STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

IN THE MATTER OF THE APPLICATION OF RICHARDSON OPERATING COMPANY TO ESTABLISH A SPECIAL "INFILL WELL" AREA WITHIN THE BASIN-FRUITLAND COAL GAS POOL AS PROVIDED BY RULE 4 OF THE SPECIAL RULES FOR THIS POOL, SAN JUAN COUNTY, NEW MEXICO	)	*De Novo* Review by the Secretary of OCC Case No. 12,734 (*De Novo*)

REPORTER'S TRANSCRIPT OF PROCEEDINGS

De Novo REVIEW BY THE SECRETARY

BEFORE: TOM MILLS, DEPUTY SECRETARY

ORIGINAL

February 10th, 2003
Santa Fe, New Mexico

This matter came on for hearing before TOM MILLS, Deputy Secretary, Energy, Minerals and Natural Resources Department of the State of New Mexico, on Monday, February 10th, 2003, 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

February 10th, 2003
De Novo Review by the Secretary
of OCC Case No. 12,734 (*De Novo*)

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E X H I B I T S

San Juan Coal Company	Identified	Admitted
Exhibit 61	77	144
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Exhibit 63	139	144
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Public Comment	Identified	Admitted
PC-1	8, 200	200

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Additional submission by San Juan Coal Company, not offered or admitted:

	Identified
Section 70-2-17 of the New Mexico Statutes	43

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* * *

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

SECRETARY MILLS: The hearing will come to order. We're here in the matter of the Application of Richardson Operating Company to establish a special "infill well" area within the Basin-Fruitland Coal Gas Pool as provided by Rule 4 of the Special Rules for this pool, San Juan County, New Mexico.

This is a *de novo* review by the Secretary of OCC Case Number 12,734, *de novo*, pursuant to Section 70-2-26, New Mexico Statutes Annotated, 1978.

For ease of future reference I'm going to refer to this matter as San Juan Coal's appeal *de novo* to the Secretary of the Energy, Mineral and Natural Resources Department.

Good morning, my name is Tom Mills, I'm the Deputy Secretary for the Department. I've been appointed as the Hearing Officer in this matter by the Secretary.

I'm sure many of you know our general counsel, Carol Leach, who will be representing the Secretary and myself in this proceeding.

Let me begin with some housekeeping matters.

The court reporter tells me that he's durable enough to go as long as anybody wants to go, but that if he does want a break I will honor that request. Please make

sure that you speak clearly so that he -- and respond to any requests that he has for clarification of what you've testified to or said.

We're going to take a lunch break from 12:00 to 1:30. I expect we'll take a mid-morning break for about 10 minutes and an afternoon break for 10 minutes. If anybody has a special need for a break, please let me know.

Most of you probably know the restrooms and drinking fountains are out in the hall, exit stage left.

Are the parties ready to proceed?

MR. AUSHERMAN: We are.

SECRETARY MILLS: Let's have you enter your appearances, beginning with the Appellant, San Juan Coal Company.

MR. BRUCE: Mr. Secretary, my name is Jim Bruce of Santa Fe, representing San Juan Coal Company in association with Charles Roybal who is in-house counsel for San Juan Coal Company and Larry Ausherman who is with the Modrall Sperling law firm.

SECRETARY MILLS: Thank you. Respondent, Richardson Drilling?

MR. KELLAHIN: Mr. Mills, I'm Tom Kellahin of the Santa Fe law firm of Kellahin and Kellahin. I'm appearing in association with Mr. William F. Carr and Mr. Robert J. Sutphin of Holland and Hart. We represent Richardson

Operating Company.

SECRETARY MILLS: There are some preliminary matters that we will go through before the parties begin their presentations.

First of all, no additional participants applied for party status in this matter, so the parties are present.

We've received a letter from Dugan Drilling sent to the Secretary. Has everybody received a copy of that?

MR. BRUCE: We have not, Mr. Mills.

SECRETARY MILLS: Do you have a copy of that, Carol?

MS. LEACH: Mr. Bruce, I haven't made copies. You're welcome to examine this, and I'll make copies at the break, and then we can perhaps decide then whether you have any objections to it or not.

MR. BRUCE: Let's -- We can do it while --

MS. LEACH: Okay.

SECRETARY MILLS: The initial order entered indicated that there would be an opportunity for public comment if people are here for that purpose. We will probably take a break at a logical point in the proceedings prior to lunch to see if there's any public comment that needs to be entered, and we'll do that at some point in the afternoon, at a convenient time for the parties if there's

public comment to be made in the afternoon.

I'm inclined to treat the letter from Mr. Dugan as a matter of public comment to be entered into the record, not as evidence but as public comment, unless there's an objection to that. If there is, let me know.

A couple of additional matters that we need to address.

San Juan has requested a stay of the Commission's Order in this matter. I'm going to deny that request. I believe that your remedy, San Juan, is to go back to the Commission if you wish to have a stay reinstituted in this matter.

Similarly, Richardson has asked for a motion of clarification from the Secretary. I'm also going to deny that motion. While there is no specific definition in the Oil and Gas Act of what the public interest is, the motion begs the question that's the material issue at issue in this proceeding, and it's up to the parties to present their best advocacy to guide the Secretary in determining whether the public interest has been contravened by the prior proceedings.

We did not receive a witness list from Richardson, so we must assume that Richardson does not intend to call any witnesses; is that correct?

MR. CARR: That is correct.

SECRETARY MILLS: Nor did we receive a specific exhibit list from Richardson, although you have indicated that the entire record below is being incorporated here.

Were there any new exhibits that you've prepared to offer that you have not previously identified?

MR. KELLAHIN: Certainly, Mr. Mills, not on direct presentation as direct evidence; we'll rely on the Commission record. There may be something that occurs in cross-examination that may trigger some rebuttal documents.

SECRETARY MILLS: Thank you. We did receive at the end of last week a letter to Richardson Operating Company from Evan Jones, the Vice President of San Juan Coal Company, that was transmitted to me and Carol and others by Walter Stern, and I'm curious to know whether or not San Juan provided that letter as part of its exhibits or how you choose to characterize this information.

MR. AUSHERMAN: Yes, we did include that as part of our exhibits, and we'll be introducing it today.

SECRETARY MILLS: Was that identified in your exhibit list?

MR. AUSHERMAN: Yes, it was, San Juan Exhibit 69.

SECRETARY MILLS: Are there any additional objections to witnesses or exhibits by either of the parties at this time?

Hearing none, we'll assume there is none.

All right, would San Juan please begin its presentation?

MR. BRUCE: Yes, Mr. Secretary. We would like to make an opening argument which, unfortunately, will be in three parts. Mr. Ausherman will begin, addressing certain mining issues. Mr. Roybal will address certain issues, then I will make a final closing argument addressing certain oil and gas issues. And if we could begin that way, and I believe that Richardson also has an opening argument.

MR. CARR: Yes, I do.

SECRETARY MILLS: All right, please proceed.

MR. AUSHERMAN: Thank you, Mr. Hearing Officer. San Juan appreciates the Secretary's willingness to consider this matter.

Our opening will do two things. We will summarize key parts of the record below that has been incorporated and has become part of the record in this proceeding, and we will also introduce the case that we will be presenting today, which is in addition to the record below.

We'll be presenting two witnesses today. The first witness is Dr. Bessinger, who will testify concerning mining issues in the operation of the longwall mine and the problems that the coalbed methane wells pose for the

operation of the longwall mine.

The other witness we'll be calling is Dan Smith, who will amplify testimony that he has given below and will supplement.

