

CHAIRMAN FESMIRE: But I think that's up to Mr. Bruce, isn't it?

MR. HALL: True, he could rest his case right now.

CHAIRMAN FESMIRE: Yeah. Mr. Bruce, have you --

MR. BRUCE: At this time I'd object. And if it comes up, we'll put Mr. Wright back on the stand.

CHAIRMAN FESMIRE: Okay.

MR. HALL: I think -- We could handle it that way. I think the Chair has the discretion to do it now, it's more efficient, or when --

CHAIRMAN FESMIRE: I think we'll stick to the sort of convention and my interpretation of the Rules. We'll wait and see if it comes up in rebuttal.

MR. HALL: That's fine.

CHAIRMAN FESMIRE: Okay.

Q. (By Chairman Fesmire) But my question still stands. I assume that that data does not support your position and that the drainage area would exceed the area that you're asking for?

A. In certain areas, the specific drainage areas are larger than the average, that I've calculated.

Q. Okay. And in the production, in the -- what, 31 wells that you've drilled out there already --

A. Yes.

Q. -- is that correct? --

A. Yes.

Q. -- you've taken no bottomhole pressures, initial bottomhole pressures?

A. In the original parent wells?

Q. Yes.

A. A lot of this may have predated our operator, when we became operator, and pressure measurements may have been taken by our predecessor. But we have not as operator taken pressure measurements, to my knowledge.

Q. Have you looked at any of the pressure measurements that were taken by your predecessor?

A. Actually, I'm not even sure that we -- for some reason, I'm not sure that that data was transferred to us when we became operator.

Q. Who was the prior operator?

A. Burlington Resources.

Q. So you all bought this from Burlington at some point?

A. Yes, sir, that's correct.

Q. Okay. The initial production out there, even if we don't have the initial pressures, the initial production has never -- for the infill wells, did not on the average reach the average of the parent wells, did it?

A. Not on average. If you look at the detailed production curves that I have, I think you'll note that in some cases the -- actually one that I can think of, it's one of the Hunsaker wells that -- where the -- well, the parent and infill wells are almost a virtual laydown on top of each other. That is an exception, though. The infill wells by and large have resulted in, on average, a little bit less as a rate, as compared to the parent.

There are some other exceptions where the infill well is actually producing at a higher rate, but again that is the exception.

Q. Okay. What about water production, compared to the infill wells?

A. Well, there is a component of dewatering of the infill wells. It's not as dramatic as the parent well, but we do see a dewatering effect, and that's apparent with the ramp-up of production from when an infill well is first put on production to when it achieves its peak rate. We typically see, oh, probably a -- maybe a three-, four- to five-month period of when the well is first put on until it reaches what is then its peak producing rate. So I do believe there is a dewatering phase that is occurring with the production of the infill wells.

Q. Okay. And talking about Exhibit -- the economics exhibit. Was that 24 or 25?

A. Twenty-five, I believe.

Q. It's 25, right. The number that you show there is not a discounted value; that's just a net revenue in current dollars, right?

A. Yes, sir, that's correct.

Q. Have you calculated the discounted value for these -- an expected discounted net present value for these wells?

A. Not specifically for this hearing.

Q. Okay, but you have calculated for these wells, have you not?

A. Yes, sir, I've done -- I don't have those with me to provide at this time, but yes, I certainly do that as a regular basis.

Q. And what about a DCF ROR? Have you calculated one of those?

A. Yes, I have. I'm not sure that I can quote you a figure right off the top of my head, though.

Q. Okay. I assume it exceeds your hurdle rate; is that correct?

A. Oh, yes, sir, these are attractive wells to Koch.

Q. And can I ask what that hurdle rate is? And I'm going to give you the option of not telling me, because I know some companies don't want folks to know.

A. I think I would prefer not to divulge that.

Q. Okay. Going back on some of the prior exhibits before your testimony, specifically to the bubble diagrams --

A. Yes, sir.

Q. -- and there were -- What are those?

A. 16 and 17, I believe.

Q. That's right. Mr. Bruce raised an interesting question. Are we looking at -- I realize that we're not looking at drainage areas, we're simply looking at relative -- and that's the question. Is it relative diameters or relative areas in these diagrams?

A. I believe it is relative diameters or radius, not necessarily areas. I believe the way this is constructed is, taking the largest well, cumulative production, which -- I think it's BP's Kernaghan B7 in the northeast of Section 30 of 31 North, 8 West --

Q. And that radius essentially equals 100 percent, and the rest of them are all ratioed off that?

A. Well, the other side of that is going to whatever the smallest cumulative production was and ratioing in between, and then just on a proportional basis. But it is, I believe, a representation of a diameter difference or radius, not area.

Q. Okay. Now we talked about the wells that you drilled -- or the wells that you all own there. If I remember the number it's 31, correct?

A. Thirty-one in total, with one of those being a replacement well.

Q. Okay. And four of those wells showed some slight change -- decrease -- increase in the decline rate, decrease in the estimated ultimate recovery, after the infill well was drilled; is that correct?

A. Let's see. In our group of 24 wells there was one that represented -- that I noted a minor change in the post-infill performance. Yeah, there were two others that there was actually an increase.

Q. Okay. And I want to get to the wells that were involved in the increase. Is that possibly a result of the dewatering of the infill wells?

A. There could be an element of that. It's hard to say for certain. There may well have been a specific operation that was done as far as a cleanout -- well, cleanout in particular, or a deepening. We've had a number of wells in the last couple years where we have added a sump which allows for a better way of having the wells pumped off to keep the water from holding back the production.

Q. Okay, I --

A. But there could be an element of -- where the --

the infill wells, in fact, by the dewatering, have introduced more gas to the system that even the parent well possibly could have benefitted. It's difficult to say for certain.

Q. And that was my point, though. If that has occurred, that's sort of an argument for the -- if not geologic continuity, at least the pressure continuity between wells?

A. There is certainly a degree of pressure continuity among the wells. As I mentioned, I don't anticipate that we would see virgin pressures in probably any of the layers of coal if we took specific measurements, but there is a strong variability of the pressures within the coal layers.

CHAIRMAN FESMIRE: Mr. Hall, I have no further questions. Do you have any redirect?

MR. HALL: No, sir.

MR. BRUCE: No, sir.

CHAIRMAN FESMIRE: Anything from the Commission?

Okay, Mr. Hall, that's -- this witness can be dismissed.

MR. HALL: That concludes our direct case, Mr. Chairman.

CHAIRMAN FESMIRE: Okay. Mr. Bruce, are you ready to begin?

MR. BRUCE: Sure.

CHAIRMAN FESMIRE: Your witnesses haven't been sworn?

MR. BRUCE: That is correct.

CHAIRMAN FESMIRE: Would they stand and be sworn, please?

(Thereupon, the three BP witnesses were sworn.)

CHAIRMAN FESMIRE: Mr. Bruce, your first witness?

MR. BRUCE: Mr. Beirne, a landman, who will be fairly brief.

CHAIRMAN FESMIRE: Mr. Beirne, the record will reflect that you were previously sworn; is that correct?

MR. BEIRNE: That's correct.

MICHAEL J. BEIRNE,

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Mr. Beirne, would you please state your full name and city of residence for the record?

A. Michael Joseph Beirne, Houston, Texas.

Q. Who do you work for and in what capacity?

A. BP America Production Company as a land negotiator.

Q. Did you testify at the Division hearing in this matter?

A. I did.

Q. And were your qualifications as an expert petroleum landman accepted as matter of record?

A. Yes, they were.

Q. For the Commission, would you briefly set forth your educational and employment background?

A. Certainly. I attended the University of Kentucky in Lexington, Kentucky, and received a bachelor of business administration in marketing.

Shortly after graduation I joined Chevron USA in Houston as an ownership representative, which is the equivalent of a Division Order analyst. Shortly thereafter, I transferred to a land representative position within Chevron, working the San Juan Basin. And then in February of 2006 I took a job with BP America Production Company as a land negotiator in the San Juan Basin.

Q. Does your area of responsibility at BP include the area subject of this Application?

A. Yes.

Q. And are you familiar with the land matters involved in -- BP's land matters involved in this case?

A. Yes.

MR. BRUCE: Mr. Chairman, I'd tender Mr. Beirne as an expert petroleum landman.

CHAIRMAN FESMIRE: Mr. Beirne, are you a certified petroleum landman?

THE WITNESS: I am not.

CHAIRMAN FESMIRE: Any objection, Mr. Hall?

MR. HALL: No objection.

CHAIRMAN FESMIRE: Mr. Beirne is so accepted.

Q. (By Mr. Bruce) Mr. Beirne, briefly, what is BP's position in this case?

A. BP is asking the Commission to deny Koch's Application to allow an additional well in each of the three nonstandard drilling units referenced in their Application.

Q. And could you refer to your Exhibit 1 and identify it for the --

A. Yes, Exhibit 1 is the sole exhibit I have today, and it's a very simple land exhibit to outline the land position around the units in the Application.

If you look at the green colors, that indicates units that -- which BP operates in the Fruitland Coal. The units in yellow are units in which BP is a working interest owner. The units in orange are the units that are a part of this Application. And then everything with the slanted line is unspecified, and up north in 31 of 32-8, that BP is not a working interest owner. So BP has offsets in every unit except Section 31 of 32-8.

Q. Now because of the irregular surveys, Koch, or before it Meridian or maybe a prior operator, received these nonstandard units, correct?

A. That's correct. Because of the irregular survey, the Division found it necessary to combine three quarter-section equivalents to comprise nonstandard spacing units, to bring the acreage as close to the standard unit size as possible, which is 320 acres in the Fruitland Coal.

Due to the fact these nonstandard units have comparable acreage in regard to a standard spacing unit, BP believes the irregular spacing unit should accommodate the same number of wells as a standard spacing unit.

Q. Now with respect to these -- and there's been talk today about the northwest-quarter equivalent, say, of Section 6 or Section 7. How much acreage is in a standard quarter section?

A. 160 acres.

Q. And approximately in each of these quarter-section equivalents, how much acreage is there?

A. I believe around 110.

Q. Just from a land standpoint, do you think 110 acres is equivalent to 160 acres?

A. I do not.

Q. In looking at your Exhibit 1, down to the south there's BP-operated acreage in Section 30, and there's the east-half unit. That is -- it is an east-half unit, correct? Standard east- --

A. In Section 30, it is --

Q. Yes.

A. -- and my information states it's 320 acres.

Q. Now -- Then there's the southwest portion of that acreage. Does BP operate a similar nonstandard acre -- excuse me, a nonstandard unit which is similar in configuration to the northern Koch units down there?

A. Yes, that is where the Dawson wells are --

Q. Okay.

A. -- are located, and that would be a 326-acre spacing unit.

Q. Okay, so it combines land from Section 30 with land down in the southern Section 6?

A. Section 31.

Q. Or excuse me --

A. Yes.

Q. -- in Section 31.

How many wells does that well unit have on it?

A. Two.

Q. Does BP have any plans to request a third well on that well unit?

A. No, we do not.

Q. Mr. Beirne, I'm going to hand you Koch's Exhibit

9, which lists --

CHAIRMAN FESMIRE: And Mr. Bruce, you may approach the witness.

MR. BRUCE: Excuse me, Mr. Chairman. Oh, he has his, I'm sorry.

THE WITNESS: I think I have --

Q. (By Mr. Bruce) Do you have a copy of that?

A. Exhibit 21?

Q. Exhibit 9.

A. I think they're the same, just with some --

Q. -- some minor differences --

A. -- on them.

Q. Would you look at the bottom well? It lists the BP well, the Isabel well.

A. That's correct.

Q. Are you familiar with that well?

A. Yes, I am.

Q. What is the acreage dedicated to that well?

A. The -- that is an east-half unit that is 311.61 acres.

Q. Okay, so it's roughly a standard unit?

A. Yes.

Q. Does it have two wells on it only?

A. I believe it does, I -- to my recollection. I don't have it here, but I believe it has two.

Q. Okay. In your opinion, should Koch's Application be denied?

A. Our engineer -- Yes, I do. Our engineer and geologist will show that BP will be significantly impacted, due to our interest in and around the nonstandard spacing units. Permitting additional wells to be drilled in these nonstandard units will violate the correlative rights of interest owners in the surrounding standard spacing units, and we'll have technical witnesses to discuss that in further detail.

Q. Was Exhibit 1 prepared by you?

A. Yes, it was.

MR. BRUCE: Mr. Chairman, I'd move the admission of Exhibit 1.

CHAIRMAN FESMIRE: Any objection, Mr. Hall?

MR. HALL: No objection.

CHAIRMAN FESMIRE: Anyone on the Commission?

COMMISSIONER BAILEY: No objection.

COMMISSIONER OLSON: (Shakes head)

CHAIRMAN FESMIRE: Exhibit 1 will be so admitted.

MR. BRUCE: And I pass the witness.

CHAIRMAN FESMIRE: Mr. Hall?

CROSS-EXAMINATION

BY MR. HALL:

Q. Mr. Beirne, do you agree that if the Commission doesn't grant Koch's Application, three undrilled locations will result?

A. No, I do not.

Q. Why not?

A. Because the way I interpret the Rule is that you're only permitted to have two wells per 320 acres.

Q. And those are for standard sections, correct?

A. That is correct.

Q. And we're dealing with nonstandard, irregular sections here, do you agree?

A. I agree.

MR. HALL: Nothing further, Mr. Chairman.

CHAIRMAN FESMIRE: Commissioner Bailey?

EXAMINATION

BY COMMISSIONER BAILEY:

Q. Is BP the operator of the San Juan Unit 32-8?

A. No, ma'am.

Q. Who is the operator?

A. I believe it is ConocoPhillips.

Q. How about the San Juan 32-9?

A. No, ma'am.

COMMISSIONER BAILEY: That's all I have.

CHAIRMAN FESMIRE: Commissioner Olson?

COMMISSIONER OLSON: No questions.

CHAIRMAN FESMIRE: And I have no questions.

Anything on redirect on those matters?

MR. BRUCE: No, sir.

CHAIRMAN FESMIRE: Mr. Bruce, your witness is -- we're through with your witness.

MR. BEIRNE: Thank you.

MR. BRUCE: Mr. Chairman, this is BP's geologist, Mr. Perkins.

CHAIRMAN FESMIRE: Mr. Perkins, you realize you've been previously sworn in this matter?

MR. PERKINS: I do.

CHAIRMAN FESMIRE: Proceed, Mr. Bruce.

JAMES M. PERKINS,

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

DIRECT EXAMINATION

BY MR. BRUCE:

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

A. James Morgan Perkins.

MR. BRUCE: I've never been in a room with two Morgans before, Mr. Chairman.

MR. CONNOR: Consider it a blessing.

(Laughter)

CHAIRMAN FESMIRE: Been in a barn, but never...

(Laughter)

Q. (By Mr. Bruce) Where do you reside?
A. Katy, Texas.
Q. Who do you work for and in what capacity?
A. BP America Production Company as a geologist.
Q. Does your area of responsibility at BP include this part of northwest New Mexico?
A. Yes, it does.
Q. And are you familiar with the geologic matters involved in this Application?
A. Yes, I am.
Q. For the -- Have you previously testified before the Division, and have your qualifications been accepted as an expert petroleum geologist?
A. Yes, I have. And yes, they were.
Q. And just for the record, would you briefly go through your educational and employment background?
A. I received a bachelor of science degree from the University of Nevada, Mackay School of Mines, in 1971, and went on for a master's of science degree from the University of Oregon in 1976.
I was hired by Anaconda in 1976 and have worked through -- present with the same company essentially, coming from Anaconda to ARCO, and then to Vastar, and then into BP. And during that time I've worked in various basins, principally all the basins in the Rocky Mountain

area and Canada and Australia and in the mid-continent region. Early part of my career was in minerals, principally uranium, and the latter part has been in oil and gas, both development and exploration.

I have served as the principal geologist for the initial development in La Plata County for the coal development in 1984 or so, and have been working in the capacity of geologist in the New Mexico portion of the San Juan Basin and in all of the principal horizons, including the Fruitland Coal.

MR. BRUCE: Mr. Chairman, I'd tender Mr. Perkins as an expert geologist.

CHAIRMAN FESMIRE: Mr. Perkins, are you a certified professional geologist?

THE WITNESS: I am a certified professional geologist in Wyoming, and as a geoscientist in Texas.

CHAIRMAN FESMIRE: Any objection, Mr. Hall?

MR. HALL: Mr. Perkins, BP's prehearing statement says you're going to be giving us reservoir engineering testimony today; is that right?

THE WITNESS: No, it is not.

MR. HALL: Okay.

THE WITNESS: What I'll be doing is, I'll present data that was given to me by a reservoir engineer so that I can put it in a mapping format --

MR. HALL: We have no objection.

THE WITNESS: -- and discuss it in geologic terms.

CHAIRMAN FESMIRE: You have no objection to him being accepted as an expert, then?

MR. HALL: As a geologist.

CHAIRMAN FESMIRE: As a geologist.

MR. HALL: Right.

MR. BRUCE: Scrivener's error, Mr. Chairman.

(Laughter)

CHAIRMAN FESMIRE: Mr. Perkins will be so accepted as an expert geologist.

Q. (By Mr. Bruce) Mr. Perkins, could you move on to BP's Exhibit 2 and identify that for the Commission?

A. All right. Well, if I could expand just a little bit, I'll be talking to Exhibit 2, 3, 4, 5, 6 and 7. And with opposing counsel's permission, I'd like to also speak to some of the exhibits that were presented during the geologic discussion.

MR. HALL: Witnesses don't get to ask lawyers questions.

(Laughter)

FROM THE FLOOR: This is unheard of, Mr. --

CHAIRMAN FESMIRE: Yeah, I noticed that. I don't think he can give you permission to do that. Your attorney can ask you the questions that might lead you to do that.

THE WITNESS: I'm new to this, I don't do this very often.

Anyway, well, we'll start out with Exhibit 2, as I've been directed to do.

What we have is an area that covers most of Townships 31 and 8, 31 and 9, it spills over into the 32-8 and -9 as well. On this map there are 243 total wells that show production from the Fruitland Coal. This is a Fruitland net coal isopach map based upon data from 126 wells, and I've chosen those 126 wells because they have the proper petrophysical data by which I can identify the coal pay intervals, principally by a density tool. There are other wells on here, as has been noted in previous testimony, whereby the coals are estimated by mudlog, which is a very imprecise way to recognize coal, and it doesn't speak to the quality of the coals within that particular interval.