We will not be calling Mr. William Real of Public Service Company of New Mexico as a witness, but he is here this morning and would like to make a statement as part of the public comment part of the proceeding this morning when it is convenient. Our suggestion, if it is acceptable to you, is that we could do that after openings, before we begin our case, but that's, of course, entirely up to you.

SECRETARY MILLS: If there's no objection from the Respondent, I would consider that to be a logical way of presenting that information.

MR. KELLAHIN: We have no objection.

SECRETARY MILLS: All right.

MR. AUSHERMAN: Our opening will cover quite a bit of ground and, as Mr. Bruce has described, that's why we're dividing it in three parts.

I'll be covering some of the background that led us to this point, and I'll be focusing on some of the mining issues related to the longwall miner.

Mr. Roybal will follow me and will address the company's views about the conflicts and make a presentation concerning the company's views about how to resolve them.

And then Mr. Bruce will discuss the oil and gas issues in the case.

The first thing that I would like to cover is the focus of the hearing today, and that is the public interest.

Of course, it's the public interest that we're here to describe, and there are three elements that I'd like to go through. What constitutes the public interest, what are the elements of the inquiry for determining that?

The first place to look is in the Statute itself, and that is under Section 26: "The Secretary must give due regard for the conservation of the State's oil, gas and mineral resources." All mineral resources, not just gas. Mineral resources include coal.

In addition to this statutory guidance for what constitutes the proper inquiry for determining the public interest, we have cited case law in our briefs that established that there are at least two other factors to consider.

And one is, is the Commission's Order contrary to the economic interests of the public?

And the other is, is the Commission's Order contrary to the health and safety interests of the public?

We would submit that these three factors define quite well the public interest, and let me just go through

them.

First, conservation of mineral resources is a familiar concept. Certainly conservation is the charge for the Oil Conservation Commission, and it considered conservation with respect to one mineral: gas. That's appropriate to consider, conservation of gas, but at this level you also are charged with considering conservation of coal.

We will be presenting additional evidence, not only concerning conservation of gas, through Dan Smith, but will also be considering additional evidence concerning conservation of coal. It is without question a mineral resource and is before the Commission.

Dr. Bessinger will present that evidence concerning conservation of coal, for the most part. He'll describe how coal is mined, he'll describe why the gas wells are a problem and he'll describe the longwall mining apparatus.

The second bullet point we have here is, is the Commission's Order contrary to the economic interests? And we'll also be presenting testimony on that as well. There's also testimony in the record concerning the economic interests.

For example, the record shows that the coal resource is far more valuable than the gas resource and

that the very wells that would be the subject of the infill application can destroy much more value in the coal than they could ever produce themselves. We believe that that's an economic consideration that the Secretary should consider.

The economic benefits of the coal mine in terms of jobs, taxes, royalties that the coal mine pays, we also think is within the proper province of the public-interest consideration.

Along those lines, the mine has great economic importance to San Juan Generating Station. I think all the parties have agreed that the subject matter of energy is within the public interest, but more specifically securing a low-cost and reliable fuel supply is in the public interest and is in the interest of San Juan Generating Station.

Third is health and safety.

With respect to safety, those concerns are a direct result of what the Secretary will decide in this case. It is not solely within the province of MSHA to consider -- and that's the Mine Safety and Health Administration, federal agency that we've identified and the opposition has identified in the briefs. It is not an appropriate resolution of health and safety concerns to simply defer to MSHA. One reason for that is that the more

infill wells that are allowed in the coal seam, the much greater the health and safety risk. And that is a factor that's before the Secretary to control. The fewer wells, the lesser the impact. And Dr. Bessinger will be explaining why the Secretary cannot simply defer to regulation by MSHA.

So having highlighted these three public-interest inquiries, let me go into the history of the development of the San Juan Mine. What I'll try to do is hit the high points from what's in the record and explain to you how we got to this point.

The history of the San Juan Coal Company's mines really began back in the 1970s. Since then they have operated the San Juan Surface Mine adjoining the San Juan Generating Station, and that mine and that generating station were built with relation to each other because it is a mine-mouth power plant, the generating station is. So the coal goes from the coal mine to the adjacent property which is the generating station.

Over time, as the need for additional coal supplies became apparent, San Juan Coal Company opened the La Plata Mine in addition to the San Juan Mine, about 20 miles to the north, and it also supplied surface coal to the San Juan Generating Station.

These mines were the sole source of coal to the

San Juan Generating Station -- there's no other source of coal that the Generating Station can rely on -- and they provided about 6 1/2 to 7 million tons per year, over time. The San Juan Coal Company employs about 300 people in that endeavor and pays substantial taxes as part of the Farmington area local economy.

Now, you've probably also heard the name BHP or BHP Billiton. Let me just explain who BHP Billiton is in the context of this case. BHP Billiton is the parent company of San Juan Coal Company. BHP Billiton is also the parent of the San Juan Coal Company's sister company south of the river, which is BHP Navajo Coal Company. San Juan Coal Company mines north of the river at the San Juan Mine to supply the San Juan Generating Station, and BHP Navajo Coal Company mines south of the river on Navajo lands to supply Four Corners.

Let me explain just briefly the transition from the surface mining operations to the underground mine that's the subject of this dispute.

In the late 1990s San Juan began to consider transitioning to an underground mine because the economic coal supplies at the surface were being exhausted. In fact, at San Juan Mine one of the reasons that the coal supply was becoming less economic at the surface is that the coal seam was trending downward, so if you were to try

to mine it from the surface, you'd have to move increasingly more dirt, and it becomes uneconomic to do so.

It is potentially a world-class underground coal seam, however, and that's why they began to consider mining it with underground methods.

The La Plata Mine is also nearing or at the end of its economic supply, and so it will be phased out. And the longwall operations at the underground mine will become the sole source of coal for the San Juan Generating Station. And that is set to occur in the next few months.

The longwall has been operating since last fall, and production elsewhere is being phased out and will be phased out certainly this year, is the plan, if not in just a few months.

I would ask you, if you would, to turn to San Juan Exhibit 1 in the exhibit notebooks, and let me orient you to the location of the mine and leases that are at issue in this case. And this would be Exhibit 1 from the proceeding below.

You can see that here's a general orientation showing those two surface mines. And it would be San Juan Exhibit 1, it's a map. That's the one.

You can see in this general orientation the two surface mines that are being closed, the La Plata Mine in the upper right-hand corner in orange, and the San Juan

Surface Mine in orange right in the middle.

You can see the area that is being developed, which are shown as the Deep Lease and the Deep Lease Extension. Those are two of San Juan's coal leases. The other two leases are one section each, they're state leases, and they fall within the area shown on this map as the Deep Lease and the Deep Lease Extension with the red dots. A total of four leases, but the majority of the ground, or the two federal leases known as the Deep Lease and the Deep Lease Extension, I'll explain in a minute how those came to be.

As I said before, the coal seam is essentially the same as was mined in -- or at least part of what was mined in the San Juan Surface Mine adjoining the Underground Mine to the west as it trends down.

You'll see a few other things on this diagram, which is the Underground Pilot Mine. That's where San Juan began to study the evaluation of the longwall mine. It has since been closed as the longwall mine has become operational.

You'll see the San Juan Generating Station here. Of course, that's one of the two largest power plants in the state, and it's operated by Public Service Company of New Mexico, supplies coal throughout the state.

Public Service Company of New Mexico, of course,

was involved in the decision to open the underground mine because it recognized the need to shift from an increasingly costly surface source to help minimize the price of electricity to its customers with the underground mine. And the coal is sold to the generating station by San Juan, as Mr. Woomer has testified below, under a long-term contract that extends until 2017, and it covers probably over 100 million tons of coal that will be supplied over that period of time from the Underground Mine to the Generating Station.