What I've represented on here are my best-guess numbers from both the wells that I have very good control on in the petrophysical data, as well as estimates from the mudlogs. So I've gone through and posted all the datas, just to be as open as possible.

The wells designated by a red circle are -- What are they? They're the wells that have mudlog data, and the ones without the red circles are the ones that I used to create the isopach map shown in the pretty pastel colors on here.

And what this map shows is that there is a variety of thickness within these zones, and I'll elaborate on that a little bit more when I get to Exhibits 4 and 5.

Q. (By Mr. Bruce) On this map also you have a couple of wells down toward the bottom that are -- with red arrows, et cetera. What will those --

A. Exactly.

Q. -- reflect?

A. All right. First off, Exhibit 4 and 5 are shown as the positions of the cross-sections, and which are the same positions a the cross-sections which have already been presented.

Also, as Exhibit 6, the red arrow to the southwest is the Horton GC 1S, and that that will speak a well log with a layered pressure data that my colleague engineer will speak to, as well as Exhibit Number 7, which is the Fletcher Number 2, which shows a similar display of the distribution of coal and layered pressure data.

Q. And I know you'll get to this in the cross-sections, et cetera, but this summary of data, does it show good coal continuity across this area?

A. In my opinion it shows very good coal continuity of coal packages that I'll demonstrate on the cross-section.

Q. Okay. Let's move on to your Exhibit 3. What does that reflect?

A. Okay, this is a Fruitland original-gas-in-place map, and as previously testified these are very difficult maps to come up with, and they do represent a lot of averaging. But in an effort to keep things continuous, this is essentially the same map that was presented by Mr. Hawkins during the previous testimony back in 2002, I believe it was, and it's based on the same 126 wells.

And as you can see, it mimics the isopach map. They're pretty much laydowns. And what happens is, the thickness of the coal does matter, and the thickness and its continuity are what can be inferred in the original-gas-in-place map.

What this cannot speak to are any extraordinary -- I guess maybe that's not a good word, but the contributions you would have through fracture permeability. We have very poor methods to define those fractures, that's why you'll see them very rarely placed on the map. But we all recognize through well performance -- and my colleague will speak to that -- that those fracture sets do exist, and they do have a great impact on subregional drainage.

Q. Anything else on Exhibit 3, Mr. Perkins?

A. No.

Q. Let's move on to your cross-sections. The first one is --

A. -- is A-A' --

Q. -- A-A', the northwest to southeast. Could you identify that and discuss what you see as the continuity of the various coal packages?

A. You bet. And I do have to apologize, my dog ate my tie. I asked Mr. Connor -- I mean, he offered his tie --

MR. CONNOR: I did?

THE WITNESS: -- but paisleys and stripes, I'm not sure.

(Laughter)

THE WITNESS: This is the same cross-section, these are actually the same well logs. I think that they were -- for continuity, I'm glad that they were chosen here.

My cross-section shows a little bit different datum-flattening. I chose to take the datum -- Okay, first off, on my cross-section I've broken down the coals into three zones, starting at the top, the Ignacio zone, the Cottonwood zone in the middle, and the Cahn zone at the base. And I've recognized these zones through regional mapping throughout the area, so they're more or less regionally continuous as coal zones. But my colleague from Koch is proper in saying that individual coal seams are discontinuous.

To put that in real terms, I lead a field trip to the Bisti Wilderness area, and I've taken engineers, reluctantly, and landmen out, and I've walked along the coal seam, the interface between, say, an overlying sand and the coal seams, and we can walk those coal seams for miles. And their continuity within this particular area, I mean, it's kind of a one-on-one situation. Not in the fairway, but the coals are continuous within the bounds of zones.

The difference between -- This section is hung on, essentially, an uncomformity surface at the top of the Pictured Cliffs. This represents a marine sand, probably a barrier bar, and then there's a prograding effect as the back bar swamps build out to the northeast, they form a kind of an unconformity, and those coals are deposited right on top of it.

What -- There was a great little industry. Now the conceptual block diagram...

CHAIRMAN FESMIRE: You all don't mind him rummaging through your exhibits, do you?

THE WITNESS: No, the little cartoon.

MR. CONNOR: Cartoon?

THE WITNESS: This one right here. This right here speaks to what is generally accepted as depositional environment of the Fruitland. And it's great, this is wonderful.

What happens in a coal swamp is that your -- the ability to accumulate so much of this coal takes a geologic process called aggradation. That means that the accommodation keeps up with the deposition. And I'll remind you that a coal will compact at an entirely different rate than an interbedded shale or a sand. It's spoken to either eight- or ten-to-one compaction. So I chose a datum to hang my cross-section on within the coal zone to more represent what it would look like as a depositional entity.

I will point out here too that on this aggradational -- on -- I'll read from this: The intermittently high subsistence -- subsidence rates north of the structure at hinge line resulted in shoreline stillstands -- the stillstands means that the shoreline is not moving one way or the other -- allowing aggradation of coastal plains. So the aggradation of coastal plains means the continuity of a coal swamp environment, similar to what you see, backbar in South Carolina, present deposition.

And even on this cartoon, and no scale intended, you see a pretty good continuity within areas of these coal seams, note on here, that continuity. It's that kind of continuity that BP sees in this area, not that the Cahn zone in 30 and 8 will be same Cahn zone that you see if you go into La Plata County.

Q. (By Mr. Bruce) Before you get -- you've broken down the coal into these three packages. Which is the most productive?

A. At this point, the most productive is the Cahn zone. And in a little bit different display here -- the cutoffs used here, and in my previous testimony earlier this year, I used a cutoff of 1.8. I've changed it on my display to 1.75, in keeping with the consistent evaluation.

CHAIRMAN FESMIRE: Can I ask something here?

THE WITNESS: Sure.

CHAIRMAN FESMIRE: Didn't Koch use a 1.8 --

THE WITNESS: Yes, they did.

CHAIRMAN FESMIRE: -- cutoff?

THE WITNESS: That's what -- that's what this is.

CHAIRMAN FESMIRE: Yeah.

THE WITNESS: And on the display that you have in front of you, Exhibit Number 4, I used 1.75.

CHAIRMAN FESMIRE: Okay, I guess I didn't understand. I thought you said you'd changed it --

THE WITNESS: No, no, I'm sorry --

CHAIRMAN FESMIRE: -- to maintain --

THE WITNESS: -- I changed it from my original testimony in January.

CHAIRMAN FESMIRE: And what cutoff did you use there?

THE WITNESS: 1.8.

I also point out that A-A', I constructed that to demonstrate the continuity on a 160-acre spacing basis. So the wells, for instance, the -- separated between the Nordhaus Number 4A and the Quinn 5A is 3694 feet. And 2500 feet separates the Quinn 5A and the 8A.

Q. (By Mr. Bruce) So in this area, in this direction, the northwest-to-southeast, you'd expect continuity from quarter section to quarter section to quarter section?

A. Yes, continuity of zones.

Q. Correct.

A. And again, when we're talking about a coal swamp, I think the word "dynamic" is never associated with it. When we're talking -- a coal-swamp, it's usually a place of humongous fetid ooze. I mean, there's nothing moving around there, or the coals wouldn't be happy.

The dynamitism, if that's a word, starts as the progration -- progradation, extends further to the northeast. And on this A-A' cross-section you can see a downcutting event, very dynamic, which represented the deposition of probably a tidal channel or maybe a meandering stream or river system that deposited the Fruitland sand, which is another pool in itself.

And you can see some of these downcutting events demonstrated fairly clearly here, if you look at the coal here and the coal here, would be continuous had it not been cut out by that little sand interval.

Q. Let's move on to your next cross-section, Mr. Perkins.

A. Okay, this is B-B'. I have designated north where south should be and south where north should be, and I apologize for that. But this cross-section was constructed in a similar manner as Exhibit 4, except that I created it to show what spacing would -- what the relationships would be on a 640 or greater acreage situation.

And again, it's hung on the internal marker, the top of the Cottonwood coal or the base of the overlying shale, which is really more proper. This is Koch's representation.

I might point out on the map -- and again I'll refer to Exhibit 2 -- that from B to B' -- I'm sorry B' to the center of the center well, or from here to here, there will be -- offsetting this cross-section in areas that show very little control, there is a well both to the east and the west in Section 6, both the east and the four wells offsetting the cross-section in this area, and so there are wells that are probably developing these postulated coal intervals. And the same is true in this area, where there are two wells that are also offsetting, outside of the line of cross-section.

In this interval, we do see continuity of all the zones. We see a very good example, again, of differential compaction of some of the coal units and intervening what they might call hard ground.

A geologist can hang the cross-sections on any datum, and we chose different datums, and we've derived different conclusions from both. I contend that those three zones are continuous within their bounds of zone definition.

Q. And on your cross-section, B-B', those wells are a considerable distance apart from each other, are they not?

A. Yes, yes, they are. There's about a mile between these wells here, and about two miles -- I'm sorry, these two wells here, and about two miles between these wells.

Q. So considering your exhibits put together, you see good continuity from a quarter, a half, up to two miles?

A. Yes, uh-huh.

Q. Let's move on to your final two exhibits, and these were referenced on your first exhibit. What are these wells, and what is this intended to show?

A. Okay, Exhibit 6 shows a -- essentially a type log of the Horton Gas Com 1S, and that's located in 28 of 31 North, 9 West. What I've represented here is, I've got a gamma-ray, resistivity and a density curve. This is an open-hole log, so I'm able to show the resistivity.

We -- The gamma-ray column is the one on the left, and -- with a gamma-ray cutoff -- and I believe it's 75 API -- showing just zones that have intervals less than 75 API, generally related to sands or coals.

Also in that column is the caliper, which would strongly affect the density values. In this particular well the caliper shows that the hole is engaged, so the density data are to be trusted.

And again on the far right column we see a ρ_z, or a density representation, with a cutoff of 1.75 grams per cc.

And then the designated coal zones, starting at the base of the Cahn, the Cottonwood and the Ignacio, and the dashed red line shows the top of the Pictured Cliffs sand.

What's also displayed in the area to the right of the column are layered pressures acquired using

Schlumberger's cased hole dynamic tester, in which they were able to point-test each one of those intervals at that point in the well. And those data will be discussed by the engineer in the next section.

CHAIRMAN FESMIRE: I'm not familiar with that tool. It's, you know, been a while --

THE WITNESS: It's --

CHAIRMAN FESMIRE: -- since I've done that kind of work.

THE WITNESS: It's a wireline tool done in casing where a small hole is drilled through the casing, through the cement, and then it's packed off, obviously, and there is a small sample chamber that didn't apply here, but it's allowed to get a buildup pressure data. And again, I'm not qualified, really, to talk about that, just the mechanics of how that is acquired.

CHAIRMAN FESMIRE: Okay.

Q. (By Mr. Bruce) What are the original -- What was the original pressure in this area?

A. I am told from literature and from my reservoir engineer that it ranged from 1600 to 1500, somewhere around in that area, depending on -- area, so -- I've heard in the literature, and I can't cite it, but 1575 comes to mind, but...

Q. Okay. And these -- and I don't know if you've gotten to Exhibit 6 -- or 7 yet, but these two wells are what, approximately five miles apart?

A. Yes. Well -- yes.

Q. Go ahead.

A. And also on this -- and I failed to point this out, but they'll be -- these aren't exhibits in my presentation, but in Section 31 there's designated on Exhibit 2 two wells that will be used in the engineering discussion, the Dawson GC1 and 1S.

Q. Okay, down at the very bottom of that plat?

A. Down at the very bottom. Section 31 of 31-and-8.

Q. Do you have anything else on Exhibits 6 and 7, Mr. Perkins?

A. No, but the difference -- I should add, the difference in Fletcher Number 2, this was a cased-hole log, so the displays are based on RST logs, so they're a neutron-based tool that these cutoffs are based on intervals that are widely accepted as being coal indicators, that being far-IC mode capture, or the hydrogen relativity, and then the carbon isotope ratio, and the cutoffs are designated on the exhibit.

Q. Geologically speaking, would you classify this area on your plats as a single large reservoir?

A. Yes, I would.

Q. Were BP Exhibits 2 through 7 prepared by you or under your supervision?

A. Yes, they were.

Q. And in your opinion, is the denial of Koch's Application in the interests of conservation and the prevention of waste?

A. Yes, I do.

MR. BRUCE: Mr. Chairman, I'd move the admission of BP Exhibits 2 through 7.

CHAIRMAN FESMIRE: Mr. Hall?

MR. HALL: No objection.

CHAIRMAN FESMIRE: Exhibits 2 through 7 will be admitted.

MR. BRUCE: And I pass the witness.

CHAIRMAN FESMIRE: Mr. Hall?

CROSS-EXAMINATION

BY MR. HALL:

Q. Mr. Perkins, if you could refer back to your Exhibit 2, I'd like to try to understand what you're showing here. Is it accurate to say that you're showing the presence of coal throughout the area, but how does this demonstrate continuity throughout the area? Does it?

A. In and by itself, no, it doesn't. But in conjunction with the other displays, the cross-sections, I think it makes a compelling case.

Q. Okay. Down in the lower right-hand column you have remarks, and it's -- you used 126 wells with density data, but you did not include data from wells drilled after 2001. And why was that?

A. Because they didn't have density data.

Q. Okay.

A. Or we don't have those density data.

Q. Okay.

A. They may exist, but they're not in BP's --

Q. What does it mean when a well has a red circle around it?

A. The red circle is that those estimates of thickness were based on mudlogs only --

Q. I see.

A. -- which are unreliable.

Q. It's unreliable, but you still used the mudlog picks for those estimates?

A. I put them on there just as a matter of full disclosure.

Q. Okay. But you didn't try to tie your contours to those mudlog --

A. Not at all.

Q. Why not?

A. They're not reliable.

Q. Okay. If you had tried to do that, would that have demonstrated more variability in the area?

A. I would not have tried to do that, because they aren't reliable.

Q. If you can refer to the well in Section -- in the northwest quarter of Section 23 in 31-9, you're showing a well with 113 feet in it. It's within the 80-foot contour line; is that right?

A. Yes.

Q. And why aren't you drawing a high around that well?

A. Does that have a red circle around it?

Q. Yes, I mean -- but you're simply choosing to dishonor all of that data, altogether; is that right?

A. I believe I testified to that, yes.

Q. It's not meaningful to us at all?

A. It is not meaningful. We don't know what the density of those coals are. We don't know what -- the capacity of them. All we have is a mudlogger's description, a rate of penetration curve, and a gas log, total gas.

Q. But the fact that you have different types of data coming from the two types of log, does that tend to indicate to you the existence of variability?

A. No, it doesn't.

Q. It's simply --

A. What it speaks to is the variability of data types here --

Q. All right.

A. -- and I chose to use the most reliable data to make the map.

Q. All right. You've not drawn a conclusion one way or another then?

A. No. No, I haven't.

Q. Okay. Turning to your Exhibit 3, if you could help us understand this. You've attempted to depict original gas in place, and to do this you've used the thickness data from Exhibit 2; is that right?

A. Correct.

Q. And that data, again, is only pre-2001 -- pre-2002 wells --

A. Correct.

Q. -- correct?

Would it have been more meaningful to use data from wells drilled since 2001?

A. If those wells had had density data that I could use and had a high reliability --

Q. Okay.

A. -- I would have incorporated them. The date that the wells were drilled has no relevance.

Q. Okay. Explain to us, what is the gas content shown here, particularly in the Application area? What units did you use?

A. Oh, yeah, and I apologize for not having the contour intervals. These are 1-BCF contour intervals. And what it shows -- Again, it mimics the thickness. What it shows is the total gas in place, based upon 160 acres.

Q. And explain to us how you run that calculation. What do you take into consideration?

A. The calculation is made -- and again, I had to defer to my engineers to give me the proper values, but I plugged them into a formula wherein the gas in place takes into account density data, areal -- you know, 160 acres in this case -- thickness, the gas yield expressed in standard cubic feet per ton.

Q. Is that the same as gas content?

A. Yes.

Q. Okay, I'm sorry. Go ahead.

A. Oh, no, that's fine. And really, the -- let me see if my notes -- yeah, it represents the gas content, the density, the thickness, the areal distribution and -- yeah, and that's it.

And I plugged those into a formula that calculates it, and I'm able to map it.

Q. You used ash content; is that right?

A. That's reflected in the density data.

Q. Okay. Did you use moisture content?

A. I did not in my calculations.
Q. What was the specific gas content or gas yield factor you used?
A. 256.26 standard cubic feet per ton.
Q. All right. As I understand it, over these areas within, say, the Application area, this shows averages, correct? These are not specific gas content?
A. It pretty much has to, yes.
Q. Okay. So you can't tell us what the specific gas content might be in the Application area? Just tell us what you used, is all?
A. That's true.
Q. Okay. When you say you're showing lots of averaging for this exhibit, tell us how you went about averaging it.
A. Averaging for what?
Q. The gas content. If I understood your testimony correctly, you said this shows an average over the area.
A. The gas in place shows an average over the area.
Q. Okay, gas in place, I'm sorry. I misspoke. How did you go about averaging that?
A. Well, any isopach map -- and this is an isopach map of the original gas in place -- is essentially an average between your data points. And I can't speak to the grid nodes used by my software as to how they average from

data point to data point.

Q. All right. In constructing your averages, again, this did not include data from wells drilled after 2001, correct?

A. It did not include data without density data, yes.

Q. Let's look at your cross-sections briefly, Mr. Perkins. You said that you used the Cottonwood zone to hang a cross-section because it is a depositional entity. What does that term mean?

A. Well, the depositional entity is really the overlying shale. And if you'll note on this, the similarity in, say, the gamma-ray curve overlying that zone is fairly continuous throughout the cross-section. And I'm looking at A-A' right now. And the same thing holds true if you look at B-B'.

And again, there are variations in depositional environments, and one cannot expect a blanket coal, just as one cannot expect blanket sand that has the same uniformity throughout the world. It's just not the way that it works.

Q. Okay. Do you agree that the Fruitland formation has a highly variable lithology --

A. The Fruitland formation --

Q. -- formation?

A. -- regionally has a highly variable lithology, yes.

Q. And it is comprised of sands, coals and shales?

A. Sands, coals, shales, carbonaceous shales.

Q. And you said you did not believe that this swampy area was a dynamic environment in depositional times; is that correct?