Now, let me take a minute just to explain the land that is subject to the conflict here. As Mr. Woomer had done, I'll just hit the high points.

As I've mentioned, there are the two federal and two state leases, and I think the best orientation for you to understand that is a little bit closer view than Exhibit 1. It would be under San Juan Exhibit 6.

If you look at San Juan Exhibit 6, it shows essentially four things, and I'm going to talk about three of them.

It shows, in blue, the San Juan Coal Lease area. The two state sections are within the blue lines, and they would be Section 32 over to the west -- or Section 36 over to the west, and Section 32 to the east. The blue rectangle you see on the left there, on the west, is what's

known as the Deep Lease, and the blue rectangle area on the east is known as the Deep Lease Extension, of course with the exception of those two state sections.

The second thing this shows -- and it was originally a Richardson map from the OCD, I believe -- is the infill area. The infill area that's subject to the Application is shown by the black cross-hatch that is shown on the legend.

The third thing it shows is in yellow. What you see in yellow is the Richardson lease area.

So those are the three land statuses. The other thing, of course, it shows are Richardson's wells, some of the other wells in the area.

Now, we'll be using three terms today, and it can be easy to confuse these. We'll try to be consistent. But when we refer to the coal lease area what we mean is this area in blue. When we refer to the infill area, what we mean is the area in the cross-hatch shown as the infill area on this map. And the third terminology we'll use is mine-plan area -- it's not shown on this map; I'll show it to you in a little bit -- and that is the area within the blue rectangles that is subject to San Juan's coal mine. San Juan Mine is developed according to a mine plan that's fairly specific, and that mine plan does not cover the entirety of these leases, although San Juan has the right

to the entirety of these leases. The mine plan focuses on the most economic of the coal and certain other factors.

There are about 9600 acres in the underground mine area, and the infill area, as you can see here, is, oh, maybe about twice that size. Much of the infill area falls out -- or more. Much of the infill area falls outside of the lease areas.

Now, on this map there is an area that San Juan is interested in but does not have a lease to, and it is within the infill area. It's the row of sections immediately east of the easternmost boundary of the Deep Lease Extension. You can see on this map Section 16, 21, 28 and 33 in Township 30 North, Range 14 West, immediately east of the Deep Lease Extension. That's an area that has been referred to in the record as the Twin Peaks area, or at least part of the Twin Peaks area.

The significance of this is that although San Juan does not have it under lease, San Juan is interested in the prospects of someday developing it when it exhausts the resources under the Deep Lease or Deep Lease Extension, or possibly even before. There is significant coal there, it's federal land, and so there is a conflict there as well between the infill area -- because you can tell it's within the infill area -- and San Juan's interest in developing the coal. That's the Twin Peaks area, which actually

extends -- San Juan's interest does not stop at the easternmost boundary of the infill area in the Twin Peaks area, San Juan is also interested in the federal coal to the east of that as well.

Let me just describe how San Juan acquired these federal leases, which relates to argument that you have read from Richardson concerning lease stipulations in the federal leases and the like.

For quite some time, San Juan has held its interest in the Deep Lease, which is to the west on this map. When it was acquired there were no CBM wells in the Deep Lease area. But it became clear as San Juan's plans for additional coal development became more crystallized that the Deep Lease itself would not be sufficient amount of coal to supply San Juan's needs, and so San Juan sought to look for additional coal supplies, and it looked to the Deep Lease Extension, immediately to the east.

So the first step for San Juan was to apply for the Deep Lease Extension in 1997, and at that point in time there were no CBM wells there, no CBM production to speak of.

After San Juan applied to the BLM to lease the Deep Lease Extension lands, the BLM determined that in order to consider granting that lease it would need to take a look at its planning document. Of course, the BLM

operates according to planning documents that are called resource management plans, or RMPs. And so the first step is for the BLM to consider whether it makes sense according to its plan to issue that lease and devote those sections to development. So that's the first step to facilitate the leasing effort.

The issuance of the coal lease, if they did not do that, could possibly be outside of the authority of the BLM, so it was a necessary predicate.

So when BLM took a look at the resource management plan and decided we are going to issue the coal lease, they made an important finding, and this resource management plan is in our exhibits. An excerpt of it had been previously provided by Richardson. We have submitted the whole thing as Exhibit 70.

And the important finding is, the BLM said in 1998, when it issued the RMP amendment, because of the size of the area proposed for underground mining, coal development would become the primary resource used in the proposed leasing area. The emphasis of other existing resources would change.

So this determination that coal would be the primary resource determination, or priority, represents an important consideration here because it was this determination that really provided the foundation of San

Juan's continued interest in the Deep Lease Extension and its decision to bid and acquire the Deep Lease Extension for $13 million. San Juan paid $13 million for the Deep Lease Extension to the BLM to access the coal there.

And when it did that, it was assuming that coal development was the primary resource use, it was assuming there were no infill wells, because there were not, and it was assuming that there was little or no significant CBM production.

That changed, and let me provide the background on the BLM proceeding. But let me emphasize that the BLM issues are not at issue here. I'm providing this background because it has been raised by Richardson. The issues are quite distinct before the BLM on the one hand and the State's proceeding on the other.

When the Deep Lease Extension was issued to San Juan, it contained some lease stipulations that San Juan read and interpreted in the context of the language I've mentioned in the RMP that coal would be the primary resource use.

So when -- The next step after the Deep Lease Extension was issued with these lease stipulations concerning valid and exiting rights was, Richardson later sought to drill three new wells -- not infill wells, but three new wells -- applied to the BLM to be able to do that

by application for permit to drill, and San Juan objected to those wells because they were concerned that those wells would interfere with the coal mine.

Let me just take a step back and allude to a part of Mr. Roybal's presentation that's relevant here.

When San Juan initially considered the prospects of additional coalbed methane development in the coal lease area, it thought that accelerated development of coalbed methane might be an appropriate thing to occur in advance of mining. As Mr. Roybal will describe, its views about that changed when it begin to study the risks posed by those coalbed methane wells to an underground mine.

So at this time when San Juan objected to these three new Richardson wells through the APDs, it was about the time that San Juan had determined that its initial views about the compatibility of coalbed methane development and coal development were changing. So the stipulation in the Deep Lease Extension was the subject of argument before the BLM.

What does it mean to say, as the stipulation does, that San Juan takes subject to prior existing rights?

San Juan believes that the prior existing rights of the oil and gas lease holders should be considered in the context of a lot more than simply lease priority dates, and this was one of the arguments before the BLM. And San

Juan also thinks, at the very most, prior existing rights would be existing wellbores or existing APDs that would have been pending at the time the Deep Lease Extension was issued, and nothing more than that, at the very most.

San Juan lost its case in the state BLM, and the APDs were approved by the State BLM. I believe there were three of them. But there are two observations about that BLM proceeding that are important here, without going into the details.

First, the issue is quite different in the BLM than it is here. The BLM proceeding did not involve infill wells. Only you can decide whether or not to allow additional infill wells.

The flip side of that is, this proceeding does not involve determining the seniority of lease rights or defining prior existing rights. Only the BLM can decide that. In fact, as I'll mention in a minute, the Oil Conservation Commission has specifically rejected the effort of Richardson to engage in consideration of the meaning of prior existing rights or lease seniority in that proceeding.

The second important thing about the BLM proceeding is that it was resolved in a stipulated dismissal that confirmed that it would not serve as precedent for other matters, other than those three wells.