A. Not during each one of the coal intervals that I've defined.

Q. Okay. Can you explain to us, then, when you look at your Exhibit 4 you show, for example, a thinning between the Cahn zone and the Cottonwood zone --

A. Uh-huh.

Q. -- as you go from A to A' there. What caused that? Was that a function of dynamics?

A. It could be. Could be differential compaction. If you restore the underlying coal, say, in the Quinn 18 [*sic*] by 10 to 1, that would put those intervals as pretty much consistent and parallel to the top of the Cottonwood zone.

Q. And at the top of the log for the Quinn 5A you're showing channel sand erosion again. That's an indication of the dynamics, right?

A. Oh, and I pointed that out earlier, that that is a very good example of the dynamic portions of the Fruitland, but occurring after the major depositions of the coal zones that provide most of the resource in the fairway.

Q. And that channel sand erosion led to discontinuities between some of the coal layers, right?

A. Oh, you betcha.

Q. Your cross-sections may show the existence of some of these coal packages in these wells. What is the evidence that says that they are continuous from well to well and not compartmentalized?

A. The compelling evidence that I have has been through conversations with my reservoir engineer, who has demonstrated to me and will demonstrate to the hearing of the production communication between zones as shown in their production profiles, and I see no evidence geologically to think that it's otherwise.

Q. Do you agree that there's some likelihood that there may be additional coal layers or perhaps lenses between these logs that are not reflected on your cross-section?

A. I'm sure there are.

Q. Okay.

A. But I doubt if they're materially important.

Q. If you look at your Exhibit Number 5, you look at the lowest coal zone in the Quinn 2A to the south. Why is that not present in the Jacquez Number 2? Can you explain that? What happens to cause that?

A. Discontinuity, perhaps there's more of a hard ground. I've noticed that the top was shifted up a little bit. It's all in keeping with the way I envision the depositional environment, that you'll lose a little bit on the top and lose a little bit on the bottom.

I'll also point out that those are very thin coal seams.

Q. But you agree that discontinuities exist throughout the area?

A. They would pretty much have to.

Q. Both laterally and vertically?

A. Yeah, to a minor extent, yes. But also not within the main coal zones, as I see them.

Q. What's the total coal thickness for the Jacquez Number 2 that you're showing on Exhibit 5?

A. I believe the Jacquez Number 2 is about 79 feet or so.

Q. Okay. Turning to your Exhibits 6 and 7, your well logs, tell us why you selected two wells outside of the high-productivity area.

A. They were available to us.

Q. Okay. Do you know what the data -- the pressure data -- the date of the pressure data?

A. Oh, the date of the -- No, I don't, but my engineer who supervised the test would.

Q. Okay. Do you have a geologic explanation for why the reservoir pressures in the various layers don't correlate very well between the two wells?

A. Well, they are pretty far apart in -- What was it, five miles or so? But what struck me when I posted these data is that it's not 1500 or 1600 pounds.

Q. Well, let's look at it on a well-by-well basis. From a geologic perspective, the fact that you have variable pressures vertically, does that indicate to you that there's some vertical discontinuity?

A. Well, yeah, there's vertical discontinuity, but -- Yes, if we look at the Horton, Exhibit Number 6, they're kind of ballpark figures. I'm struck by the fact that there's as much continuity on a vertical sense as there is, and that might speak to some of these aforementioned fracture zones, in fact, might cut the entire interval and put it in more or less communication, pressure communication.

Q. And will the --

A. The same is not seen in the Fletcher, I'm sorry.

Q. I'm sorry?

A. The same is not seen in the Fletcher.

Q. Okay, so you've got more widely variable pressures in the Fletcher then, correct?

A. Yes.

Q. And tell us about the permeability figures you show.

A. The permeability figures were calculated by an engineer, but represent probably the -- either the ash content or some component that would be indicative of its reluctance to give up the gas.

Q. Okay. Looking at the Fletcher, would you agree that the permeabilities shown there are highly variable?

A. Yes, I would say that the range of 84 p.s.i., which is anomalously low to a high of 1382 is a wide variation.

Q. Okay. How would you characterize the performance for the Horton and the Fletcher wells? Are they good performers, poor performers?

A. Again, I'll defer to my engineer on that. He tells me that they're not as good as we'd like them to be.

MR. HALL: Okay. That concludes my cross.

CHAIRMAN FESMIRE: Commissioner Bailey?

EXAMINATION

BY COMMISSIONER BAILEY:

Q. What do you use to differentiate these different coal zones? Is it based on any characteristic, or is it simply relative position on the log?

A. It's just relative position and the

characteristics. The Cahn has a tendency to be much cleaner, so we usually focus in on that, which is how we would differentiate, you know, performancewise. So we've pretty much taken the Cahn as the best performer, the Cottonwood the second, and the Ignacio the third. And there are a couple more that we see up in La Plata County that are included here.

Q. What other characteristics?

A. Density, mostly, and that reflects ash content, and particularly for the Cahn we see that as fairly continuous over large areas.

Q. So you do disagree with the compartmentalization?

A. On a large scale, yes, I -- Seeing it in the field, seeing it in wellbores, you're always going to see those stray coals. It happens, that's the way of the world. But as coal packages, I see those as fairly continuous, specifically in this particular area.

COMMISSIONER BAILEY: Okay.

CHAIRMAN FESMIRE: Commissioner Olson?

EXAMINATION

BY COMMISSIONER OLSON:

Q. Mr. Perkins, how -- Maybe you mentioned this but I was just wondering, how come we see -- Look at your cross-section versus the cross-section prepared by Koch. You have a difference in the datums?

A. Yeah, and I did mention that, but just to --

Q. Yeah, would you go over that again please?

A. Yeah, what I did is, I took the -- to compensate for the differential compactions between, say, shale and coal, I took a datum that is within the coal unit, and that would be more representative of what it looked like as a depositional entity.

So back 60 million years ago, the datum would have been an overlying shale, for instance. And this is before compaction, so you can represent the relative stratigraphic positions of each one of these coals more properly by taking an internal datum, rather than taking one as either below it or above it. And what you really want to do is uncompact these coals, which compact as much as 10 to 1.

COMMISSIONER OLSON: Okay, thank you.

EXAMINATION

BY CHAIRMAN FESMIRE:

Q. Mr. Perkins, you may defer these questions your engineer. I'm -- and the questions may be the result of my ignorance; I have not, in my career, come across the cased-hole sidewall pressure-testing tool.

But in the Exhibit 6, was there some sort of flowback period, or are these initial pressures, or what are these pressures?

A. I will have to defer to -- as -- for the timing of the tests, and then -- and --

Q. Okay.

A. Yeah.

Q. Was the same tool used in the Fletcher 2, on Exhibit 7?

A. No, it wasn't. And again, Mr. Reese will be able to tell us all how those data were acquired.

CHAIRMAN FESMIRE: Okay. Mr. Bruce, that was the only question I had. Mr. Hall, do you have any -- I mean, Mr. Bruce, do you have any --

MR. BRUCE: I just --

CHAIRMAN FESMIRE: -- recross on --

MR. BRUCE: I just --

CHAIRMAN FESMIRE: -- on the subjects that we covered?

MR. BRUCE: I just have one, just a point of clarification.

FURTHER EXAMINATION

BY MR. BRUCE:

Q. Mr. Perkins, on your Exhibit 2, you mentioned the 126 wells with density data, and then you included the wells that had mudlogs only. If you included the -- the 126 wells aren't all the wells on this map. If you included them all, there's what, 200, 225 wells on this?

A. 243.

Q. 243. So approximately half of them had the density data?

A. Yes.

MR. BRUCE: That's all.

CHAIRMAN FESMIRE: Mr. Hall, do you have anything on --

MR. HALL: Nothing further.

CHAIRMAN FESMIRE: Anything from the Commission?

COMMISSIONER OLSON: No.

CHAIRMAN FESMIRE: Mr. Perkins, I think that's all we need of you right now. Thank you.

MR. PERKINS: Thank you.

CHAIRMAN FESMIRE: Why don't we go ahead and break for lunch and come back here at 20 minutes to 2:00?

(Thereupon, noon recess was taken at 12:40 p.m.)

(The following proceedings had at 1:43 p.m.)

CHAIRMAN FESMIRE: Okay, let's go back on the record. Let the record reflect that all three Commissioners have returned from lunch, that we still have a quorum, and I believe Mr. Bruce was getting ready to present his third witness.

MR. BRUCE: That is correct.

CHAIRMAN FESMIRE: Mr. Reese, you've been previously sworn; is that correct?

MR. REESE: Yes. Yes, sir.

DAVID D. REESE,

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Will you please state your name and city of residence for the record?

A. David Reese, Cypress, Texas.

Q. And who do you work for?

A. I work for BP America.

Q. And what's your job at BP?

A. Reservoir engineer.

Q. Have you previously testified before the Oil Conservation Division as a reservoir engineer? Before the Hearing Examiner?

A. For the one in January?

Q. Yes, sir.

A. Yes.

Q. Does your area of responsibility at BP include this part of the San Juan Basin?

A. Yes.

Q. And are you familiar with the reservoir engineering matters involved in this Application?

A. Yes.

Q. For the Commission, would you please briefly set forth your educational and employment background?

A. I graduated from the University of Colorado in 1975 with an engineering degree in electrical engineering, and I went to work for Shell Oil Company in New Orleans in 1975 and worked as a petrophysicist, as well as a reservoir engineer, as well as a production engineer. I was in a variety of training programs.

I returned to the University of Colorado for some graduate study and teaching in 19- -- late 1976, and I started working for Amoco Production Company in January of 1977. I worked principally reservoir engineering positions, about 85 percent of the time, while with Amoco, and approximately in nine different states and five different countries. I was their reservoir engineering quality control engineer after about three years with the company, a reservoir engineering supervisor after about three and a half years with the company. I've taught and mentored close to 200 reservoir engineers within the company.

And I originally worked with San Juan Basin in 1978, studying the Pictured Cliffs and possible interactions with the coal. I was there when we were testing on the Cahn original well. More recently, I started working again with the San Juan Basin in 2001 and have been working with the coal primarily since then.

I had taken the EIT training, but I didn't do the certification.

MR. BRUCE: Mr. Chairman, I'd tender Mr. Reese as an expert reservoir engineer.

CHAIRMAN FESMIRE: Mr. Hall, any objection?

MR. HALL: No objection.

CHAIRMAN FESMIRE: Mr. Reese will be so accepted.

Q. (By Mr. Bruce) Mr. Reese, you've got a number of exhibits to go through. And maybe before you get going, could you give me your overall assessment of this Application?

A. From a couple different perspectives.

My first perspective is that as I looked at the reservoir and the performance, as I've been carefully looking at it for many years, I'm under the very firm impression that it is a competitive reservoir, especially in the high-productivity area, and the number of wells that you have is very important, far more important than the exact location of those wells and their proximity to others.

We have numerous episodes of interference that we've encountered that are visible, and so from a perspective of these drill or spacing units obtaining a third well and seeing how communicative the reservoir is, I'd have a problem with that, and adjacent drill blocks would have a problem with that and would want to protect their rights with a third well, as with their adjacent drill blocks, and there's no end to that process. But I intend to show why I believe that the reservoir is as communicative as it -- as I believe.

And I recently obtained the lists or the documents from Koch where they were reviewing well performance and apparent lack of interference. I plan to address those. I've studied some of the sections that they refer to on the list of 18 in reasonable detail, and am happy to make conclusions about the rest.

Q. Okay. Now I'm not sure where this -- you are going -- Mr. Perkins presented some pressure data, and I'm not sure -- that's BP Exhibit 6 and 7 -- and I don't know where you're going to fit that into your overall discussion, but why don't we just turn to your first exhibit, which is your Exhibit Number 8? Identify that for the Commission and tell them a little bit about this.

A. Exhibit Number 8 is my starting point, and there are many things that I'd like to reflect back to this exhibit as I go through my presentation. But just a description of the exhibit, which I'll substantiate later, is that this is my estimate to show the volumes that have been produced from the reservoir and express these as equivalent acres.

Not intended to say that they have drained only these acres and nothing beyond. These are merely an expression -- or even the shape. They could quite be oval and different in different layers. So this is merely an expression of how much of the pool from an acreage perspective have they produced, these different wells, and how much are they expected to, based on projections that I'll show later?

The coloring is such that the light blue -- I'll start with the orange. The light orange are the cumulative-recovery-equivalent acres for three -- or six Koch wells in the west edge of Township 31 North, 8 West. Again, the light orange is what they have recovered to date, and projecting towards ultimate recovery would give the larger dark circle.

BP operates 14 spacing units. They're shown in light green for the cumulative production to date and dark green for the larger expected recovery.

And other wells, which could be -- some of which are Koch-operated, are shown in blue. But I'm focusing on these that were in color.

I'm referencing thre wells in the pressure discussion. They're shown with arrows. I'll be coming back to that. The area of these bubbles represents area, as opposed to radii or diameters or other such.

A minor glitch on this is that the graphic that indicates the western edge of T 31 North, 8 West, is intended to be approximately 40 percent the width of the section, and is intended to have reached down to the midpoint of Section 30 on the bottom, and the graphic came out a little bit short. It was not an attempt to besmirch the narrow drill blocks.

With that, I'd like to start out with the Horton, where we've obtained pressures. We've obtained pressure data on approximately 10 wells in the Basin. These are the closest on a zonal basis. We then obtained --

Q. And the Horton is the Exhibit 6?

A. Right. Before I go to the exhibit, let me explain, that is located on the left side where the far-left red arrow is on the lower-left portion of the graph. It's the smaller circle there. This is just outside the HPA area. This is one of the first wells we drilled.

When we looked at the area, we looked at the performance of the parent well, which in this horizontal drill block is located to the east, and we concluded that there -- we mapped a lot of gas in place, we had good coal thickness, we had good-quality coal. And our well is not performing very well.

To the west of this well, production is very small. It's in what we call a Type 3 area, it's a low-productive area. So we looked at this area as, ooh, very prospective for incremental recovery, numbers in excess of a BCF.

And to understand why the reservoir was not producing better, we went to some effort, a good deal of effort, to obtain zonal pressure, zonal performance information as to how the zones are performing. It's very easy to make conclusions that are aligned with some data, that are totally aligned with the data, but totally wrong because they don't include enough data. And we found that the -- understanding what the pressures in the reservoir were doing was very critical.

So I'm going to move to Exhibit 6, and I'll describe the process as to how we obtained the data. And this is a technique that I had pioneered in the Kansas Hugoton field some years earlier, and the approach is to use a cased, cemented well -- this is different than the wireline approach that I'll come to later. The approach for some of the tests that I've done was to use a cased well, cemented well, good cement bond, estimate in advance what the pressure is, and try and balance out in the wellbore with fluid to approximately that pressure, to not overdrive it or underdrive it, as best we can.

CHAIRMAN FESMIRE: So you perforate it and balance it?

THE WITNESS: Yeah, balanced it and perforated it, but yes.

CHAIRMAN FESMIRE: Okay.

THE WITNESS: And the next step was to run in with an assembly that had a bridge plug, a packer on 2-3/8-inch tubing. We had a pressure gauge below the bridge plug so we could monitor wellbore activity. We had pressure gauges, two of them, in between the bridge plug, so again we can monitor what's happening in between. Above this we had a standing valve, which allows fluid to move vertically up the wellbore but not back down the wellbore.

And we actuated a flow/no-flow situation using a swabbing tool. And the steps would be, that we would swab the well, that we would set across a zone, set the bridge plug and packer, monitor the stabilized behavior before running the test. It's like a miniature DST. We would swab the well dry. This would initiate flow from a few perfs. We would measure this flow into closed tubing, because we didn't want to stimulate the zones, because you might communicate other things. We wanted to have unstimulated zones.

We would flow the well into closed tubing. We knew the volume of the closed tubing, we knew the diameter of the closed tubing, we could very carefully measure flow rates. And at 3000 feet of depth with the resolution of our tools, we could measure flow rates as low as 5 cubic feet per day. Not MCF, but cubic feet per day. So we didn't need big stimulations.

After we flowed and monitored the surface, then we would pump into -- open the tubing and pump into the tubing. And as soon as we did that, the standing valve downhole, which had been just barely cracked open because of a small amount of gas coming up through the standing valve -- as soon as we had a little pressure to the surface, we had an instantaneous shut-in downhole, very crisp. We had designed the configuration of the tool to not have wellbore storage downhole, which would increase the length of time it takes to monitor what's happening in the reservoir.

In very tight rock, measured in microdarcies, we can frequently get radial flow data, permeability and all, within 30 minutes to an hour. So we used this data to, in this case measure the pressure of the zones.

And we were quite surprised and shocked that our theories up front didn't hold up. And over the more than three decades I've learned that it's very easy to develop theories on some data and be very happy with them, but that data is very nasty stuff because it very easily wrecks convenient theories.

In this case, we were looking to see where the gas was that we hadn't produced. And we'd have to back up and press "rewind" and go to California, because the gas had already been burned, had already been produced through other wells. This was a substantial distance from wells that had produced enough to have drained this.

Our own well to the east, the parent well, had not produced enough to have drained this area, this well, unless it just had a beeline connection to do it? And so I would have to look further.

And I couldn't look to the northeast because it was also under-performing, producing on the order of half the gas in place. And I'd have to look perhaps even further to the east or southeast, where we see a lot of overlap in our drainage radii. And that implies -- it doesn't prove, but it implies that in this case, supported by pressure data, that, ooh, we migrated gas from one area to another.

And we have, just from the performance of the well, Exhibit Number 9 incorrectly labeled as Dawson Gas Unit on the top, by myself. Should have been labeled Horton Gas Unit, just like the charts below show. So that's a little typo.

The *Dwight's* data for the two wells in the section that are called parents is shown above, the infill well is shown in yellow. And you can see some fairly rapid interference from the infill well with the parent. And I'll say perhaps, because that's only one source of data. It's very important to look at pressure data again.

Down below -- And let me mention that the parent well in there is red and the infill well is yellow. Down below is a daily production recording of the rates and the flowing pressures, and this is a model of our reservoir performance. We model up all of the wells with daily rates and pressure data.

And we can see early on in this plot that the real rate, which is shown in red, was rising dramatically as a direct result of the flowing pressure, which is shown in blue or brown, depending on whether we're looking at tubing or casing pressure. The pressure came down, the rate came up, and then we were stabilizing on a new decline.

This is an important multi-rate test on the reservoir to estimate the reservoir pressure, because if our pressure is too high it won't be as sensitive to small changes, if our pressure is to low it will be oversensitive. So there's a bit of a Goldilocks approach.

At any rate, so we can monitor the performance of the well. And when we looked at what happened after the beginning of January of '04 or thereabouts, we see on the next chart, which is on Exhibit 10, that the well dropped in rate when the infill well was drilled.

And at first blush one might say, ooh, that's a very dramatic interference, which sometimes we see and is real. In this case, the up-front rapid decline was due to a small rise in the flowing pressure from about 10 pounds to maybe 40 pounds. But to have that significant of an effect on the parent well was confirmation that we're dealing with a low-pressure system.

But later when we've stabilized with this well and adjusted our compressor to bring things back, and we brought the well back to a low flowing pressure, lower than before, our rate didn't come back. And that's because of the interference that we should expect because of the pressure continuity that is implied.

And we ran numerous surveys in this well and did different tests to try and regain that rate. And we had concluded that it's not a problem with the wellbore, but it was a change in the reservoir.

I made an effort to show how this relates to the material-balance concepts, these pressures and what have we produced? And the lower chart on Exhibit 10 is a material-balance plot for coal. And this is not a straight line, because I'm using real pressure.

And as has been said earlier, much gas -- more gas comes out at low pressure than at high pressure. It's a very nonlinear relationship, it follows a mathematical formula industry uses, called the Langmuir isotherm formula, which describes how gas is stored in coal. At low pressures you can put a lot of gas in coal, at high pressures you can add some more, and you hit a limit when you've occupied all the storage space.

This nonlinear curvature of the storage is reflected in the same equation, we'll reflect this into this P/Z curve. That's why it's curved.

At any rate, our approximate pressure -- Now we have a shut-in on the well too. When I compare the early pressures on the well of 160 pounds, 170 pounds, 138 pounds, 280, in the range of 200 -- when we had shut the well in, ran a survey down to where they're all connected to the wellbore, it read 178 pounds. So it was higher than the low, but lower than the high.

My estimated reservoir pressure from some modeling efforts was about 200 at the time. Current pressures are estimated at about 150 pounds. That's the red dot on the lower chart on Exhibit 10.

My estimated economic limit, based on the productivity of the well and how that productivity should decline as we decline the reserves, would be that we'd hit an economic limit on the order of 25 to 50 MCFD at about 50 pounds' pressure. That's the green triangle labeled "Series4" on the chart.

And then based on this material balance, that would be aligned with a gas in place of 9 BCF. This is noticeably less than what our gas in our map has. And I could conclude that, well, the map is wrong. But since my pressure was already depleted -- and I think it's also easy to conclude that, ooh, the gas has moved. And just material balance on a predetermined fixed area doesn't match your production does not mean that your gas in place is horribly wrong. Other things can come into play.

The next well that I'd like to talk about, going back to that exhibit with the bubbles, the drainage-equivalent areas, is towards the lower right of the screen. It's a red arrow towards what used to be an open area that covered several sections centered on the lower-right corner of Section 29, 31 North, 8 West. There was a very large area in there, some very good producing wells. And we made use of an existing wellbore from the Dakota formation to recomplete to the Fruitland Coal.

And it's difficult to go about producing -- or obtaining pressure data on the Fruitland Coal in the fairway in the current time frame, primarily because the pressure is so low that in order to cement and case a well, we'd have to support a column of cement or a column of fluid, and when we do that we lose everything to the reservoir, and we damage the well.

It's also difficult, because when we drill some of these wells, the pressure -- and we drill these wells so that we can under-ream them and cavitate them. In order to drill these wells with minimum damage, we use an air system with mist to keep the bit from burning, starting a fire, and to help bring some of the cuttings up, we use an air-mist system. On many of our infill wells in the HPA, we lost returns with air mist. We had very low pressures.

We took -- In this case, rather than try to do that, we used an existing well and we used that wireline tool. The wireline tool that we used is a Schlumberger tool. I think we introduced it to the Basin. Maybe somebody else did first, I don't know about it.

But it's a wireline tool that needs to go into our casing of approximately 5-1/2 inch or larger. We lower it down to a zone in a cased well. We set a pad up against the casing. We drill a hole into the formation, retract the drill. We pump the zone -- Well, we measure the initial pressure. We pump the zone into a chamber, measure the volume, and we shut the zone in for buildup.

And then we pump the zone again into a chamber, measure the volume, shut it in for a second buildup so we can check their initial pressure in the buildups to see if the data ties together well.

Sometimes on new wells you might run into trouble supercharging. In this case the well was 10, maybe 20 years old, and had good cement, had been sitting there for a very long time, so that wouldn't apply.

The pressure data that we observed -- and from any other reserve expectations for infill wells that I heard earlier today or might have calculated myself about pressure data, again the pressure data was quite interesting. It's shown on Exhibit 7.

And I should qualify the permeability that the Schlumberger tool does not record permeability directly. We have to determine the mobility from a pressure-buildup chart and then make an assumption on the viscosity. We actually measure mobility in terms of permeability for centipoise. We multiply it by our gas-viscosity estimate and calculate the perm.

The pressures that we see in our best interval, the most prolific producer, is on the bottom and either 84 pounds or 87 pounds, and to the resolution of the tool that is probably the same.

Permeability of the lower interval was quite good, 3.5 millidarcy. The upper one said .4. We might have hit it in a little streak that didn't have too much perm, but certainly the pressure looked depleted. It was depleting, and it is continuing to deplete in the existing well, as well as our new well. And I believe this pressure would continue to deplete without our new well, because we plan to produce existing wells for another couple decades.

The next zone up, which was labeled Cahn -- We took two intervals, two tests. The first one, very low, 146 pounds with very good perm. The next one was 1118 pounds and rising. The quality of the data was such that I just didn't try and extrapolate it as to how high it might rise. My feeling from the data was that maybe not much more than 1118, maybe 1200, but some number. But it was very low in perm, it's building slowly. And we looked at the rate of build to estimate the pressure.

The next two zones up, the top one, which is -- has a nice gamma-ray response, had 326 pounds, which was higher, which was good, but it was still down considerably from about 1600 pounds. And this isn't a big area, and no wells anywhere close when you look at four-wells-per-section-type spacing, or two-per-320. You'd have to -- It was more than 80 acres, more than 160 or 320, it's a good distance to the next well.

The -- One zone there was also tight, low perm of 2 microdarcies or so, again with quite high pressure. And as we finish with this infill well and the other well, I'm quite sure that these two zones will remain high pressure.

There's very little that we know of that we can do to economically address these zones that aren't performing because perhaps the ash content is too high. In this case we frac'd the well because it was cased. And frac'ing causes good damage to the lower zones or the low-pressure zones. We compress it and we prop it in a compressed state. So we -- especially in the low-pressure environment, we're loath to try and frac the wells.

For the open holes, we can let them cavitate as best as they can, but as pressures decline they tend to cavitate less, and the ones that didn't want to cavitate well in the first place probably still don't want to cavitate well. So we haven't come up with a mechanism to make those economic intervals. We produce what we can from them.

The third well, and last of this more detailed discussion, is called the Dawson well, the Dawson Gas Com 1S, which is in the narrow drill block on the west side of Township 31 North, 8 West, and there's a red arrow pointing to that. There's a small green dot above a larger green well, which is the Dawson Gas Com parent well.

Two decent producers, one to the east, one to the west. And then there's a long distance, up to perhaps a mile or so, to the Kernaghan 7 to the northeast, or to the Koch-operated well, maybe a mile and a half at the time, to the north. So there was a large area here that one might conclude was not developed because there wasn't any wells there.

Pressurewise, we had low pressure again. And the pressure that we had estimated from our automation system which records our pressure data from us, this would be collective, it wasn't zonal data. So it was an average of the zones. We wanted to produce this well, so we wanted to cavitate it, we wanted -- so we didn't case it.

But the overall pressure that we monitored was on the order of 100 pounds surface pressure or so. The chart on top of Exhibit 11 shows the performance of this well for the first couple of years, and early on the well is drying up from water that we lost to it. There's very little ΔP or pressure difference to allow it to push that water back out. Some damage from our drilling operations, we have to try and clean it up. Wells out here, even at this stage can take years to clean up.

You see that the well is very erratic in its daily performance because of fluctuations of pressure. Towards the end of this time period, looking at the lower right portion of the chart, see pressures on the order -- surface pressures -- flowing pressures on the order of 40 pounds. That 40-pound pressure backs out a lot of gas, as we can see, again indicating that it's a very low-pressure system. We can model that up.

The lower chart shows us that -- at least from my estimation, that perhaps a BCF might be produced by this well, but I don't have much illusion or much of a -- I won't make the conclusion that this is incremental. I think it's largely coming from a low-pressured system that was already supporting existing wells.

When I look at the parent well performance, Dawson Gas Com, that's shown on Exhibit 12, and at the time of infill development one will notice that there are three arrows. And many wells out in the field have four infill wells, one to the north, south, east and west. And it's important to include all infill wells when we're making comparison, not just parent-infill.

And likewise, each infill typically has four parents, so it becomes a system that we have to work with and understand. In this case, the three wells collectively are accounting for a substantial reduction in rate, and this is over and above what I would describe as reserve interference.

And I'll back up just for a moment and talk about two kinds of interference. There's reserve interference where you have wells sharing in the same pool of gas, in this case Fruitland Coal Pool, and the wells have established their portion of that. When new wells are drilled, and if those wells didn't find new gas, and if those wells -- if they're sharing the same gas, the existing wells will notice. If it's only reserve interference, they won't notice right away. They'll notice gradually, their decline rate or change, and that difference will grow over time.

There's another kind of an interference that is over and above merely sharing the reserves, and I call that rate interference. If I drill my well right next to Bill's well, that rate drops off instantaneously because of the proximity and the rate interference.

Alternatively, if I drill into a fracture system, communicate with a fracture system well enough, a fracture system will be very fast. It has high permeability, it has very low porosity. We measure speed with a permeability-porosity ratio, and it's very fast. And we monitored things that we conclude are due to fractures because of the speed, within a day. Some companies have monitored it in a fraction of a day. It's not always catastrophic, it's merely interfering. But for the long term, in either event, we are still sharing the reserves.

The lower chart is a rate-cumulative projection basically of the data above, and I'm showing my decline curve above, which is a model result parameterized, and then I'm showing an approximation of the decline that we're seeing after the infill drilling. And over time, I expect that these curves will deviate by more than a BCF from the well that we drilled, because there are more infills and it's experiencing losses to more.

We've surveyed the well, we've done -- there's valuable production that we've lost, we've tried to get it back, and we can't.

One more thing I'll mention here is that the curve above, on the upper chart, the red is the rate. And my model, the simulation or modeling of this well, is with -- is shown as white, and it operates on a declining reservoir pressure which I shown as yellow, and it operates against the backpressure which I show as brown. And I intentionally tried to not monitor the short-term fluctuations, which can be due to changes in flowing gradient if we have some water, it can be due to a lot of short-term things. But I try and go for at least the overall and honor reservoir pressure as best we can understand it.

And you'll see that this curve is quite -- I'll say curvy. And the same curvature -- up above it's on a rate versus time, just to show the impact. The chart below shows it on a rate versus cumulative. And on the rate versus cumulative it's curved as well. An exponential decline, which is a straight line on a semi-log rate-time plot, which I've seen numerous of today -- a straight line on a semi-log plot is a straight line on a rate-cum plot.

A curved line on a rate-cum plot is a hyperbolic decline, and coal will exhibit hyperbolic behavior. Natural gas will tend to exhibit hyperbolic behavior. Coal is more hyperbolic because of the nonlinear pressure depletion, because we get so much gas out of the low pressure.

So from an expectation perspective, when one is looking for infill, they need to have the right expectation, and a straight-line rate-time plot is not a good expectation. And they need to know what the pressure is. If you don't what the pressure is, you still don't know what you're doing.

The next chart, also on the Dawson Gas Unit, is how we evaluate another means of evaluating pressure. We run numerous pressure buildups on our wells, and here we can see different time periods with --

Q. (By Mr. Bruce) Is this Exhibit 12, by the way, you're on?

A. Oh, I've moved to Exhibit 13, thank you.

Q. Okay.

A. I'm still on the Dawson, and the upper chart shows pressure rising as a function of Horner time, which is in this case the steady-state producing time, plus the incremental shut-in time, divided by the incremental shut-in time. A long-term, industry-accepted method.

When the incremental time is very large, compared to the steady state -- the time it takes to reach steady state, that expression goes to 1, and it will extrapolate to 1. With these extrapolations, we had on the order of 130 pounds in September, 126 pounds -- excuse me, September, '04. A little later, February, '05, dropped to 126 under the same conditions. January of '06, 64 pounds. These are wellhead pressure measurements.

And I have shown these pressure data, as well as our other observations on the material balance isotherm, I call it below, which ties to the Langmuir isotherm, which is curvy. And the early data ties onto this blue curve quite well. Data after the infills looks like it's been pulled down a little bit more, probably faster than the reservoir. The coal has the nature of a dual porosity system, where the transportation system, the cleats and the fractures, are very fast, and then the matrix feeds those. So we can draw the transportation system down faster than the matrix, and so we would expect to see behavior like this.

The economic limit for the well is shown at 9 BCF. And again, this well is underperforming compared to what we map. And just because of this I don't conclude the map is wrong, I conclude that we have communication.

The next chart is Exhibit 14. When we started developing the coal, we realized that we were developing the coal with other people's money as operator, and they were frequently developing with our money, as we were working interest owners. And we've held numerous sessions inviting the operators of the Fruitland Coal and the San Juan Basin to get together and share information, share completion techniques, to try and better the development.

The last Coalfest, as we call it, was in April of 2005, and we have data covering a large portion of the Basin. In this case, I've trimmed it for this exhibit to show this area, the west of 31 North, 8 West. And what is contoured here are the data that were supplied by the operators that chose to supply data. We invited everybody, we would process their data and give everybody a copy.

And the implication of this is that the data from the industry concluded that -- as well as our operations -- that the heart of the fairway was exceedingly low pressure. The light-blue band in the middle running through this fairway portion or the HPA portion is in the 100- to 200-pound range. And towards the north of the township and up towards the northeast, the pressure starts rising. I speculate that it rises because it's not as fractured as it is towards the axis of the Basin, and that slows down how fast it dewaters, slows down how fast it depressures.

But at any rate, this corroborates the measurements that we made. But one thing that, just through this, I conclude is that there is immense communication out here, and it's very difficult to do material balance on a well-by-well basis and use that data to say whether the gas-in-place mapped is good or bad, because of the communication and the flux.

And before I forget, we sometimes use gas-in-place numbers as BCFs per 160 acres, and sometimes BCFs per 320. Most of my stuff is done on -- it's a different map, and it's just a scaling difference. I tend to work with a BCF on a 320, because I used to look at different spacing units. And just a correction for the record is that when -- I am Jim's reservoir engineer, as he mentioned, but when he quoted the number, he quoted 1 BCF per 160, and should have quoted a BCF for 320. Or is he my -- geologist, I guess. Whichever.

So the next step in understanding, well, how does it all fit together, what does it mean? And I'll be one of the first ones to have questions about gas-in-place maps, because I don't like to trust any data source. I like to verify it using other data.

So the next step is to look over a broad region, again, and that's where Exhibit 15 comes into play, which is in the handout or the exhibits that are supplied. But I'll point up here. There's a lot of information on this exhibit. I'll not go over all of it, but I'll go over some of the pertinent information.

This is a production chart for this area, and my area is four sections to the west, four sections to the east of the edge of the township. And I include the township, lower edge of 32 North, so I have these specific drill blocks at least encompassed. And I move further out because I want to include more of the fairway, and I wanted to include the wells where I was referencing available pressure.

Each square on this chart represents the wells in one section. They're color-coded just by different well names or numbers, and the code is underneath. And I'm showing the production data through time, along with a projection.

This projection was an effort to take an approximate decline for this region and run it out consistently for each of the wells, realizing that it doesn't match all wells, also realizing that the decline rates don't stay the same.

And to illustrate, I'm going to look at Section 35 of 32 North, 8 West, which is on the top row, third from the left. And when you look at that section, one can see that when infill wells came on line, that the pink curve, representing a parent well, drop dramatically from about 2 million a day to maybe 1 million a day, in a few -- a couple-year time frame. Much more than 16 percent. And you see that the blue well dropped also down to the million-a-day range.

And to estimate from production data what a pool size is, one could do it before infill drilling and skip the infills, to have a consistent set. One could do it after infill drilling and do the declines on both the parents and the infills, have a consistent set, or something in between. And I couldn't ignore the wells that had already declined so much, and we had so many infills. I chose to take a decline curve that was approximate for all but didn't necessarily tie to any given one well. And you can just visually compare as to whether one thinks that's an optimistic decline or a pessimistic.

One thing that's visible -- and let me move just a few sections, just to explain a little bit more. You go to the next section over, Section 36 of 32 North, 9 West, and look at the dark blue and the pink curves, again you can see them declining fairly quickly.

Section 31 of 32 North, 8 West, which is immediately above these narrow drill blocks, has an apparent large amount of interference going on, probably fracture-connected. You see a large drop in the pink and, again, the blue curves, dark blue.

Another thing I'd like to point out on this chart, as I talked about earlier, is a straight-line decline on a rate-time. When I look at the existing well performance, I don't see that.

I'll pick another section, I'll take -- from the upper left, I'll go over four to the right and down three, which is Section 12, 31 North, 8 West [*sic*], as an example. When I look at the history, once the wells have cleaned up, it's curvy, it's hyperbolic.

The real physics is even more hyperbolic. We haven't necessarily gotten peak reads up front because we had high back pressures and we had friction and a lot of things that were restricting it, so the real physics would describe even a more curvy prediction.

But I ran these predictions out with a hyperbolic equation that matches well what I have modeled in detail. Basically the physics of desorbing gas from coal, that nonlinear aspect, causes this curvature.

Another thing I'll point out, as I mentioned earlier, is that parent wells do not always respond one on one with their own child. The reservoir doesn't get the memo as to which one is theirs. They have four. Also, I'd like to point out is that -- and a person needs to look at all four.

Another thing I'll point out is that these sections in the center have very low infill production. Some sections have none. And so looking for a decline change, if you see any change in trends there, that's due to something further out, because you didn't have any there.

Another section, this one, might have just two months' worth of production. Some might have two years. On average, with the Koch-operated area, that -- the total of the production for the new wells is on the order of a couple percent of the pool size. And if we take out just a couple percent, we're not going to see that big of a pressure change. We might see rate change, for fracture reasons and others, but up front we won't see that much pressure change till we've moved out more in time.