The other argument that Richardson has made that raises these issues is an argument based on the RMP protocol. You'll remember I described the planning document which is the RMP. Well, attached at the end of the RMP is a document called the protocol, and we believe that that is in the same category as the lease stipulations as an issue that is not presented here.

The protocol, just as background, describes assumption for operations at the time the RMP was issued back in the 1990s, but things did not evolve since then in a way that the protocol has much continued meaning. Neither the BLM nor Richardson have really followed the protocol. The protocol was part of the same document that BLM said would give coal development as a primary resource emphasis, and of course that has changed.

The protocol suggests that Richardson and San Juan would submit to binding arbitration in the event of disputes about conflicting development, and Richardson has refused to submit to binding arbitration as the protocol dictates. And the protocol is, we would submit, not applicable to infill wells anyway, because it refers to existing wellbores, wellbores at the time of the protocol. But again, the point of that is more background than anything, because the Secretary should focus on the issues presented here, not the issues that were presented or are

pending before the BLM, and seniority is not one of them.

Let me just call your attention to Paragraph 69 of the OCC Order. "Richardson also argues in its motion that San Juan's protest must be denied because of the priority of Richardson's rights under various oil and gas leases and the various stipulations imposed on those leases. However, this body has explained recently that its function is not to determine the validity of any title or the validity or continuation in force and effect of any oil and gas lease." And it goes on to say that the priority of various leases in this matter is a matter for the courts, it's not a matter that this body can address, and it is not a matter upon which decision in this case should be based.

So with that background on the BLM proceeding, let me describe what this proceeding here today does concern, and what that does concern is giving due conservation to all mineral sources, including coal, to give due regard for the conservation of all mineral resources.

The way to give due regard for the conservation of the coal resource is to understand the process by which the coal is mined first, at least as background, and then also understand the impact that the infill wells can have on that process.

San Juan chose, as Dr. Bessinger will describe,

what's called a longwall mining system. It's an enormous apparatus that is suited to some coal deposits and is not suited to others. The San Juan deposit, as Mr. Woomer has testified and Mr. Bessinger will testify, is potentially a world-class longwall-mining deposit.

This shows you the longwall apparatus. And Dr. Bessinger will go over this in greater detail, but just to orient you, this is it. And it's a thousand feet long, and it moves through a coal face up to about two miles wide, shearing off coal in an efficient and economic way. And we actually have animation that will show how this occurs.

Dr. Bessinger will describe the impacts of having coalbed methane wells in this coal panel and why that is a problem. And he is, by the way, the manager to whom Jacques Abrahamse and Lynn Woomer and John Mercier, who are the people who testified below, report to.

So in the course of our presentation you'll see how this longwall operation operates. Because it's mechanized and because it's so large, it's a very efficient way to mine the coal. And as I mentioned, the coal seam is very suited to that purpose.

But it is important, because it's so large and complicated, that it move in a continuous sequence. Very difficult to stop it and move it around any wellbore.

It's also very dangerous if the roof were to cave

in on the longwall mining operation. One of our concerns is that the hydrofrac'ing of the coal can cause roof instability that could cause the longwall to stop, which poses a whole set of additional problems that Dr. Bessinger will explain. He'll explain that frac'ing of the coal wells could pose significant risk of spontaneous combustion and could also pose significant risk of having a roof cave-in bury the longwall.

The other risk that it poses is the loss of coal. And in the exhibit book, Exhibit 13, I'll refer you to that. This is from the record below. You can see the economic impact of the possible need to bypass a wellbore that has been frac'd with the longwall mining apparatus. One wellbore could cost up to $800,000 in lost royalty in the bypassed coal block. In other words, if you bypass the coal that you see at the top of this diagram around a wellbore, the value of that in lost royalty could be $800,000.

If you have too many wellbores in a panel, because the longwall operation is so large, it is just not economic to mine all or a portion of the panel if you have too many wells, because you have to move around it too frequently.

Let me show you a different rendition of that to describe the situation. If this is the longwall mining

operation on San Juan Exhibit 62, in the red, that we've just seen in the longwall schematic, and if it's moving this way, toward the top of the diagram, in the direction marked by the orange arrow, and it encounters wells, which are depicted here -- that are frac'd in the coal seam, which are depicted here by the blue wellbores, there is a significant problem that San Juan has to address, because it can't just mine through active wells. That's highly unsafe and unlawful.

So it has two alternatives, and Dr. Bessinger will explain these alternatives, and Charles Roybal will shed some light on them too. Let me just introduce them.

The first alternative is a bad one, and it is to bypass the well and leave a barrier pillar of coal that is unmined. It's a bad one because it wastes coal, as you see on the Exhibit 13 in front of you. It costs a lot money in coal and a lot of money in lost royalty and taxes. In fact, we'll demonstrate that the value of the gas to be derived from one of these wellbores is far less than the value of the gas to be derived from the coal that you would have to bypass to miss the wellbore.

The second problem is, it results in a net loss -- not only does it waste the coal, but it results in a net loss of royalties. So there's a waste of coal, and there's an economic impact on the State.

And the third thing that we'll testify about is that it's not safe to do it.

So in the context of the public interest, if you look at these three factors it's a bad idea to have to have to bypass the wellbores, and it's a bad idea in each of the three categories of the public interest inquiry. It doesn't conserve coal because you waste a block of coal. It's not a good economic thing to do, because the State ends up with far less royalty from the oil and gas than the bypassed coal. So by bypassing coal, it's not in the public interest of the State of New Mexico.

And I might mention that even on federal lands -- and I'm sure you're aware of this -- half of the royalty goes to the State of New Mexico. So this economic impact described in Exhibit 13 is a definite and direct impact on the State of New Mexico.

And the third element of the public interest is, bypassing these wellbores is not safe.

So that's alternative one, and all three public-interest factors are frustrated by it.

The better alternative, alternative two, is not without its challenges but it's a better alternative, and it is what we will refer to as buyout. Buyout is a catch-all term. What it refers to, essentially, is an agreement with the owner of the gas leases to allow a mine-through,

and it could involve a joint development agreement, it could involve a complete buyout.

Buyout is a catch-all term to indicate an agreement with the oil and gas operators that would avoid the problems of alternative one, that would avoid bypass, it would avoid the safety problems and it would avoid the economic problems by allowing the coal company to acquire these wells in advance of reaching them and then plug and abandon the wells according to government regulations so they can safely mine through them. And then, as we'll discuss today, there is real potential that the gas could be produced in aftermining. So you get the benefit of production of the coal, and you get the potential benefit of the production of the gas.

This approach would favor all three elements of the public interest. It conserves the coal while preserving at least some of the gas, we hope. This is still under study. But if you're able to produce the gas after you produce the coal -- and we think there's potential of that -- it would serve the public interest to conserve mineral resources. It's in economic interest, because you're producing the most valuable resource, the coal. And it's in good safety interest because it doesn't require the bypass of wellbores, which is an unsafe -- or which is one of the more unsafe operations of the mine, or

riskier operations, and it also doesn't require you to mine through an area that could pose problems.

So the record so far before the Commission has indicated little progress toward this more favorable alternative of a buyout or a joint cooperation agreement. And there have been two problems with this, frankly, up until now.

One is that negotiations have broken down with Mr. Richardson and the coal company. Mr. Richardson has refused to submit to binding arbitration, as suggested in the protocol, and there has been a disagreement about the value of the gas. And negotiations have, as a result, not got us to the point where there could be an agreement.

The second problem has been uncertainty about whether gas can be captured after mining. And there still remains some of that certainty, but San Juan has studied the matter in greater detail since the hearing before the Commission and has developed some new ideas to try to address these two problems, and that's what Charles Roybal will be talking about today as I conclude my presentation. He'll be giving you some background on how this problem evolved, how San Juan changed its views about the difficulty posed by accelerating coalbed development in advance of mining. And he'll also present some ideas about not only whether the gas can be captured but the other

problem, how we might work toward a buyout arrangement.

MR. ROYBAL: Good morning, Mr. Deputy Secretary. My name is Charles Roybal, I'm counsel for San Juan Coal Company.

Today's activity is not one of our favorite activities, much as we appreciate the opportunity to appear before you as representatives of the Secretary in this unique hearing. We really wish we weren't here. We find ourselves in a dispute involving kind of our partners in a way, multiple use in the energy-production business, and in that sense we really regret that this hearing is being held. It has one of the aspects of a family feud, I think, that is oftentimes the most difficult thing to resolve, but it is that kind of dispute.

And in that regard I'd like to give you a few of San Juan Coal Company's views that underlie this dispute.

First I want to make clear that we very much believe that San Juan Coal Company should pay fair market value for gas that is held by lease holders that have valid existing rights to that resource. We know that there is in the San Juan Basin coalbed methane that is economic, however we do feel that for the most part in our mining area the CBM is not an economic resource. There is some there, and for that resource we're willing to pay fair value.

That view is based on a few facts that I think the Hearing Officer should keep in mind.

One is the depth of coal. We are starting to mine somewhere around the 300-foot depth. We proceed within the Deep Lease area to about 800 feet. It's only at the end of the current mine plan where we hit the 1100 foot which is held by many experts to be the kind of depth that you start to look for a coalbed methane resource. These are just rough rules, but things that have been in our mind as we look at this dispute.

Another thing that is characteristic of the coalbed methane resource is water, and as we mine through the coal seam we see a very distinct lack of water. In fact, we have to bring water into the mine for dust suppression. And I think in the process of -- or in Mr. Bessinger's testimony you'll see what impact of water through the frac'ing process and our concerns that flow from that.

We also in planning our mine did core samples of the gas content of the coal. That has been presented and will be further elaborated today. And we did not seek coalbed methane wells, as I think Mr. Ausherman alluded in his statement, in the coal at the time we obtained our leases. The fact that these are very -- are older leases, I think, in our view -- and I think the facts bear this out

-- these leases were held by production in deeper zones. At the time Richardson's leases were issued, initially, coalbed methane wasn't even a known resource. I mean, the real method for holding these leases, again, was production in deeper zones.

Another factor that I'd like to discuss is, San Juan's position has not been a straight-line progression of a policy or position, and unfortunately that makes Mr. Ausherman and Mr. Bruce's job and mine a little bit more difficult, I will admit. Initially, we did take the position that degassing, dewatering ahead of mining was a very good thing and would fit in the kind of classic pattern of multiple resource production and development.

As we learn more about the mine we are concerned about roof conditions, floor conditions, spontaneous combustion -- changed our position. So we do admit that that position has been changed and has been problematic.

We do not apologize at all for our safety concerns, and I think anyone that is dealing with this will have to understand that concern for our workers and for our workers' safety will be paramount from San Juan Coal Company's point of view. And as our knowledge about the mining conditions and our ability to mine continues to evolve, we probably will change positions in the future. We hope that we can someday come in and once again say we

can mine through areas and we can maximize production of both resources. That will always be our goal.

With regard to maximizing the resource production, the letter, Mr. Mills, that you alluded to that was sent out and is part of the record is one indication of that position. It demonstrates in our view a willingness to work with gas producers to try and maximize the production of both resources, and I think Mr. Bessinger will be able to elaborate on how that can occur.

This brings me to our proposal, or a proposal that we wish the Hearing Officer and the Secretary would consider, and that is a proposal for mediation. San Juan submits that an amicable resolution of this coal versus coalbed methane conflict really is what serves best the public interest and, in fact, would suggest that failure to promote a facilitated or mediated resolution contravenes the public interest. Accordingly, we would propose that the Secretary find and conclude that the public interest would best be served by a facilitated or mediated settlement of the dispute and order the parties participate in nonbinding mediated settlement negotiation, using a neutral third-party mediator to assist the negotiation.

We think that about three points would support this proposal and we would ask that you consider them. The Hearing Officer has already ruled that our stay request has

been denied. However, we would request that some form of a stay be considered. A ruling that the OCC is our remedy, we will, I think, try and work with that suggestion. We do feel that in order to effectuate mediation that a halt in production, which jeopardizes our mine and jeopardizes the coal seam, is appropriate.

Before the BLM in the Dugan appeal that's currently pending, we have agreed along with Dugan to a mediation process. And in that process BLM indicated that at a minimum, as a measure of good faith, there should be a halt in production and the drilling of new wells, and we feel that that is appropriate in this case. So again, we feel that that is one thing that would really aid in reaching an end and a settlement of this that would be in the public interest.

We feel that the Secretary should and could order the parties to participate in nonbinding mediation, to be facilitated by a neutral mediator to be selected by the parties in coordination with the Hearing Officer, and San Juan is open to suggestion as to the precise method for picking a mediator.

The fundamental goal, third, of the mediation would be to arrive at a fair market value for the gas and associated equipment and ultimately a buyout of the Richardson oil and gas interests within the San Juan

Underground Mine area. We believe that this type of order is in the public interest and, as a consequence, is consistent with the Secretary's authority under Section 70-2-26.

As further evidence that this approach is in the public interest, we'd note that the BLM memorandum 2000-81, which is one of Richardson's exhibits before the OCC, promotes accommodation as its preferred method of resolving its conflicts that arise between competing oil, gas and coal lessees.

We propose that this nonbinding mediation be engaged in for two reasons.

First, it reserves in the Secretary the power to make a decision on the merits of this appeal if mediation proves unsuccessful.

Second, Richardson has previously rejected, as reflected in its testimony before the OCC, participation in binding arbitration. San Juan Coal is still prepared to pursue binding arbitration as set forth in the protocol, but it appears that facilitated nonbinding mediation is the path that is still open to us, and again, this path would serve the public interest and the interests of the parties.

Mr. Hearing Officer, I think with this I will hand over to Mr. Bruce for conclusion of the opening statement.

SECRETARY MILLS: Thank you.

MR. BRUCE: Mr. Secretary, I'd like to address several issues. The first one is a legal issue.

But before I begin, I'd like to outline for you a few terms we'll hear today, at least from my witness, Mr. Smith. And I want you to be cognizant of what type of wells we're dealing with today, since the other witnesses and attorneys in the room have obviously had to deal with this over a lot longer period of time than you did.

The types of wells we're concerned with are, first, Fruitland Coal wells, and secondly Pictured Cliffs wells.

Fruitland Coal wells are completed in the coal seam which San Juan is mining. They produce methane gas which desorbs or becomes unattached from the coal.

Pictured Cliffs wells are wells which are completed in the Pictured Cliffs formation, which lies immediately beneath the Fruitland Coal formation.

The next term is well spacing. Fifteen years ago the Commission, or probably more formally the Oil Conservation Division, established 320-acre spacing for the Fruitland Coal formation. That is, one Fruitland Coal well was allowed per 320 acres or half-section of land.

Long before that, the Commission had established 160-acre spacing for the Pictured Cliffs. In other words,

one Pictured Cliffs well is allowed per quarter section. I'd note that when Richardson acquired its interests in these leases, it was only allowed one Fruitland Coal well per half section.