Which leads to the next exhibit, which is Exhibit 15A. And I'll try and go through each of these briefly, but this is an evaluation of three of the Koch wells. One of the Koch charts showed that all of the new wells was incremental recovery, as they're estimating incremental recovery for wells.

When I look at the top chart on Exhibit 15A, the Koch Quinn 336 well, and I show the four infills, the child, the infill well, is the blue one. It comes late in time, about a year's production. By itself would have produced a small portion of the reservoir, not all from this well, some from other wells. By itself, shouldn't be expected to have much of a change.

Other wells came in earlier, including -- I've listed the wells off on the right.

But to me, the expectation of hyperbolic decline, the wells are deviating from that. If I had a straight-line expectation, which the physics of the desorption wouldn't support -- if I ran a straight line down through the red data, I might not conclude that, I might conclude otherwise.

The next section is more of the same. It's on the Jacquez 331, showing all of the infills and the departure from my expectation of hyperbolic decline. And the same is shown on the bottom for the Hunsaker 725.

Some of this could be operational. Without having pressure data, flowing pressure data, different things, I can't tell that. But from the industry data I would conclude that here, as well as other places, as well as my expectation that we should be departing from what we had been doing, are showing the interference with the new wells.

The next chart, Exhibit 16, I am referencing just the positions where we have drilled infill wells, where we've obtained pressure information from them. All of the wells in the bottom -- there's eight wells that we -- are infill drilled. They have yellow circles on them, and all average under 200 pounds.

At the top, as we move towards that high-pressure region, which we call Type 2 gas, but to the north of the fairway -- actually, these are still in the fairway, but towards the north we had over 200 pounds, and in one case a little bit over 300 pounds. But again, significantly depleted from original pressure, an order of 1600.

People quote different numbers for the original pressure because of different observations. Some wells, people observe fifteen, sixteen -- the most I've seen was 1750. Not all wells are drilled up front. Some wells were drilled quite a bit later and system pressures were coming down. They don't all have the same initial. And then reservoir pressure is also on a water gradient because it's charged with water, and different datum elevations will get somewhat different pressures. So I don't know the perfect answer to the initial pressure, but it's in that range.

The last -- or the second-to-the-last slide that I have is an attempt to circle the wagon around the question of, is the gas-in-place map good or bad? Does the pressure data that we have support the gas-in-place map? Are the -- This is again a material-balance analysis and a reconciliation with the gas in place.

When I took the declines that are approximate for the township and I took the existing production and I compared them, an estimate of approximate pressure for the reservoir, I compared them on this sheet. First, I recognize that there's about 35,000 acres, a little over 200 productive wells. The gas in place from the map is a little over -- is 2 TCF, a little over 2000 BCF.

Our cumulative production to date is a little over 1.2 BCF, or 61 percent of the gas in place.

Our remaining recovery, according to these declines, whether one likes them or not, would have been 576 BCF, another 29 percent. And I would relate to an EUR of 1.8 TCF or approximately 90 percent.

And separately -- and I had added up the individual drainage radii or drainage acres for all of the wells on a 90 percent, and I came up with about 35,000 acres.

The pressure data, along with these cumulative data and the Langmuir isotherm, show up on the chart below with approximately 200 pounds pressure where we are, perhaps on average, and an expected -- an EUR of about 1.8 TCF at about 50 pounds, and that would tie on the Langmuir isotherm to approximately 2 TCF.

So think it's a pretty good map. Is it perfect?

No, I'm sure it's not. It's certainly the best I have.

And how this would relate back to the original question of these drill blocks is on the next chart, and I have two typo glitches on this that need changing.

The last column on the right, I copied it over. It should read, Equivalent Drainage at 90 Percent Recovery Factor.

And the third column from the right should say, Estimated Ultimate Recovery Spacing Unit Recovery Factor Percent.

And when I looked at these sections, I listed the cumulative production for these spacing units on the column -- the second column from the left. My estimated ultimate recovery is in the third column. I'm showing the mapped gas-in-place number with units of BCF per 320.

I normal- -- I'm showing the spacing unit acres that I had taken off from a previous chart, which I think maybe had been revised by one digit or so, but I'm showing what was available as spacing unit acres.

I normalized the gas in place in the next column by ratioing that compared to 320.

My next chart [*sic*] shows a recovery factor using the cumulative -- or the estimated ultimate recovery times the spacing unit gas in place.

The next chart would show what the acres would be at 100 percent recovery, and I only show this to help explain the next column. I divided that by the recovery factor to show the estimated drainage at 90 percent recovery factor, which is well above 320 acres on average. And it seems to be believable and the best I could do in the time frame.

One other area of review to relate this back to ties to a list that showed 18 wells that were listed as fully developed irregular sections within the HPA Fruitland Coal, along with spacing acres for the wells in those spacing units. And I looked at them all and I did some more detailed study on a few of them. I've only had the data for a short time, or this list for a short time.

And what I conclude is that there are -- quite a few of these are in the units. I'll address that. Two of them called Johnstons, two of them called Gardners, are unassociated with the units, and one of them is called an Isabel, which is BP operated, and I'll come back to that.

On the Johnstons, I looked at the Johnston 29, 29S wells in Section 7, 31 North, 9 West, south half. Has 265 acres. And I compared the acres per well to the field normal, and we -- in this section there's -- the operator, not BP, has one well per 265 acres. If they compare that to two wells per 320 acres, they could calculate that this section has about 60 percent the well -- I'll call it a well density index. In other words, the access to the reservoir based on the number of wells it has. It has more acres than 160, so it's down to 0.6.

The operator was wanting to -- This is disadvantaged for the acres they have. They wanted to go drill another well, in which case it would push them from 0.6, normal being 1.0 -- it would push them to 1.21. Somewhat higher. They used to be 40 percent under. Then with two wells they're 20 percent over. It's closer, not perfect.

This plus the fact that they were underperforming. They were draining approximately 150 acres to date and had an expectation, by my generous curves, of 220 acres. They were underperforming and they were under-represented in wellbore availability. So it was appropriate that they get an extra well, going from one to two in the 320-acre unit.

The next thing, the Gardner. With 269.85 acres, the Gardner C 3A, which is in 31 -- Section 31, 32 North, 8 West, south half. This well, with 26- -- 270 acres, had a well-density index of 59 percent, so it was 41 percent under. With a new well they go to 1.1858 percent. It doesn't have any east-west correlative rights issues, it's a laydown. It's unitized across there, it's not one side borrowing acres from the other. There's a technique which

I've come to learn called borrowed acreage spacing approach towards getting more wells.

The next well that I'd like to talk about is a San Juan 30-and-6. But for the first two wells, the Johnston and the Gardner, I'll say by analogy these concepts relate to the other two wells in the section.

For the San Juan 30-and-6, the first well listed, has 229.6 acres, I believe, with a well density index less than 1, of .7174. With another well they go to 1.394. So they were 29 -- or 28 percent under, now they're 39 over. It's part of a unit, no east-west correlative rights that I know of.

The unit as a whole has approximately 30,000 acres with 164 wells, and the overall unit density is in excess of 180 acres per well, and I don't have a problem with that. And I'll say, merely by analogy, that I'll extend those comments to the other wells in the units.

The last well that I'd talk about is the Isabel A 1S, operated by BP, and it shows a stand- -- a well-spacing acres of 127.04. And I thought, ouch, I was there when we drilled the well; I didn't intentionally drill in a narrow section. And in reality it's not a narrow section, it has -- very much. It has 311.61 acres, almost 320. So we're about 155.8 acres per well.

And it only shows up here as 127 acres, because the difference was borrowed from this well and given to the well in the skinny block and equalized in equivalent acres but not equalized in production. The concept of equal- -- of borrowing acres to round up your quarter section to get half of the east-west, when you -- in reality, these wells have 40 percent of the acreage. The wells on the normal width have 60 percent, they have 50 percent more acres, but there's -- some borrowed-acreage spacing approach, would be more than happy to share the acres, but not the production. So it doesn't seem equitable.

All of these are different than the three in the middle, which are the Koch, which are all two wells per 320 trying to go to three wells per 320. All of the others, as far as I can tell, are one well per 320 trying to go to two wells per 320.

So I think granting these -- the third well, would cause all kind of correlative-rights issues, and it wouldn't result in waste because I don't believe they get any more reserves of economic significance.

Q. Now Mr. Reese, let's go to your very last exhibit. I just want to make sure of one thing. What you're saying there is, on the Koch well units with their existing wells, they're at the very least recovering the reserves under their acreage?

A. They're definitely not disadvantaged.

Q. And when you're talking the drainage, the pressure depletion, you just can't look at the parent well and the infill well, you have to look at adjoining well units, do you not?

A. Yes, it's a system. And I'd like to add on that, that as an analogy from a system -- and it's very definitely, in my opinion, a system; the data strongly indicates that it's a system.

My spare tire in my trunk is an analogy as a system. And I might own -- family of four. I might own one-quarter of that tire, and I can let air out of that tire, one-fourth of that air. I didn't necessarily let it out of my quarter. Gas moved. There's still gas underneath the surface of my quarter.

If I were to say, ooh, that gas, because it's under my acreage, is still mine, I can produce another quarter, and produce, and I could produce the whole thing, only producing what's under my quarter. And it wouldn't be fair, but it illustrates the concept of a system.

If this were tight gas, this would be an entirely different argument, discussion.

Q. And when you're going through the data, and Mr. Perkins going through the data, pool thickness, pressures, drainage, material balance, gas in place, none -- not every single one of those numbers can be determined with complete accuracy?

A. That's correct.

Q. But what you're telling me is, when you look at them all in conjunction and they seem to support each other, then it surely supports the conclusions you are reaching?

A. I heard the comment that a reservoir engineer needs to either think about this or do this. And as -- back in my teaching mode, I thought of a reservoir engineer as someone who took a very disparate sort of data and combined them into a consistent -- internally consistent, coherent picture, supported by data.

Again, to disregard data because it might mislead you, you're even less knowledgeable than you are if you had included that data. And the goal is to understand what all the different types of data tell you, and they're telling you real things about the reservoir. But to understand and hopefully not dismiss data because it might be bad, but to learn from all of the data.

Q. You sat through Koch's presentation, did you not?

A. Yes.

Q. Did you hear anything that would explain how granting their Application is fair to the offsets?

A. No.

Q. One final thing. If you look at your very first exhibit, which is Exhibit 8, and down to the south where -- and I don't remember the well name, but at the southern end of Koch's --

A. South center is the Johnston?

Q. In Section 30.

A. Oh.

Q. Mr. Beirne testified that BP has a nonstandard unit that creeps from Section 30 into Section 31.

A. Correct, on the left side of those two sections we have approximately -- I'm sure they're listed somewhere, but it's -- it would be probably on the order of 200 acres, like these --

Q. And --

A. -- section numbers, maybe 300, some 320, some maybe 330, I don't know exactly the numbers but --

Q. Okay.

A. -- comparable to the ones above.

Q. And BP also operates the east half of Section 30, which is a standard unit?

A. Yes.

Q. And it has two undrilled quarter sections in the south half of Section 30?

A. The south half of Section 30 has two undrilled -- they're both BP quarter sections, BP-operated.

Q. Does BP have any plans to drill those quarter sections?

A. No.

Q. And why is that?

A. Because we believe that the gas will be produced, and there is risk to other wells when we drill wells. We've sent drilling fluid from one well to another, probably through a fracture system. We've damaged -- in, I believe numerous mechanisms, existing wells, we have to go in and re-size the compressor, because they don't produce like they did before. It takes an immense amount of money to go and drill and cavitate, and it takes a lot of distraction of time, and you have to build new locations and -- to go after what we think will be produced anyway. And so we chose not to.

Q. So you've definitely -- in your studies of the area, you've seen pressure drawdown at one well per 320?

A. Easily.

Q. Substantially more at two per 320?

A. Easily.

Q. And you don't think it's worth going at three per 320?

A. Yeah, I'll agree with all of that, yes.

Q. And so in your --

A. Oh, let me add one thing. I haven't been able to quantify -- with all the pressure data I've observed, all the performance and all the modeling, I haven't been able to quantify economically significant increment in the fairway, in the heart of the HPA from the 160 infill well -- increased-density wells.

Q. Were Exhibits 8 through 18 prepared by you or under your supervision?

A. Yes.

Q. And in your opinion, is the denial of Koch's Application in the interests of conservation, the prevention of waste and the protection of correlative rights?

A. It should be denied.

MR. BRUCE: Mr. Chairman, I'd move the admission of BP Exhibits 8 through 18.

CHAIRMAN FESMIRE: Any objection, Mr. Hall?

MR. HALL: Brief voir dire on that?

CHAIRMAN FESMIRE: You may.

VOIR DIRE EXAMINATION

BY MR. HALL:

Q. Mr. Reese, did you collaborate with your colleague, Mr. Perkins, in the creation of Exhibit 3, gas-in-place map?

A. Yes.

Q. And in your -- the exhibits you sponsored, where those exhibits refer to gas in place or take into consideration gas in place, do you adopt Mr. Perkins' assumptions that he used for gas content in the coal?

A. Gas content can be measured in --

Q. It's just a yes-or-no question.

A. I believe the question could be needing clarification, but with the deficiency of no clarification, I would say yes.

Q. All right, let me clarify then. Mr. Perkins testified that he assumed a the gas content in the coal of 256 square foot --

A. 256 --

Q. -- per --

A. -- what?

Q. -- ton. Cubic square feet per ton.

A. And was that --

Q. Standard cubic feet per ton?

A. I heard some --

Q. You --

A. -- other numbers as well, and --

Q. If that is his testimony, do you adopt it?

A. For my -- You probably want a yes or no, and I'll say no.

Q. Okay.

A. Wouldn't mind clarifying, but I'll say no.

MR. HALL: Okay. I have no objection to the exhibits.

CHAIRMAN FESMIRE: After questioning about Exhibit 3, Mr. Hall has no problem with admitting Exhibits 8 through 18. They'll be so admitted.

Mr. Hall, would you have a cross-examination?

CROSS-EXAMINATION

BY MR. HALL:

Q. Let's start from the beginning, Mr. Reese, where you testified about Exhibit 7. You discussed the various pressures shown on there, and then the variable permeabilities shown on there. Is it possible that those variations are due to well damage at all, where you have low perm?

A. The question is in error. I started with Exhibit 8.

Q. Well, you referred to -- you discussed Exhibit 7 --

A. I moved to Exhibit 6, I believe, next --

Q. Let's discuss --

A. -- and then I went to 7.

Q. -- Exhibit 7 where you have pressure --

A. Okay.

Q. -- data and perm data.

A. Okay.

Q. The answer to my question?

A. I forgot the question.

Q. The fact that you're showing variations in pressures there, and variable permeabilities, do you attribute any of that, any of the low perms there, to well damage? Can you preclude that?

A. I don't attribute it to well damage.

Q. To what do you attribute it?

A. I attribute variation in pressure due to variation in amount of gas withdrawn from the zones, from a system where not everything is perfectly homogeneous. And I view the variation in permeability as we measure in depth past the new wellbore surface with a longer-term pressure buildup, to reflect a higher ash content, would be my conclusion on those zones.

Also associated with, as most people would accept, reservoir variability.

Q. All right. Now let's turn to Exhibit 8, and I think we might be able to relate this to Mr. Perkins' Exhibit 3 and his assumptions about gas content. Tell us what assumptions you made to derive a gas in place here.

A. The gas in place -- First off, I made no assumptions to derive a gas in place.

Q. Tell us what you did.

A. I used the work of our research center and more than one geoscientist, that back when Amoco was very -- was leading the development of the coal, we were very much in tune with gathering an immense amount of data, we were very much in tune with taking coal cuttings and not just looking at what desorbed in a partial state but restoring and understanding what the true capacity of the coal was under very careful conditions.

And we had numerous careful measurements throughout the Basin, and we collaborated with other operators to make sure that we were all using -- or we had access to the knowledge and the quality of the data.

We've written numerous SPE papers on it, which are accepted as to how to determine correct versus incorrect data, and we used that data. When expressed on a gas-per-ton basis, I like to think of a gas storage in terms of per ton of clean coal, ash-free, dry, and the numbers that I couldn't address too well earlier of in the low hundreds were not expressed on that basis. The numbers when expressed on the basis of clean, dry coal, pure coal, are in the range of 750 to 950 standard cubic feet per ton.

So the question really didn't describe what per-ton basis the numbers were referenced on.

Q. Well, what was your assumption for gas content used in the compilation of Exhibit 8?

A. Across the Basin, not just here, there were specific measurements of the gas content and the ash content and the thicknesses, and these were integrated in a map. The mapping process takes discrete points and will come up with a very fine matrix of data points and will populate the matrix of data points with values in a contoured sense. And then when one is trying to find an average for an area, one goes in and takes an average of those on pixels.

And so I didn't specifically do any averaging myself. When I used the map, I would take the contours of the map, and I would take the values for the well when they were posted, and I would interpolate, based on the contours of the map, where we did not have specific values.

Q. So if I understand what you're saying, you utilized the values shown on Exhibit 3 to construct Exhibit 8?

A. I believe this is identical to a map that I had access to prior to the printing of the specific one. Mr. Perkins had taken the work of previous geoscientists and researchers and replicated and printed this out. When I spot-checked it, it looked identical. But I had actually used the one that led to this map.

Q. So --

A. I believe them to be identical.

Q. -- the data shown on Exhibit 3 is reliable and comports with what you used to compile Exhibit 8. Is that what you're telling us?

A. That's my belief.

Q. Okay.

A. We have maps that show actual values for the wells where we have the values --

Q. Okay.

A. -- but that's not shown here, it's -- gets fairly cluttered.

Q. Okay. On your Exhibit 8 do you have a view, in the unpopulated gray areas you show, whether you will encounter virgin pressures there?

A. Yes.

Q. What's your view?

A. No, that we won't encounter virgin pressures. Where we've tested it, we've seen substantially depleted. Where we've drilled our 160s, it was depleted from virgin conditions. I have no illusion of finding significant gas at virgin pressure.

Q. I take it from your testimony, Mr. Reese, that BP will not support any effort to develop the Fruitland Coal in New Mexico on an 80-acre spacing basis; is that right?