What we're here for today is Richardson's Application for infill drilling in the Fruitland Coal. Spacing would remain the same in the Fruitland Coal, 320 acres, but Richardson wants permission to drill one additional well per 320 acres. So you'd have 320-acre well units but one well in each quarter section, and sometimes I'll refer to that as four wells per section.

What the Secretary must recognize is that well development in the Fruitland Coal formation and the Pictured Cliffs formation can be independent. You could have four Pictured Cliffs wells per section, and you could independently have four Fruitland Coal wells per section, for a total of eight. So you're not looking at four per section, conceivably, you could be looking at eight wells total per section.

If Richardson is successful in its Application it can drill two wells per 320 acres or, again, four wells per section. It could also conceivably have four Pictured Cliffs wells per section, for a total of eight.

Now, I've handed you Section 70-2-17 of the New Mexico Statutes, and please look at subsection B, which

states in part, "The division..." or for that matter, the Commission "...may establish a proration unit for each pool." A proration unit, for our purposes today, is the same as a spacing unit. In other words, what we're looking at in the Fruitland Coal is a 320-acre proration or spacing unit. And that is "...the area which can be efficiently and economically drained and developed by one well, and in so doing the division..." and the Commission "...shall consider the economic loss caused by the drilling of unnecessary wells..." This is the basic statute regarding the Division's or the Commission's well-spacing authority.

The statute requires the Commission, when it's looking at this, to determine the area which can be efficiently and economically drained by one well.

San Juan asserted before the Commission that except for perhaps a small portion in the southeast area of San Juan's coal leases, wells cannot be economically developed in the mine lease area, and we will present evidence to you today through Mr. Smith on that issue.

However, the Commission in Paragraph 22 of its Order said that, well, economics was an academic exercise and really didn't address the issue. We believe the statutory language to consider economics and efficiency is mandatory, but the Commission ignored that legal requirement.

Therefore as a legal matter, the Secretary should reverse the Commission's Order, because the evidence has shown and will show that except for a couple of wells, Fruitland Coal development in this area is uneconomic.

I would note that when it came to the evidence -- Mr. Smith on behalf of San Juan presented evidence, and Mr. Cox on behalf of Richardson presented evidence. Richardson's evidence was based on a mathematical model of the Fruitland Coal reservoir done by Mr. Cox, which was explicitly rejected in Paragraph 72 of the Commission's Order. Therefore we believe the only valid and reasonable evidence before you today will show that drilling additional wells in the mine lease area is uneconomic.

Second, there's a factual matter for you to look at, and Mr. Secretary, I did put before you three exhibits. They are Richardson Exhibit B-2, Richardson Exhibit C-10 and San Juan Exhibit 35.

If you would first look at Richardson Exhibit B-2, the top one, and turn to the last page of that exhibit, the basal Fruitland Coal, which is colored in black -- Now, there's two sections of coal colored here. What we're here today primarily for, or primarily looking at today, is the lower one, the basal Fruitland Coal. That is the coal seam which is being mined by San Juan, and it is also the zone being produced by Richardson in its wells.

Immediately below the basal Fruitland Coal you see the Pictured Cliffs. When you look below the Fruitland Coal, you'll see a little rectangle with four holes in it, immediately below the Fruitland Coal. That is an indication that the well was perforated and is allegedly producing from the Pictured Cliffs formation. In fact, that well was producing from the Fruitland Coal.

If you would next move on to San Juan Exhibit 35, which was prepared by San Juan's witness, Paul Bertoglio, this exhibit and his testimony shows that virtually all of the Fruitland Coal and Pictured Cliffs wells in the mine lease area, whether they're designated Fruitland Coal or not, are actually Fruitland Coal producers. The only one that's not a Fruitland Coal producer is in the southeast quarter of Section 32, Township 30 North, Range 14 West, which is in the far southeast corner of San Juan's coal leases. That is the only Pictured Cliffs well.

This conclusion is confirmed by the next exhibit, which is Richardson's own Exhibit C-10. Now, there's a lot of data on that list, in essence, over on the left-hand side. It lists a number of wells. These are not all in San Juan's coal leases. The next one, it shows the zone. It lists these wells as either Pictured Cliffs or combined Pictured Cliffs-Fruitland Coal, a couple of them are actually sole Fruitland Coal completions. It gives the

location, and then it gives production data.

Now, how can you tell whether these wells are Fruitland Coal or Pictured Cliffs producers? And again, I won't go through all of Mr. Bertoglio's testimony, but it is there. He discussed it in more detail.

First, the higher rates of production. As Mr. Smith will testify today, the Pictured Cliffs reservoir in this area is really a marginal zone. No one would go out here to drill a Pictured Cliffs well alone. The higher production rates means that the production is coming from the Fruitland Coal.

Second is that if you look at the production dates -- and you know, it has cumulative production but it also has average rate, first 31 days, median rate, average rate to September 23, 2002. Let's just take one example, Mr. Secretary, the third well down, which is the Federal 5-3. Its average median rate in the first 31 days was 118 MCF. Its average rate later on increased -- more than doubled to 255 MCF. That is a key indictor of Fruitland Coal production.

In a normal well like a real Pictured Cliffs well or a deeper well, a Dakota well, production starts at a certain level and immediately begins declining. In Fruitland Coal wells, there might be zero production when the well is first completed. And what happens is, they

incline in production for a while as water is produced, as pressure is lowered, so that the pressure reduces and the gas can desorb from the coal. So if you see inclining production it's not a Pictured Cliffs well, it's a Fruitland Coal well.

And you can go down the list. I won't go through it, but you can compare these wells. And except for a few, they all have inclining production. Mr. Bertoglio testified that they are in essence Fruitland Coal wells, and Mr. Cox himself admitted that there is communication between the zones.

If you ask how this can happen, I again refer you back to the well log, Richardson Exhibit B-2. As you can see, these operators perforate and fracture the Pictured Cliffs formation right at the very top of the formation. When they fracture it, the fracture goes up into the Fruitland Coal, and it produces Fruitland Coal gas.

Therefore, when you look again at San Juan Exhibit 35, except in one or two instances, Richardson already has four Fruitland Coal wells per section and should not be allowed to recomplete or drill any additional wells where it already effectively has four Fruitland Coal wells per section.

Mr. Bertoglio's testimony on this begins at page 531 of the Commission transcript.

Now, when I say there could potentially be eight wells per section, at this time there's not because what people have been doing is drilling allegedly Pictured Cliffs wells and producing them, or completing in both zones. So for the most part what you're looking at is four wells per section.

But as I said, there is the potential to drill. They could say, oh, no, we're only completing a well in the Fruitland Coal, and then go out and drill additional Pictured Cliffs wells. This really aggravates the situation San Juan is facing.

And there's another issue. In a recent order, Division Order R-11,848, the Division approved a pilot project to test the necessity to drill two Pictured Cliffs wells per quarter section. Now, this will take a while for this data to be gathered under this pilot program, but what you're looking at is the potential of eight Pictured Cliffs wells per section plus four Fruitland Coal wells per section. So you could have 12 wells per section out there. Again, I think Mr. Ausherman has already addressed how this adversely affects the mine.

There's one final issue, and it's filings with the Secretary. Richardson has made statements that most of the lands are federal lands, and secondly there's really only one or two new wells at issue at this time.

First, unless the Commission is no longer in the business of regulating operations on federal lands, which I doubt, whether they're state, federal or fee lands is irrelevant to this proceeding. As Mr. Ausherman noted, the State receives one-half of the royalty from coal or oil and gas produced from federal lands. Obviously, this implicates the public interest.

The final thing is the incremental numbers of wells in the mine lease area. For that I'll refer you to Richardson Exhibit A-1, and I'll hand you my copy, Mr. Secretary. On it I've outlined in black the San Juan Coal leases.

Now, if you look at that map you'll see that there are a number of wells on the map. Most of them, which are not colored, are plugged and abandoned wells or completed in deeper formations, the Mesaverde or the Gallup or the Dakota. Those wells are not implicated here, and are manageable by San Juan because as to the plugged and abandoned wells, it can simply mill out those wells and mine through that area.

As to the other, the Gallup or the Dakota wells, they're for the most part quite marginal and are reaching abandonment status. Those wells are not owned by Richardson, and when they are abandoned obviously the mine will be able to deal with those simply by milling them out

and making sure they're properly abandoned.

As to the number of wells implicated, you need to look at the -- This is Richardson's own exhibit. Look at the blue and the yellow wells. There are eight in the mine districts -- and you will hear more about that in a minute; those are the shaded areas within the coal leases -- and three within the coal leases but outside the mine districts, for a total of 11 within San Juan's leases.

Another operator, Dugan Production Corporation, could seek to drill or recomplete additional wells in this area. Therefore we believe that there is more than one or two wells involved, and we want to emphasize that the incremental effect of each well on the mine is substantial. One additional well could lead to abandonment or bypass of a coal panel or a substantial part of a coal panel. The fact that we're dealing with a number of additional wells multiplies the adverse effect on the mine.

With that, we would close our opening and pass to Mr. Carr.

SECRETARY MILLS: Thank you.

Mr. Carr?

MR. CARR: Mr. Secretary, my opening statement will take approximately half an hour.

SECRETARY MILLS: Okay.

MR. CARR: Richardson Operating Company appears

before you today requesting that you not take action that would set aside or alter an order of the New Mexico Oil Conservation Commission. We believe the evidence before you and the evidence that will be submitted in this proceeding will clearly show that the Commission Order does not contravene the public interest, and further it will show that what San Juan Coal is advocating is action you should not take, advocating actions perhaps you cannot take.

Now, we've been here for over an hour listening to a long story about the mine and the problems. We've heard a definition of public interest and the standards that you should apply that are clearly self-serving, a definition which is sort of backed out of their own case, agreements and lease provisions in earlier contracts which support their position are categorically rejected as no longer appropriate. Anything that supports their position, of course, is ennobled and cited to you as if it is controlling.

And so it seems to me that at the very beginning it falls to me to sort of retrack where we are here today. And to do that, I think it's important to note that while what you have heard in the three opening statements from San Juan Coal, all sorts of facts and issues that may seem very complicated on the surface, when you look behind these

you find that actually what you're asked to do is fairly simple.

We're here because the Secretary of this Department decided to call a certain matter before her for review. And while they characterize the jurisdiction of the Department as extremely broad, I would suggest to you that the discretion of the Secretary is not unlimited. This Department, the Secretary, this proceeding -- it's all a creature of statue. And your powers are defined by those statutes. Your power and your authority is also limited by statute, and it's limited by the pieces of the regulatory framework which govern the development of coal, a regulatory framework in which your decision, when rendered, will fit.

This is a hearing to consider one issue. That issue is defined by law. It says, under the circumstances does the Order of the Oil Conservation Commission contravene the public interest? That's the only issue, whatever the public interest -- whatever you determine it is, whatever we can help you figure out it is. You take this Order and you compare it to that, and you see if there's a conflict.

San Juan has other ideas, new ideas. Today -- We have new ideas all the time from San Juan. Today it is mediation, nonbinding mediation, take it away from you.

They've brought it here, now they want to send it to a mediator in a nonbinding format. And I submit to you that will take us right back to where we were when we were trying to go to arbitration before. They think our coal is of no value because I guess it's not below 1100 feet, and we think it is. And the gap is so wide, we'll never get there. And you will then be not deciding the issue before you but sending it to someone else.

And at the same time, San Juan has already announced its intention to re-raise these issues, and a new hearing on Fruitland Coal rules is scheduled for May before the Oil Conservation Commission. It isn't that easy. You simply can't call it before you and then pass the buck away. You've got to decide this, and you've got to decide it within the context of the statute.

And so I want to talk to you initially about the scope of review, what you're here to do and what you're not to do. I want to talk about the circumstances which you can't change, that impact your decision. I will take a look at the evidence that's before you and the evidence that will be presented, evidence that will show that the Order of the Oil Conservation Commission, in the context of the circumstances of this case simply does not create a public-interest issue that requires you to modify it or set it aside.

Now, I think it's important as you approach this question to remember that you can't expand your jurisdiction, that you're not here to issue decisions which conflict with the jurisdiction and the decisions of other agencies. You can't change the provisions in the underlying leases or the contracts between the parties. You cannot set aside or overturn what the BLM or what MSHA has or may do.

And as you approach this issue I would caution you, you should exercise real care not to pass on new technical issues, issues within the jurisdiction of the Oil Conservation Commission, issues which are there because of the special expertise and competence of the engineers and geologists in the OCD and decide them yourself. The purpose of this proceeding is not to take issues of drilling, desorption, mine safety away from those technical people who have special expertise in these areas and give them to someone who lacks this engineering, geological and special expertise. That's not why we're here.

And in that regard I would suggest to you that although Mr. Bruce wants to quote the Oil and Gas Act and note that the Commission found that the economic issues raised below really were academic in nature, I would submit to you that the Commission has met its duty as to the economic nature of the Richardson wells. This is an issue

within its expertise. They're not talking about the value. The academic nature was the value of a coal mine in employing thousands of people in the San Juan Basin versus the royalty off of one coal gas well. That is academic.

But the OCD, within its expertise and its competence, found that the production to be obtained from the Richardson wells was economic and it would be efficient. And I would suggest that this proceeding should not be used to re-argue or supplement the record on underlying issues, but decide whether or not the resulting order conflicts with the public interest.

And as I listen to San Juan, it seems to me that perhaps more important than explaining and arguing to you what you should consider, we have to talk about what you should not.

They want to cast the priority issue aside, but this is not a proceeding in which you can ignore the priority and the superiority of the oil and gas leases in this area. You can't circumvent agreements between the coal company and the BLM, agreements which were conditions precedent to the acquisition of this interest in the very first place. You can't set aside stipulations and provisions in state and federal coal leases. This isn't an opportunity for you to just sail into areas reserved to the BLM or MSHA. You can't change decisions of the BLM or

MSHA, and you shouldn't accept an invitation to walk down that path.

The evidence on the economic issues as to these wells was presented to the OCD and decided, it has been presented to the BLM, and their economic issues have been rejected. This isn't a place to get into the technicalities of mine safety, of MSHA.

Of course here the issue, the central issue, is the production of coal. But the underlying issue, the issue that really controls the coal development involves mine safety. And while your decision could impact mine safety, you must be careful you don't go into areas not delegated to you.

You have in your Department authority to look at spacing on Indian lands, you can do all sorts of things in the area of surface mining. But those are all because your Department has entered cooperative agreements or memoranda of understanding with the BLM whereby your jurisdiction is defined and extended into those areas as authorized by law.

You can look at MSHA. It's a huge set of regulations. They tell you what kind of per diem has to be paid to somebody at a mine-safety school or what sort of a fire extinguisher you have to have in a building. They don't say anywhere that the authority of that agency is delegated in any way to the Secretary of Energy and

Minerals in New Mexico. I think you must be careful.