A. You could take that, but that wouldn't make it so, and I don't agree with that statement.

Q. Okay. What is BP's position on 80-acre spacing?

A. I believe some portions of the Basin could adequ-

-- could be appropriately developed on 80 acres. And in particular, as one moves north and looks at the extension of this type data, as you move towards the 37th north parallel, border with Colorado, you'll find areas that are very poorly developed, that only recently have been developed, are slow to develop.

And immediately across the border in Colorado you'll see that industry and -- or regulators have agreed that 80-acre development is appropriate, and I expect that will be determined that that will at some point in time be appropriate south of the border.

Q. All right, just so we're clear, though, on how Exhibit 8 operates, to get this equivalent acres depiction here, you have to calculate gas in place; is that correct?

A. No. I used what someone else calculated.

Q. Okay.

A. Yeah, okay, for clarity.

Q. Let's turn to Exhibit 9, the Horton Gas Com Unit performance. The rate-versus-time plot at the bottom, it stops at January of '04. Why is that?

A. It stops because I wanted to focus the discussion merely on the process of how we monitor wells' performance, and I didn't want to distract the moment of discussion by all the changes that happened afterwards. I'm showing that on the next slide.

In fact, that rate data shows up exactly on the next slide, as red. And the pressure data shows up in the bottom as brown. And here it's plotted as rate versus cum, but it's the same source data.

Q. Okay. Well, let's go back to Exhibit 9. The top plot there. We're looking at -- the primary well there is the Burlington Sheets 250. And if I'm reading this correctly, when the infill well came on, the Horton Gas Com 1S, the Burlington well production increased somewhat? Do I read that correctly?

A. You might conclude that. There are some ups and some downs. I would say it's approximately the same.

Q. Okay.

A. But I will add that several places we've seen increases, when we drill one well, that initially offset wells will increase. It's a synergy, it's one well helping the next well to dewater the formation, is what we conclude. And we have numerous examples of that helping the next well improve rate. We don't believe that it helps in the long term either generate more gas or recover more gas, but it does definitely help in the short term on rate.

Q. Do you agree that Exhibit 9 shows that incremental production was realized?

A. Definitely incremental production expressed as rate in time was, in the short term, but not in the long term. That's called rate acceleration.

Q. You're calling it rate acceleration, rather than incremental recovery? Do I understand that correctly?

A. Your question dealt with incremental production, not incremental recovery.

Q. Okay, I misstated it then.

A. Yeah.

Q. Do you agree that Exhibit 9 shows -- makes a case for incremental recoveries?

A. No.

Q. Let's look at Exhibit 10. It's the Horton Gas Com performance. And again, so I'm clear, this data begins in January, '97, terminates January '04; is that right?

A. When you say "this data", you're referring to the upper chart?

Q. Yes, sir.

A. The rate that this chart starts at is at about 1.4 million, and the time frame of that approximately -- that 1.4 million, would look to be January of '98, not like the label says, '97.

The cumulative that shows up on the bottom, I believe, would go back further. And in this case the label is wrong. The cumulative would go back to the start of the well's production. For the record, the cumulative MMCF since 1-1-97 should say just cumulative MMCF.

Q. Let me ask you about the casing pressure data you show on there. At about the time your infill development comes on line, shown by the yellow line, whenever that is, you're showing an increase in casing pressure.

A. Yes.

Q. What caused that, in your opinion?

A. This is a rare occasion for us in the field where we have what's called a straddle compression system, to where we bring two wells into a common compressor. Most of our wells, the vast majority of our big producing coal wells, we have individually tailored compressors specifically for that well.

In this case, one of the few, when the gas from the new well came into the same compressor it increased the inlet pressure, which the compressor needed to move more gas, and that higher pressure at the inlet of the compressor showed up at the parent well, because it's at the inlet of the compressor, and it backed out some of the gas at that time.

And so the bulk of that back-out up front, after the infill, is because of the interference with the surface transportation.

And we recovered from that, later, when you see the pressure is down to zero, and we did everything to make sure there was no problem with the well, but the rate only recovered to its interfered level.

Q. Well, if we didn't have, as you say, this unique situation in this case, would there have been interference, shouldn't the casing pressure have declined rather than increase, when the infill well came on?

A. You're referring to the parent well?

Q. Pardon me?

A. You're referring to the parent well?

Q. Yes, the data you've shown here.

A. No. The rate should have declined when the new well came on, because the backpressure that the new well had to flow against was higher, and that higher backpressure caused the rate to be lower coming from the reservoir.

Q. Okay, so this is attributable to your --

A. This --

Q. -- compressor configuration on the surface, then?

A. There are two types of interference showing up here. One is temporarily through the surface, and then later we're seeing the expression of the reservoir.

Curiously -- and I didn't plot it here; one can check the records -- when we fixed the compressor and when the rate came back up on the parent, we saw a corresponding drop on the infill, and that's the reservoir.

Q. Is there any way for us to distinguish surface pressure interference from production interference from the infill, as reflected in the casing pressure?

A. When two things are happening at once, we can model it, we can mathematically model it, and make our best effort to quantitatively describe how much came from each. It's not absolute, but that's the best we can do when two things happen at once.

Q. Let me try to understand some of your other exhibits. Exhibit 13, for instance, the material balance isotherm you've drawn at the bottom. Why are there no data points between the inception of the data on the left until -- when? -- September of '04? What does that tell us?

A. It tells us that the blue curve is a mathematical curve of a material-balance type that tries to tie initial pressure to gas in place.

And for conventional reservoirs, that line is a ruler-straight line when supercompressibility is taken into account. This not being a conventional reservoir, it has nonlinear pressure depletion. This is a standard Langmuir isotherm calculation as to what the curve should look like tying those points together, taking into account the nonstandard pressure -- or depletion of the coal, the nonlinear depletion of the coal. So that's merely an expression, a mathematical expression, between the two points.

The data points you see are the ones that show up here, the pressure datas. We have pressure data going -- daily pressure data going back for -- to about 1994. We have numerous pressure buildups that the system automatically records whenever a compressor goes down, we get a buildup. If a substation goes down, we get a buildup. We have more data. I didn't go back in time to fetch them for this exhibit.

Q. So you're not trying to actually tie in the actual data points that you have, you're trying to see how close you match them; is that accurate?

A. This -- I would go about this two ways. In my first approach I would use the mapped gas in place, the mapped gas in place for a legal spacing unit. And I would assume that nothing is left, that all the gas was there for me, nobody else can touch it. And in which case, that number would be quite a bit larger. It would be on the order of 17 or 18 BCF.

Q. Let me stop you, just so I understand. That's your starting point?

A. This is the endpoint of an engineering analysis.

Q. Okay. Go ahead, I'm sorry.

A. My starting point is to understand, how does the production and pressure performance compare with what my mapped gas in place is?

So to make that comparison, to investigate if there are any differences and what the meaning of the difference is, I start out with the mapped gas in place. And I look to see, what should my pressure be if I really had that gas in place, all to myself, and I've only produced this much, and I looked at the pressure to see if it compares? And I concluded right away, ooh, it didn't compare very well, something is wrong.

What does compare, in this case, is a reduced estimate of gas in place, whether it's reduced because of the area, whether it's reduced because of zone, or whether it's reduced because of competition. And when I saw the zonal pressure data, I concluded it was reduced by competition. It's a reconciliation between different kinds of data --

Q. All right.

A. -- which is important to understand the reservoir.

Q. So your mapped gas-in-place data utilized for Exhibit 13 ought to comport with what you used on Exhibit 17 for the overall pool?

A. My starting point.

Q. And it's 2 T, give or take?

A. Oh, I'm sorry, I was still looking at Exhibit 13.

Q. Yes, compare that to Exhibit 17, your mapped gas

in place, up to the same point, but this is on a macro --
A. Okay --
Q. -- scale, correct?
A. -- on Exhibit 17 I took a -- my starting point was my -- again, just like I was inadvertently describing for the Horton, my starting point on Exhibit 17 was take the mapped gas in place, which is 2 TCF, take the starting pressure of about 1600, apply a Langmuir isotherm, see how that compares to our data. And if there's a difference, I conclude there's a problem, perhaps, with either the gas in place, the layering, competitiveness or whatever.
In this case, they tied so close I didn't have to make any of those conclusions other than, I think all the careful work that many geoscientists have done to create the map resulted in a valid map.
Q. All right. But if your assumptions about mapped gas in place are incorrect, then your curve is wrong. Right?
A. The curve, being mathematical, is what the equation says. In this case, if I had ignored the gas in place and had used merely the chart that I show here with declines, I would be using a number slightly different from 2.018 TCF, and it would be different by the ratio of 34,823 acres to 34,560 acres, and it would have been quite close.
Q. And back on Exhibit 13, the fact that your data

points didn't quite match up to the curve, it's not a problem for you?

A. There are very good reasons why they won't and shouldn't tie to the curve. Some of them I already mentioned earlier, that when the new wells came on line, the multiple infill wells, it appears as if it's pulling the transportation system down faster than perhaps the matrix had desorbed.

Other things that are different is that when we measure pressure at the Horton Gas Com 1S, we're measuring at one point in the reservoir. And if I went a similar distance to the east of the parent, I would expect to find quite a bit lower pressure, because I'm close to that big producer. If I moved north or south, I would find somewhat different pressure. So I have an approximate point due to one point in the reservoir, averaged of zones.

Q. Okay, it's approximate. Now, back on 13, the first data point for pressure buildup on September, '04, on the isotherm seems to be mapped a little bit higher than the actual data shown above, 131 p.s.i.g. Is that significant?

A. The pressure on the chart below seems higher, if you only look at the digits interpolated on that scale, than what the buildup is, that's correct. But they're different units.

Q. Let's go to your Exhibit 15.
A. Would you --
Q. Exhibit 15, please.
A. -- like to know the difference in units?
Q. Let's go to Exhibit 15.
A. Okay.
Q. For this montage of production decline curves, in each case where you believe you see interference, have you precluded all other causes such as mechanical, operational, surface-compression issues to explain the apparent decline?
A. I have made a little list of notes here. There are many things that affect the declines on the well, many things that affect the rate. And what happens at the rate gets incorporated in the decline.
Earlier we heard that discontinuity in the reservoir is the prime function for rates being different, whether you're looking at a trend of recovery per foot or whatever. Numerous times we heard that the heterogeneity in the reservoir is important.
We have many other things. We have completion techniques, we have how the well was drilled, whether the well was drilled early or late, whether we lost returns when we were drilling the well, whether it cavitated -- some wells cavitate well, some wells don't -- whether there's water downhole, whether there's water flowing in

the gas, whether there's a pumping unit, whether there's compression on it, how low the compression pressure is, how fast the compression pressure is falling, numerous places one can observe, for a while, where production is flat, not because you have an infinite resource, but because frequently the pressure is being pulled down, the compressor's running at the same speed, the pressure is being pulled down, the production is flat.

Numerous things affect declines, and I took a composite view as to what I thought applied to wells where we had better knowledge on our own and made a visual observation with others and settled on this decline, which I believe was about 15.5 percent at the start, not too dissimilar from the decline rate of 16 percent that was shown on the Koch exhibit.

Q. So is the answer to my question no?

A. Possibly.

(Laughter)

THE WITNESS: What was the question? Before I rambled.

I take lots of things into account as possibilities, not just interference. And like I mention and put on my own exhibit, that I recognize, ooh, this is surface interference on this well up front, but it's pressure interference down the road. I am very careful to look at all possibilities and not just take the one that is the most convenient.

Q. (By Mr. Hall) Let's look at some of your plots on Exhibit 15. Let's look at the Section 35 in 32-9, third from the left, top row. Let's see if we can understand this a little better.

The infill well that you seem to be targeting here is the Peoples Gardner C, but if I read this correctly, the parent well, the Gardner C1, and indeed the Conoco San Juan 32 Fed Com 36 [*sic*] 1 seem to begin their decline before the infill well came on. Am I reading that correctly?

A. Could you mention the colors, or say the wells again? I got lost on --

Q. You can't read those like I can, can you?

A. Well, I can read them here. The People Gardner C 1 is a parent well, and --

Q. Yes.

A. -- the Conoco San Juan 32 Federal Com 35 1 is a parent well also, and the latter is in the northeast corner, the former is in the southwest corner. And these wells, the -- if I look at the pink -- or in this case the Conoco San Juan 32 Federal Com 35 Number 1, I would say yeah, in fact, it is declining, it isn't showing interference before these wells are drilled.

And the reason is because this plot only shows some of the infill wells. When you look at other infill wells, if you move to the section to the left, 34, 32-9, you'll see, oh, these wells were drilled earlier, so the interference that you're seeing is not from a legal infill, it's from an infill every bit as close right next door. Again, each parent has four infills, not one.

So you didn't look far enough over.

Q. I didn't or you didn't?

A. In terms of understanding what these curves mean.

Q. All right.

A. You need to look at all the infills. I was merely presenting the data.

Q. All right. And let's look at the next section, Section 36 here. The dark blue parent well and then the magenta well as well, both parent wells, correct?

A. Yes.

Q. And they began their decline before the infill wells came on; is that correct?

A. I don't know that I would conclude that. I think that happened commensurate with infill wells. There is a green dot up above the yellow dot, and it looks like in the -- sometime in the middle of 2005 or slightly earlier, when the Burlington San Juan 32 9 Unit 228S well came in, and it looks to be very coincident, if not exactly the same as when the dark magenta well went on decline.

And other wells would affect it as well, not just one.

Q. Let's turn to Exhibit 16. If you look at the Jacquez 331 well in the northern portion of the Application area, in that nonstandard unit, compare it to BP's Jacquez 2S to the east there. Can you explain why those wells appear to be performing so differently?

A. I could imagine many reasons, but I don't know the specific reason. To make sure that I have the wells right, because I didn't catch the numbers, were you referring to the well in the southeast and the southwest, or the northeast and the southwest?

Q. It -- The largest bubble point in the Application area --

A. -- is in the southwest.

Q. -- I believe -- It shows the Jacquez 331. I believe that is in the southwest.

A. Okay, that big orange one?

Q. Yes.

A. Okay. And comparing that to which other one?

Q. The Jacquez 2S.

A. Which is the Jacquez 2S?

Q. It's in the southeast.

A. The southeast. The Jacquez 2S, being an infill well, and the other one being a parent well which was drilled a long time earlier, the infill drilled perhaps in late 2003, maybe 2004. It hasn't produced very much because it hasn't been on line for very long --

Q. All right.

A. -- and the light green circle inside the yellow circle is how much it's produced to date, because it's merely an infill well, and the green is what it's expected to produce.

Q. Can you explain to us why the BP wells in the southern portion of the area depicted on Exhibit 16 are -- appear to be performing fairly poorly, compared to the wells to the north? Is that because they've only recently come on line, or is there another explanation?

A. There's several wells that are doing exceedingly poorly in terms of cumulative recovery because they're infills. They're circled in yellow. I'll set those aside for the moment, other than to mention that we have great difficulty in getting good completions, because the reservoir pressure is so low in these inter-well areas, from drainage from the big wells.

Regarding the big wells, the parent wells, I believe that the four larger ones in the southern portion of that section are good and maybe have comparable completions.

I don't know exactly why the Dawson at the bottom of that narrow section is not doing so well. It could be because of completion, it could be because of lower-grade coal, and I don't know the completion history of it. So I don't know the answer to that particular well. Many -- a half a dozen or more reasons could come into play.

Q. Okay. And variations in --

A. Even reservoir heterogeneity, yes.

Q. Okay.

A. It could have less pay, it could have some high ash content in some zones. Lots of possibilities.

But the pressure shows that it seems to be communicating very well with the well that we just drilled. So it doesn't seem like it's reservoir. I'd probably have to throw that away.

Q. Again on Exhibit 17, do you have available to you the gas-content figure that you used to calculate gas in place?

A. No, because I didn't calculate gas in place.

Q. Do you have available to you the information that shows gas content for the coal in this area?

A. I don't have the information with me, other than quizzing geoscientists involved who showed me data that showed numbers in the range of 750 to 950 approximate standard cubic feet per ton of pure coal. And it would vary well by well, so it's not just one number that was used. The specific data for individual wells was used.

Q. Turning to Exhibit 18, is it correct to assume that -- You're showing drill block performance summary here and equivalent drainage areas, as I understand it. Is it correct to say that if you have overstated your gas in place, that the area gets smaller?

A. In the calculation of the recovery, a larger gas-in-place number would show a smaller drainage radius --

Q. Okay.

A. -- and would result in a discrepancy on the previous exhibit.

MR. HALL: Okay, that concludes our cross.

CHAIRMAN FESMIRE: Commissioner Bailey?

COMMISSIONER BAILEY: I have no questions.

CHAIRMAN FESMIRE: Commissioner Olson?

COMMISSIONER OLSON: I have no questions.

EXAMINATION

BY CHAIRMAN FESMIRE:

Q. Mr. Reese, I've got a couple of questions. Your employer has announced that it's going to spend $1 billion over the next 20 years, basically drilling in the San Juan Basin in Colorado on what will effectively amount to 40-acre spacing; is that correct?

A. Ooh, I know of spacing at the 80-acre level. I know of spacing at the 160 and 320. I don't recall spacing at the 40.

Q. Okay, but the --

A. I expect some places are so tight out there that when they drill and -- on very close spacing, and they still find virgin pressure, that one might want to go to 40. If there is a problem that it's so tight that you have to go to 40s, it might not be economic at 40. But I don't know that -- personally, being on 40s.

Q. Okay, and the reason being that if it does -- you know, if they do encounter lower pressures, they're going to need to drill on the tighter spac- -- on the less dense -- more dense spacing; is that correct?

A. If they encounter lower pressure, my first thought would be, ouch, that --

Q. No --

A. I'm sorry?

Q. -- the higher pressure -- they're planning to --

A. Finding higher pressure would imply poorer drainage and the need for more wells.

Q. Okay. And can we turn to Exhibit Number 7? And granted, this well is some distance from the area that we're looking at, but you've encountered in there, in one thick sand a minimum of 1118 p.s.i., and you said it was still building; is that correct?

A. I haven't found my chart yet, but I believe that's the Fletcher, and it was still building, yes.

Q. Okay. And there's another smaller -- I said sand, I should have said coal. There's another smaller coal there that encountered 1382 p.s.i.?

A. Uh-huh. I would like to say that when we chose the points to test, we recognized that this was an RST log and that it did not tell us very much about the coal with regard to whether there was a high ash content or not.

And we decided to test them anyway, the more likely intervals, and we were very surprised and encouraged to find a couple intervals of high pressure, very discouraged to find that they seemed to have very low perm, and concluded that maybe they had high pressure because the perm was so low that they didn't cavitate well and just didn't produce well, and lack of withdrawals.

Q. Okay.

A. When we produced the well, I believe we used a 400,000-pound frac and pumping unit to keep it pumped off. We're producing on the order of a hundred and -- maybe 120 MCFD. We spent a million dollars.

And the performance of the well is such that it implies that the sourcing of the gas is coming from something of about 70 pounds pressure, because we change the pressure a little bit and we get a noticeable rate, we have the pressure drawn down very far, and if we were to raise our flowing pressure to 100 pounds we wouldn't see any rate, because there's very little -- there's not enough coming out, even despite the frac, to overdrive these low-pressure zones to provide anything to the surface.

Q. Okay. Going back to a question that I think Mr. Hall asked -- and I'm not sure, he got a -- he didn't get a satisfactory enough answer for me to understand --

A. Okay.

Q. -- the answer. The permeabilities that you've calculated here include -- they're effective permeabilities for the entire system that was tested, and that includes the damage to the formation that was done during the drilling; is that correct?

A. The damage that would -- This would look beyond the damage, what I would call skin damage --

Q. Right, and -- But this number includes that. This is an effective permeability, is it not?

A. This is an in-depth effective permeability, which would be -- I would describe as permeability beyond the skin damage.

Q. Okay, so this -- this would be actual --

A. This is not reduced -- in my estimation, this is not a low perm because of skin damage --

Q. Okay --

A. -- in my estimation.

Q. -- okay, then you should have been able to calculate from that same data an S factor, a skin damage; is that correct?

A. Yes.

Q. Okay. Was that done?

A. No.

Q. Okay. From your bubble diagrams that start on Exhibit 8, if we agreed with this analysis, that still leaves the location in Section 18, would be necessary to produce some of the reserves under that are; is that not true?

A. Section 18?

Q. Right, the middle well, the middle well that's proposed.

A. Ah. As I attempted to articulate, these are equivalent. These circles represent gas volumes taken from the reservoir. They don't represent where it's taken from, and it doesn't represent that it's uniform in each layer, and it doesn't represent -- just as I take air out of a spare tire, if I take some out I'm affecting a large area. I don't take it --

Q. Right --

A. -- affect just one.

Q. -- right.

A. So I would conclude from here, though, with a huge amount of overlap in this area, that we would find exceptionally low pressures here, and we would see interference with another well, and I expect they observed low pressures on these other infill wells up above, too.

Q. Okay. But notwithstanding the fact that some of the offset wells do have overlap, from your diagram one could conclude that there's at least one out of the three locations that would recover significant reserves; is that correct?

A. No, I wouldn't conclude that.

Q. You wouldn't conclude that? And you wouldn't drill that additional well?

A. No. The reason I wouldn't include [*sic*] it is for the reasons where we have drilled wells in otherwise areas that didn't have circles we found consistently, ooh, it was already depleting quite lowly, it was already supporting the existing wells.

So these -- the position of these circles do not show that certain areas still have the gas. It merely shows the point of production.

Q. And again, this is something that Mr. Hall addressed. Your rate-time curve on the bottom half of Exhibit 9, it ends in January, '04. And then I was a little confused about when the rate-cum curve on the next page began. I guess what I'm saying is, there's -- from looking at it, there's some gap-osis there, and --

A. Oh --

Q. -- I was wondering what --

A. -- yes, and I had intended the gap-osis. And the reason was to facilitate a flow of the conversation. And I think I can help at least understand what I had done, whether one agrees why I had done it.

But if a person looks at the time period on the plot, it looks like about December 3rd of 2003, there's a spike there that goes up to about 800 MCFD.

Q. Okay.

A. And if you go to the chart, the diagram on Exhibit 10, at about 5.05 -- the small number, BCF cumulative production -- not since '97, but since the start of the well -- you'll see a point there that jumps up to 800 MCFD.

These are point for point the same ones that show up before, so that there is -- at the end of the year there's a few more points past that data point where -- that is the end of 2003.

So what you were looking at is -- And the location of that yellow arrow is almost right. The gridding system wouldn't allow precision. But at the same token the production from the well didn't start up instantly either. It worked its way up, so it didn't have a crisp starting point. So I put it approximately there.

The drop in the production that you see on Exhibit 10, that drop in the production is caused by the raised pressure, which was consistent with the large rate increase that we saw on the infill well. So that drop in rate is at the start of the infill well.

Whether it's on a rate-cum or whether it would have been on a rate-time, it would have looked almost the same, just time versus cum.

CHAIRMAN FESMIRE: Okay, I have no further questions. Mr. Hall, do you -- I mean, Mr. Bruce, do you have any redirect?

MR. BRUCE: I don't have any redirect.

CHAIRMAN FESMIRE: Mr. Hall, do you have anything else of this witness?

MR. HALL: No, sir.

CHAIRMAN FESMIRE: Commission?

COMMISSIONER BAILEY: No.

COMMISSIONER OLSON: No.

CHAIRMAN FESMIRE: Mr. Reese, thank you very much.

Does that conclude your case?

MR. BRUCE: Yes, sir.

CHAIRMAN FESMIRE: Mr. Hall, did you have some rebuttal witnesses?

MR. HALL: We have some rebuttal testimony.

CHAIRMAN FESMIRE: Who's your first rebuttal witness?

MR. HALL: Leap right into it.

CHAIRMAN FESMIRE: Okay.

MR. HALL: You could take care of some business?

CHAIRMAN FESMIRE: Just real quick.

(Off the record)

CHAIRMAN FESMIRE: Scott, would you like to take 10 minutes?

MR. HALL: Yes, sir.

CHAIRMAN FESMIRE: Okay, why don't we go ahead and take a 10-minute break? We'll reconvene at five minutes to 4:00.

(Thereupon, a recess was taken at 3:45 p.m.)

(The following proceedings had at 3:55 p.m.)

CHAIRMAN FESMIRE: Okay, let's go back on the record. Let the record reflect that it's now five minutes to four o'clock, we've taken a break, and Mr. Hall has called his first rebuttal witness, who is -- ?

MR. HALL: -- Robert Wright.

CHAIRMAN FESMIRE: Mr. Wright, you're reminded that you're still under oath, that you have been sworn in this case, and that that carries over.

MR. WRIGHT: Yes, sir.

ROBERT C. WRIGHT,

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

DIRECT EXAMINATION

BY MR. HALL:

Q. Mr. Wright, you were present for the testimony of Mr. Perkins and Mr. Reese today, correct?

A. Yes, sir.

Q. Let's discuss some of the exhibits introduced through them, if you would. Let's talk about the bubble maps, starting with Exhibits 8 and 16.

A. Yes, I have those in front of me.

Q. What's your opinion with respect to the evidence that these purport to demonstrate?

A. Well, what seems to be implied here is that the drainage areas that are shown show a dramatic overlapping of one well to the next throughout the area. This would imply to me that we should see evidence of interference at the offset wells.

As an example of one of the large bubbles on the map that is near one of our proposed locations, the Jacquez 331, located in -- let's see, Section 6 in 31 North, 8 West, has a large orange circle. And there are overlapping circles shown for the Jacquez Number 2, operated by BP;

also to the south the Jacquez 2S, the infill well that was fairly recently drilled; the Nordhaus 714, operated by Koch; and the 710, also operated by Koch.

So what I'd like to do is show some detailed production curves as Rebuttal Exhibit Number 4 where, starting in the --

MR. BRUCE: Mr. Chairman, before we begin I'm going to object to all the rebuttal exhibits. BP testified about essentially the same things at the January hearing. Koch also knew a week ago that BP would present drainage, material balance, et cetera. And while I guess Mr. Hall has the right to recall a rebuttal witness, this is the first time we've seen any of these rebuttal exhibits. They could have presented them to us this morning. And I just think it's too late in the game under the Commission's Rules, and I would object to every single rebuttal exhibit. If he wants to testify off of Mr. Reese's exhibits, that's fine.

MR. HALL: Mr. Chairman, we're fully in compliance with the Division's Rules with respect to rebuttal testimony and rebuttal exhibits.

MR. BRUCE: Why didn't they present these on direct? He knew what we were going to testify about.

MR. HALL: We're entitled to rebut their testimony, no matter when it comes in. There's no question about that.

CHAIRMAN FESMIRE: Yeah, it -- I understand Mr. Bruce's point, but I'm going to overrule his objection at this time.

MR. BRUCE: Yes, sir.

THE WITNESS: I will proceed.

The first well that I would like to show is immediately to the northwest of the Jacquez 331, the Nordhaus 710. Also depicted on this is the infill well, the 710S. But the one I would like to focus on for this case is the red curve and the dashed line that reflects my forecast for that on slides I've shown you previously.

If there is significant overlapping of drainage areas, I would expect that we would have seen somewhere an effect of the Jacquez on the performance of the Nordhaus 710. I do not see that evident on this curve.

Q. (By Mr. Hall) Mr. Wright, are you referring to what's been marked as Rebuttal Exhibit 4?

A. Yes, that's correct.

MR. HALL: Okay, do each of the Commissioners have that before them?

CHAIRMAN FESMIRE: Yes. Can I ask -- The 710S, when did it come on production?

THE WITNESS: Let's see, my time scale did not plot on this, but it was -- Well, let's see, I don't have the exact date. It looks like it would have been roughly a year or so ago.

CHAIRMAN FESMIRE: Okay. And how much data do these lines represent after that initial production?

THE WITNESS: Excuse me?

CHAIRMAN FESMIRE: How much data, how --

THE WITNESS: Well --

CHAIRMAN FESMIRE: -- many data points do you have after we're -- initially started producing --

THE WITNESS: For --

CHAIRMAN FESMIRE: -- production data?

THE WITNESS: For the Nordhaus 710 S?

CHAIRMAN FESMIRE: For both of them.

THE WITNESS: Well, for both -- well, let's see, they --

CHAIRMAN FESMIRE: They should be the same.

THE WITNESS: I apologize if the time did not show up on the first curve, but the red curve is the entire well history for the 710, so I believe that should go back to roughly 1991 or 1992.

CHAIRMAN FESMIRE: Right. But I mean, how much time after the Nordhaus 710S came on production do you have production history? How long is this production history? It looks like about a year.

THE WITNESS: Yes, sir, I believe that would be correct.

CHAIRMAN FESMIRE: Okay, so you've got about 12 monthly points here.

THE WITNESS: In this particular case, I'm not so much trying to focus on the infill well, the 710S, but to try to address the question mark as to whether the Nordhaus 710 and Jacquez 331 are interfering with each other, and I don't see evidence for that on this curve.

Q. (By Mr. Hall) Mr. Wright, is the time scale shown on page 1 of Exhibit 4 for the Nordhaus 710 and 710S the same time scale shown on pages 2 and 3?

A. Yes, it would be roughly the same time scale. There may be a few months of difference, depending on when each well, each parent well, began its production, but it would be very close in line with pages 2 and 3 of my Rebuttal 4.

Q. Go ahead, Mr. Wright.

A. Similarly, moving to the south, to the large blue bubble that's shown to the south of the 710 in --

Q. You're back on Exhibit Number 8; is that right? BP's Exhibit 8?

A. Yes, referring to -- Sorry, referring to BP's Exhibit 8, or 16.

Q. Go ahead, I'm sorry.

A. And again, the Nordhaus 714 as a parent well has had a very long, stable decline. I would agree with Mr. Reese, you can certainly note the hyperbolic performance of this well. That is the nature of the coalbed methane wells.

And then the final page of this is looking to the east of the Jacquez 331 at the -- in this case two wells are represented, the 2 and 2S.

Q. The Jacquez 2 and 2S?

A. Yes, that are operated by BP.

Q. Page 3 of Exhibit 4, correct?

A. Yes.

Q. Okay, go ahead.

A. In this particular case, the parent well actually shows a slight improvement from the timing of the Jacquez 2S coming on production. But again in general, I don't see anything that would suggest interference with the Jacquez 331 to the west of these two wells.

Q. Okay. Does that conclude your discussion of BP's Exhibits 8 and 16?

A. Yes.

Q. Okay. Let's turn to BP's unit performance exhibits for the Horton and Dawson wells. That would be BP's Exhibits 9, 10, 11 and 12?

A. Yes.

Q. And what is your view of what these exhibits purport to demonstrate?

A. Well, the inference was that there is interference that had occurred due to the infill well drilling. I've made a separate analysis of not just these three wells, but trying to take a look at essentially all of the BP-operated wells in the 56-section area that they represented under Exhibit 15. There was 56 sections that comprised this.

And I would refer you to Exhibits 2 and 3. Exhibit 2 are supporting curves for the table that appears as Rebuttal Exhibit 3.

Q. Explain those, please.

A. This is very similar format to data that I showed you earlier for the Pump Canyon infill wells and the analysis that I did for those, as well as the 18 nonstandard section analysis that I had done.

Highlighted in this table are the three wells that BP has highlighted, the Fletcher, the Dawson and the Horton. One of the things that you can note on the -- both the Dawson and Horton wells is, I would agree that there is a change in performance after the infill well has been drilled, and it did lower my incremental recoveries for those two wells. But I still assign additional incremental recovery for both wells.

In the case of the Fletcher, it's really quite a poor well with an EUR of only 125 million offsetting a 22-BCF well. The small amount of production from that well did not appear to have affected the performance of the Kernaghan B6 that I treated as a parent well for this, but --

Q. Mr. Wright, let me ask you. The Fletcher isn't reflected on Exhibit 2. Are you referring to Exhibit --

A. It's on 13A, actually. And it was one of the curves that had the pressure data also.

Q. BP's Exhibit 13A?

A. Yes.

Q. That's what you were referring to?

A. Yes.

Q. Okay, go ahead. I'm sorry.

A. I might also offer the comment that I would agree with Mr. Reese that in trying to evaluate these wells it probably does make sense to look at all of the infill wells that are offsetting these wells, to the extent that the parent wells have clearly suffered interference. But by and large in my analysis, I have not seen that occur, I didn't feel it was necessary to go beyond just the parent-child relationship.

Now in addition to the three wells that I've examined that BP has cited in their testimony, I also took a look at other wells that they operate in this 56-section area, and my overall conclusion is that the average incremental recovery represented by this group -- and I will point out that not all of these are BP-operated wells. If there were offset wells to BP operations by another company -- in this case, Burlington has a couple of wells. Koch Actually operates a well in this group. The incremental recovery for that was already addressed on a different slide and was not taken into account in the average recovery. It shows up in yellow at the bottom of this curve.

Q. So let me ask you, Mr. Wright, you're addressing the wells shown on BP's Exhibit 15, their large montage?

A. Yes, trying to look specifically at the wells that they operate.

Q. Okay. Now let's turn to your rebuttal Exhibit Number 1.

A. Okay, my Exhibit Number 1, there's a lot of information that -- good information that Mr. Reese has provided on Exhibit 15. I've chosen to take a look at the large picture here, which is to take 116 parent wells and 89 infill wells that are represented in Exhibit 15, and show them as a composite.

What's shown here is that the parent wells have had a very long, steady decline at around 14 -- just under 15 percent, 14.8 percent. The infill wells have not had an impact on an overall basis. And I represent that the difference between these two curves is the incremental recovery from the infill wells.

Q. Okay. Let's turn now to BP's Exhibit 18. It's their last bubble map. What is your view of what BP tried to present here with this exhibit?

A. Well, what they're, of course, showing is drainage areas for the specific wells that are nearby our proposed locations. What I am representing in Exhibit Number 5, if I would refer back to BP's Exhibit Number 1, I've basically taken a look at drainage -- in-place volumes and drainage volumes, on average, in the area represented in the yellow, brown -- and the green data, I do not have any gas-in-place figures in the east half of Section 6 or in Section 30. We have no data, so those are excluded from my analysis.

Q. Okay, turning from BP Exhibit 1, now, you're referring to your Rebuttal Exhibit 5; is that correct?

A. Yes, sir.

Q. Tell us what you've done here.

A. What I've done here is taken data that we had available to us in-house, which is Rebuttal Exhibit Number 6, with gas-in-place figures for the wells in question. I've looked at the cumulative production that the wells have made to date, I've made an extrapolation of the group of the wells, which agrees with the data I've shown to you earlier this morning. And you wind up with a mapped gas in place of 252 BCF.

The recovery factor that is projected based on this is 76 percent. And if you look at an 80-percent recovery factor, which I believe is probably fairly reasonable as a recovery factor for this type of reservoir, it winds up with a drainage -- average drainage area of 282 acres.

Now keep in mind, this is on a half-section basis, so on a per-well basis it would be around -- it would be 140 acres, which is consistent with the size of the quarter sections that we propose to drill.

Q. So you show those drainage that you worked your way through the columns left to right here, and the tabulated data at the bottom is for -- is drainage on a quarter-section equivalent; do I understand that correctly?

A. The data as presented here is actually on a half-section equivalent, so it's -- you'd really divide by 2 to get on a quarter-section-equivalent basis.

Q. I see. And that's how you derive y our 141-acre drainage area?

A. Yes, sir, that's correct. Now, if you take the extreme of going to a 100-percent recovery factor, it's 228 acres for a half-section equivalent or about 114 acres on a quarter-section equivalent.

Q. When you attempted to map gas in place for these particular units, what were your assumptions with respect to gas content?

A. Gas contents vary by well, and on average 639 SCF per ton in the entire study area, which encompasses more than just the wells that I've included in the analysis.

Q. Now, are you referring to your Rebuttal Exhibit 8?

A. Or Exhibit 6.

Q. I'm sorry, Exhibit 6?

A. Exhibit 6, yes.

Q. Tell us what that is. Where did that data come from?

A. This came from our predecessor that we acquired in 1994 through Burlington Resources.

Q. And tell us what's reflected on that sheet.

A. What is reflected is, looking at each parent well, the column that shows the drainage area is actually the -- well, the spacing unit size that the well was drilled in. It's not what we would think of as a drainage area, but it's applying a mapped acreage for a gas-in-place calculation.

Then the next component is the average coal thickness that they identified and the -- and next, finally, is the gas content per ton, to arrive at a gas-in-place figure.

Q. All right. Was Exhibit 6 included with the package of files and properties you acquired from Burlington?

A. Yes, sir, it was.

Q. And is Exhibit 6 a document that's maintained in Koch Exploration's file in the ordinary course of business?

A. Yes, sir.

Q. Anything further with respect to Exhibit 6 and your calculations of drainage area?

A. No, not on Exhibit 6.

Q. Do you believe that BP has utilized accurate gas-in-place assumptions and calculations?

A. As I mentioned earlier this morning, I believe that there is considerably more uncertainty as to gas volumes in place for the coalbed reservoirs than BP believes.

I referred to an article that was published regarding Drunkard's Wash in Utah where after doing a thorough investigation of the entire column of the reservoir they concluded there was significant gas contained particularly in the organic shales, and they had concluded that there was as much as 113 percent more gas in place than the original estimates.

Now just for example -- and I'm not trying to suggest that we have the same phenomenon here in Pump Canyon, but just for -- to throw out an upper-end range, that if we had twice as much gas in place in Pump Canyon, that would cut these drainage areas in half. So instead of 282 acres per half-section equivalent, it would drop it to 141, for an 80-percent recovery.

Q. You heard BP's witnesses testify with respect to their utilization of the 256 standard cubic foot per time gas content for some of their exhibits; did you hear that?

A. I did hear that from Mr. Perkins, yes.

Q. Do you agree that that's a reasonable number to use?

A. I've never seen gas contents so low for anywhere in the Fruitland Coals.

Q. Okay. If you're understanding gas contents, doing your gas-in-place calculations and your drainage-area calculations, does that tend to overstate your drainage areas?

A. Yes, sir, it does.

Q. Were Exhibits 1 through 6, rebuttal Exhibits 1 through 6, prepared by you or at your direction?

A. They were prepared by me.

MR. HALL: That concludes our direct of this witness. We'd move the admission of Rebuttal Exhibits 1 through 6.

CHAIRMAN FESMIRE: Mr. Bruce?

MR. BRUCE: I'd object to Exhibit 6. I don't know who prepared it, how it came about, what the basis of it was, and I can't cross-examine on it, so I would object to Rebuttal Exhibit 6.

The others, I believe, were prepared by Mr. Wright.

MR. HALL: The testimony, Mr. Chairman, was, it was prepared by Burlington, it was acquired as part of a package of these properties from Burlington, maintained in their files in the ordinary course of business, and it's entitled to be introduced.

CHAIRMAN FESMIRE: Okay, we'll overrule the objection and admit 1 through 5 and then 6 over objection.

Mr. Bruce, did you have a cross-examination?

MR. BRUCE: Maybe just a couple.

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Let's go to your Exhibit 5 first --

A. Yes.

Q. -- and when you're going through the columns, I understand cumulative production, the estimated ultimate recovery. And then "Half Section Equivalents Acres", what does that mean?

A. It's taking -- well, in the case of the east half of these sections, these are all standard units at 320, and then the east half of these sections are all 320, but -- well, okay, as these are irregulars, I've essentially divided these in half.

Q. Divided --

A. The wells did not know that they belonged in a spacing unit, a geographical spacing unit. The well data is based on two wells per section at that time. So as an irregular section, these are divided in half.

Q. But the 300 number -- So what you're saying is that -- say Section 6, you're saying that each -- you're dividing it in half and coming up with 280 acres per alleged half-section; is that what you're saying?

A. For that section, yes, sir.

Q. What is the 300 number, is what I'm asking?

A. Well, the 300 number would represent an average for the sections that I've included in the analysis as an average half-section size.

Q. And isn't -- Then you go over to the next column, the mapped gas in place. Aren't those numbers approximately what BP has calculated?

A. They're slightly less. It's -- let's see, I believe your figure is -- well, I guess I don't quite have your comparative figure from your data, but I'm not sure if it's -- I don't know how material a difference it may be.

Q. Then my only other comment on here, when you go down to the bottom half of your -- where you cut the numbers in half and you talk about equivalent drainage at 80 percent recovery factor and you use the 141-acre number -- but the fact of the matter is, your quarter-section equivalents are 110 acres, not 140 acres, correct?

A. The wells don't know that.

Q. But your well unit is comprised of 110-acre --

A. For this calculation, the geographic units do not -- are not -- I don't have to -- feel I have to honor a spacing unit that does not honor well data.

CHAIRMAN FESMIRE: Mr. Wright, I think your attorney can elaborate if he needs to, but I think the question he asked you is pretty specific. There's a yes-or-no answer to that.

THE WITNESS: Okay, I might have him ask again then.

Q. (By Mr. Bruce) But your quarter-section equivalents are 110 acres, roughly?

A. Not if you divide the section into four pieces. If you divide the size of the section by four, it's greater than 110. If you were looking at the quarter-section equivalent that is related to the spacing unit, I would agree it's 110.

Q. Okay, that's all I'm asking.

Looking at your Rebuttal Exhibit Number 4, second page, the Nordhaus 714 and 714 S, the well went on production and apparently ceased -- I mean, what is the cumulative from the infill well?

A. I've noted that on previous exhibits from this morning, as far as what the expected ultimate from the infill well is.

Q. No, no, I'm not asking expected ultimate. On this chart, how much gas had been produced?

A. From the infill wells, a cumulative production?

Q. Uh-huh.

A. I don't have that figure in front of me.

Q. What percentage of the original gas in place in this area is represented by the production from the 714S well?

A. I don't have that figure in front of me.

Q. How much pressure change would be effected by this small amount of production?

A. As I've testified earlier, we do not have possession of substantial pressure data.

Q. Okay, your Rebuttal Exhibit 2, I think I heard you state that you agreed with Mr. Reese that declines -- that coal-gas well declines are hyperbolic?

A. Yes, sir, they do show that. Now, you may see that some of my forecasts are represented in the future at something that does not necessarily suggest an exponential -- pardon me, a hyperbolic. I have flattened it, based on what I see on the overall basis to something representative of wells in general. In fact, I think that they probably will over time exhibit more of a hyperbolic behavior than perhaps has been represented.

Q. That was my question. It appears that on most of these you use a straight-line decurve -- straight-line --

A. If the wells were already at or below the overall decline rate depicted, I honored that and kept it flat as a level of conservatism.

MR. BRUCE: I think that's all I have, Mr. Chairman.

CHAIRMAN FESMIRE: Commissioner Bailey?

COMMISSIONER BAILEY: No questions.

CHAIRMAN FESMIRE: Commissioner Olson?

EXAMINATION

BY COMMISSIONER OLSON:

Q. I have just something I need to clarify. You're saying -- I'm referring to your Rebuttal Exhibit Number 2, and you're saying from this you don't see impact on the parent wells from the infill production?

A. On this there are noted -- if we go -- it goes back to Exhibit 3 as well, these go essentially together.

And you can note that there area cases where the post-infill decline that I've used does show a reduction from the pre-infill. And those in specific were, I agree with BP's assessment on the Dawson and Horton wells that that has occurred.

Now what I don't know is if that is definitely due to interference or whether there could be other factors explaining it, things that we've talked about, touched on earlier as far as surface operations, perhaps a well needs some intervention, a cleanout, recavitation. So it's not absolutely certain that just because the post-infill has gone down that that automatically means interference, but it is possible.

Q. Because I think I just -- from looking at the plots here, I see that -- the Dawson and the Horton showing some declines. And the Fletcher, are you saying, is that combined in with the Kernaghan B6?

A. Yes, they are in the same section. The Fletcher doesn't have an S designation to it, but it was a recent well that was drilled -- or it was permitted in 2005, so that is a recent well, and I treated that as the child well of the Kernaghan B6, which is in the same section, Section 29.

Q. So -- because I believe I see also the Howell D -- there's two sets, Howell D 351, the Howell D 352, and you're saying that's -- they show declines as well, and you're saying that's for some other reason, other than the production from the infill wells?

A. I don't have detailed information on the Howell wells. I've noted in the comments section on the table of Exhibit 3 that I'm suspecting that there could be some mechanical problems on the Howell D 351, the parent well there, and also well number 7, the Howell D 352.

If you'll refer to the Howell D 351, the performance curve for that, roughly at -- nearly about the same time as the infill well came on production, there was a very sharp decline in the well's performance. But then later on it appears that some sort of activity was done to approximate the prior decline. And then subsequent to that, it appears that the well again may have experienced something, perhaps, other than interference. It could be some downhole problems. This is supposition on my part. Again, I don't have the detailed well information.

I think the 352 is perhaps a little bit clearer where the -- there is a substantial overlapping period of when the infill well came on before the parent well had a precipitous decline. There's a good -- I believe probably 15 to 18 months of production data where the infill well was producing and did not seem to have an impact on the parent well.

To the extent that we are seeing some slight differences that, if they are attributed to interference, they are not anywhere near the magnitude of the dropoff that occurred on the Howell D 352 in around the early part of -- or latter part of '05. So I believe that that's something other than interference in that one, for certain.

Q. Well, it does appear that the trend has changed on those at the end --

A. Yes, I --

Q. -- at the --

A. -- I would agree --

Q. -- dropoff --

A. Yes, there is something that has happened to those wells, that for whatever reason they are not, apparently, going to recover the same level as the initial forecast that I made.

Q. It just seems that from most of these plots, that when there is some type of trouble, it still seems to approximate the original trend after it looks like the well has been rehabilitated or whatever had gone on --

A. Yes, in general I would agree with you. Those two wells, I don't -- I can't explain why nothing -- they have not been able to restore the wells to their prior level.

COMMISSIONER OLSON: Okay, that's all I have.

CHAIRMAN FESMIRE: I have no questions.

Any redirect, Mr. Hall?

MR. HALL: No, sir.

CHAIRMAN FESMIRE: Anything else from this witness?

MR. BRUCE: No, sir.

CHAIRMAN FESMIRE: With that, Mr. Wright can be excused.

MR. WRIGHT: Thank you.

CHAIRMAN FESMIRE: Mr. Hall, do you have anything else?

MR. HALL: That concludes our rebuttal case, that concludes our case.

CHAIRMAN FESMIRE: Okay. Are you prepared for a closing statement?

MR. HALL: Be willing to waive ours. If you would like to hear from us, I have nothing further to add, in view of the hour.

CHAIRMAN FESMIRE: You don't get a chance.

I wasn't talking to you, Mr. Bruce; I was talking to your client.

(Laughter)

MR. BRUCE: I meant to bring a seatbelt.

I have a short closing, but it's your pleasure.

CHAIRMAN FESMIRE: Okay. Mr. Hall, I'm inclined to grant him the opportunity. Would you like to take the opportunity for a short closing first?

MR. HALL: We'll do that.

CHAIRMAN FESMIRE: Okay.

MR. HALL: Mr. Chairman, Commissioners, I think Koch Exploration has put on a direct *prima facie* case that all it seeks to do is develop three undeveloped locations. They have established that if their Application is not granted, these three infill wells drilled, waste will result.

There is no effective development densities here, it's only by virtue of the irregular sections in previously approved nonstandard units that we result in three wells per unit.

But if you look at the overall development pattern, it is in line with what's gone on throughout the remainder of the high-productivity area and the low-productivity area. You have four wells per section, and they are all at standard locations.

As we understand it, the basis of BP's objection is that they fear drainage will occur. They have attempted to prove that through, I think, some questionable engineering methodologies. Some of their assumptions underlying their drainage calculations are demonstrably incorrect. They have overstated their drainage areas.

Both their geologist and their engineer, I think, would not disagree that a lot of the variabilities that you see throughout the area in terms of production rates, recoveries, pressures even, are due to variabilities in the coal.

They say that the coal seams out here are a large tank, one large homogeneous reservoir. That is directly inconsistent, as all of these Commissioners know, with positions that BP has taken in prior cases before this agency.

So we'd ask that you reject their testimony, grant Koch's Application, so that these additional incremental reserves may be recovered and waste avoided.

Thank you, Mr. Chairman.

CHAIRMAN FESMIRE: Thank you, Mr. Hall. Mr. Bruce?

MR. BRUCE: Mr. Chairman, it's Koch's position that they may make a commercial well, so they should be allowed to drill the additional wells. But they don't address the fact on offsets.

It's BP's position that Koch has three well units, they're essentially standard well units, and in accordance with the Fruitland Coal Pool Rules they have two wells per well unit. That's all the pool rules allow.

BP's position on this is backed up by several things. The Fruitland Coal reservoir in this part of the Basin has excellent continuity and pressure communication and is, in effect, one big pool which is highly competitive. And this is conformed by BP's pressure, material-balance, gas-in-place and production data.

You know, when it comes to production data, Mr. Reese presented Exhibit 14. And when you look at it -- This is all the pressure points, and when you look at it there's a big gap in the center. And if you take that gap and compare it with their land exhibits, the big gap in the center is Koch's land, Koch-operated leases. They almost remain wilfully ignorant. They didn't present any data on drainage, et cetera, until forced to on rebuttal.

The fact is, Koch is recovering its fair share -- more than its fair share, of reserves from its existing wells on the three-well units. And if the Application is granted, offset operators of 320-acre, 320-acre standard well units, will be at a disadvantage and may be compelled to request third wells on their units, creating a cascade effect, essentially resulting in a pool rules change.

We think this is not wise and request that the Application be denied.

CHAIRMAN FESMIRE: Thank you, Mr. Bruce.

At this time the Commission will go into executive session, we will deliberate until five o'clock.

If we haven't reached a decision by that time, we will probably continue the case until some point when the Commission is -- all the Commissioners are available, but we will announce that at five o'clock if we haven't reached our decision by then.

MR. BRUCE: Thank you.

CHAIRMAN FESMIRE: Thank you.

Oh, wait a minute, I need a motion on that.

COMMISSIONER BAILEY: I so move.

COMMISSIONER OLSON: I second that we go into executive session --

CHAIRMAN FESMIRE: All those in favor?

COMMISSIONER OLSON: -- for deliberation.

COMMISSIONER BAILEY: Aye.

COMMISSIONER OLSON: Aye.

(Off the record at 4:43 p.m.)

(The following proceedings had at 4:55 p.m.)

CHAIRMAN FESMIRE: Let the record reflect it's now 4:55. The Commission, after having sat in executive session, has come out of executive session. During the executive session the only thing that was discussed was the cause before the Commission, which is Case Number 13,841, the Application of Koch Exploration, LLC, for an order authorizing increased well density and simultaneous dedication on certain nonstandard spacing units in the

Basin-Fruitland Coal Gas Pool in San Juan County.

Let the record also reflect that all three Commissioners are present, all three Commissioners participated in the decision, and that the decision was unanimous.

The Commission after deliberation found that it was necessary to grant the Application to drill all three locations, because there were reserves that would not otherwise be produced, and that it is necessary to protect the correlative rights of the parties involved, and as such the Applications will be granted.

Counsel Bada, is there anything else we need to add?

MS. BADA: No. Have to have a motion.

CHAIRMAN FESMIRE: Okay, at this time the Chair would ask for a motion to direct Counsel Bada to draft an order to that effect and present that order for review and signature of the Commission at the -- June 19th?

MS. DAVIDSON: 28th.

CHAIRMAN FESMIRE: -- June 28th meeting of the Commission.

Is there a motion to that effect?

COMMISSIONER BAILEY: I so move.

COMMISSIONER OLSON: Second.

CHAIRMAN FESMIRE: All those in favor?

COMMISSIONER BAILEY: Aye.

COMMISSIONER OLSON: Aye.

CHAIRMAN FESMIRE: Aye.

Let the record reflect that the motion passed unanimously.

Is there any other business before the Commission today?

COMMISSIONER OLSON: Yeah, I might have a conflict on the June 28th. I was wondering if we could -- if there's any opportunity for moving the hearing on that day or --

COMMISSIONER BAILEY: I'd sure like to --

COMMISSIONER OLSON: Yeah.

COMMISSIONER BAILEY: -- because I had a personal conflict with that date too.

COMMISSIONER OLSON: Because I now have to be in Sunlit Park that evening.

(Off the record)

CHAIRMAN FESMIRE: What were you saying, Cheryl, I'm sorry?

MS. BADA: I won't be there on the 4th, but I'd find somebody to come sit with you.

COMMISSIONER OLSON: That's putting us pretty close to the next month at the same time, but -- Two weeks away from the --

CHAIRMAN FESMIRE: Is there anything on that docket?

MS. DAVIDSON: On the July?

CHAIRMAN FESMIRE: On the June docket?

MS. DAVIDSON: June, yeah.

CHAIRMAN FESMIRE: Okay, we'll have to re-notice if we bring it back. This -- we'll have to re-notice. It's 30 days' required.

COMMISSIONER OLSON: So we couldn't even move it up then, could we?

CHAIRMAN FESMIRE: We couldn't move it up earlier than --

MS. DAVIDSON: It's just a continuance, so...

COMMISSIONER OLSON: We're at the 19th, right?

CHAIRMAN FESMIRE: We're at the 17th.

COMMISSIONER OLSON: 17th. It's pretty tight. You say there's an Examiner Hearing on the 21st?

CHAIRMAN FESMIRE: There's an Examiner Hearing on the 21st.

COMMISSIONER OLSON: Unless you want to do it on Friday.

COMMISSIONER BAILEY: No, I'm out of here on the 22nd.

COMMISSIONER OLSON: Oh, you're not here? Okay.

CHAIRMAN FESMIRE: When do you come back?

COMMISSIONER BAILEY: Well, I was going to come back on the day before the hearing, but --

(Laughter)

COMMISSIONER OLSON: How about the 20th? That's cutting it close.

CHAIRMAN FESMIRE: Well, why don't you guys -- Let's check my calendar, and I'll send you a couple of proposed dates --

COMMISSIONER OLSON: Okay.

CHAIRMAN FESMIRE: -- and we'll -- if not, well, we've got to do something. You originally didn't want to, and you -- or you originally didn't want to, and now you can't.

COMMISSIONER OLSON: Yeah, I've got to be someplace else.

CHAIRMAN FESMIRE: Okay. And the only thing we have is that one continuation, right?

MS. DAVIDSON: The Chaparral --

COMMISSIONER OLSON: The Chaparral case.

CHAIRMAN FESMIRE: And this order, which I'm pretty sure you guys would like signed, right?

(Laughter)

CHAIRMAN FESMIRE: Okay. We'll ask the Commission secretary to find a date that's mutually agreeable, and we'll re-schedule the hearing and re-notice the hearing.

Is there any other business before the Commission?

MS. DAVIDSON: The continuances.

CHAIRMAN FESMIRE: Ah, yes. Didn't we --

MS. BADA: No, we didn't read those.

(Thereupon, these proceedings were concluded at 5:03 p.m.)

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CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Commission was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL May 24th, 2007.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 16th, 2010