And I think as you approach these issues and you recognize that what we're talking about is on the surface -- we're talking about coal, we're talking about how much will be left behind for safety reasons, how you frac for safety reasons -- I think when you think about this you'll find that the Oil Conservation Commission was correct, for the Oil Conservation Commission in its Order suggested that these issues belong with MSHA, they do not belong here. And yet the problem for you in this proceeding, I submit, is that San Juan Coal is attempting to backdoor those issues here with you.

Now, having said that, I want you to know that I don't sit here thinking that the Secretary of Energy and Minerals called this matter up thinking she was going to be asked to decide federal safety issues. But I think there's a very curious thing in the evidence in this case.

When you look at the record you'll see that San Juan has sought formal rulings from MSHA on dealing with plugged and abandoned wells in the area. They can plug them, mill out the casing and mine through.

But I can find nothing in the record that shows they've ever raised these with a formal application or received any kind of decision from MSHA on producing wellbores through the coal, fracturing in the coal, what to

do with the methane that they're finding in the coal. And in this situation it raises a curious question.

Why is San Juan here? Why aren't these issues with MSHA? Because they are the issues that dictate the rest of the issues concerning the development of this resource.

As I indicated a minute ago, I don't think this proceeding is a proceeding where we come in and re-argue matters that were presented before. We don't come in here and augment or add to the record below. The old issues, the issues on economics, should have been brought to the Oil Conservation Commission.

I know you, sir, as a practicing attorney have read transcripts of witnesses you've presented, the things you've argued, and you thought, oh, Lord, I should have said, I thought I said, and it isn't there.

Well, this proceeding isn't a proceeding so under the guise of public interest San Juan can run in here and make a record they failed to make before the Commission. But unfortunately, I believe that's really why we're here.

Now, let me tell you, I don't think this is a forum for new issues, issues not raised below, issues that are within the technical expertise of the OCD. We're not here to hear new proposals, we're to review an existing order.

And in that regard, I think the world really changed for us last Wednesday. I think on that date this case took a very dramatic turn, for on that day San Juan also raised new issues, made new proposals, proposals which are technically beyond the scope of this hearing but which go to the very heart of all issues before you.

You see, on that date, last Wednesday, San Juan filed with you a letter and served it on us, their Exhibit 69. This letter alone underscores the poverty of the position they're advancing here to you today. It underscores the very weakness of the public interest argument.

San Juan is proposing in this letter that while Richardson is drilling now only two more wells in the mine districts and completing only five other wells in the mine districts, while that violates the public interest, they, not the owner of the gas but the owner of the coal, should be allowed to go and drill horizontal wellbores and vertical-to-horizontal wellbores.

You see, the interesting thing here is that while ignoring the ownership rights of the oil and gas operator, while ignoring our right to go out and develop, they say, If you drill, Richardson, that violates the public interest.

But their bizarre position today is, they can

come in here and say, While it violates the public interest for the owner of the gas to drill and produce it, it's consistent with the public interest for us to do it, on facts that, while they want to talk about the Twin Peaks area and a much larger area, if you look at the gray, their mine districts, we're only talking about two new wells and five recompletions. And now they, with untested technology, propose that they can go out and drill these wells themselves.

The drilling of those wells -- The minute they drill a borehole and get gas, under our statutory scheme that matter goes back to the OCD. That's where it belongs. Horizontal well, OCD. Vertical-to-horizontal wells, to the OCD. The technology to be used, OCD. And those issues aren't before you.

But with this letter they admit they have encountered lots of gas in this area that's noncommercial, that drilling is needed to produce that gas, and it must be done before they mine.

They admit in this letter that their ventilation system isn't working, or may not work sufficiently to recovery this gas, and they propose to get it by doing just what Richardson is now authorized to do: drill wells. We submit to you that if it is in the public interest for them to drill wells to produce gas they don't own, it is

definitely in the public interest for us to go and drill wells to produce the gas that we own, wells that the OCD and OCC have found are efficient, are necessary and are economic.

They say, Well, you have to provide regard, due regard, for all mineral resources. Well, I don't think you're doing that. I think you're simply going off on a tangent if you subscribe to their notion that you do that by letting them drill and telling the owner of these resources that they may not.

If we're going to comply with the Statute here, you know, it's couched in the terms of looking at the Order under the circumstances and determine if, in fact, it violates the public interest. And the circumstances are important. I submit there are certain critical things within which your decision must be crafted, that really dictate the result. And priority is one of those.

Mr. Ausherman says the BLM decided it, the OCD did not, but there is no dispute anywhere that the oil and gas leases predate the coal leases, that we were there first.

And when they went out to extend the Deep Lease, they obtained the Deep Lease Extension with a federal coal lease. This lease is in 2001, long after the protocol agreement when they say it no longer had any bearing. But

this lease has special stipulations in it. And it says, This coal lease is subject to all prior existing rights, including the right of oil and gas lessees and other lessees and the surface users.

It then went beyond that and it said, It is solely the responsibility of the coal lessee -- San Juan Coal -- it's solely their responsibility, not the responsibility of the BLM, to clear the coal tract of any legal encumbrances or pre-existing land uses that would impede or prevent coal mining on the tract.

This is a circumstance, I submit, it is a fact in this case. And no matter what they want you to do, there isn't anything you can do to rewrite a federal oil and gas lease.

And so as you decide the matter, I submit, you are compelled -- you must honor this, or you're accepting their invitation to go where I believe you cannot go. This is a federal lease.

And in addition to the federal lease we have the protocol agreement, the agreement that was drafted by San Juan, entitled Protocol for Mediation of Adverse Impacts and Gas Revenues. And in that they recognize the senior stature of valid existing oil and gas leases.

Now, why are these important to you?

Well, at the time they acquired their coal

rights, they agreed to these things. And there is an argument that if they hadn't agreed to these things we wouldn't be here in the first place, because they wouldn't have leased the land. And this is the federal side of it.

But the state side isn't silent either. The state leases -- you can find this provision in the record on appeal at page 1320 -- state leases authorize *in situ* coal gasification in order to remove coal.

But it goes on, and I quote, Such gasification shall not disturb or diminish commercial quantities of coalbed methane.

These are circumstances. You have to honor them as you sort this out. And San Juan comes before you and casts them aside: Well, they're old, we don't pay any attention to them.

But these are circumstances, I submit, impact your jurisdiction and the scope of what you're going to be asked to do at the end of this hearing.

They seek an order that would prevent us from going forward with infill drilling, drilling additional wells in this area, a proposal that's consistent with similar areas throughout this pool. And they're asking you to do that at the same time the record before you shows that they are producing the gas, they are venting the gas and they are wasting the gas. And I think these are

circumstances that you have to honor, they're things that you cannot change.

And while we've talked about the protocol agreement and we've talked about the lease terms, we also, I think it's important -- we also have to point out to you that these decisions have been reviewed at the request of San Juan twice before the BLM.

And in deciding these matters in 2001, the State Director's decision said this: We believe that Richardson has a prior existing right to develop the CBM. This is true even if it would cause reduced recovery of coal reserves and adversely affect the economics of San Juan's mine. San Juan must adjust its mine plan to provide necessary safety to mine personnel. Accordingly, we sustain the field officer's decision with regard to priority, safety and economics.

You can't change this decision.

Now, Mr. Ausherman says, Oh, yes, but we appealed it to IBLA and then we agreed with them that it wouldn't be precedent, and we just set the thing aside.

And do you know why they did that? Not because this decision is wrong. Read their Order. It's because the permits have been granted, the wells have been drilled, and it was moot, and they didn't want this to get in the way of future applications. But no one will suggest to you

that this decision isn't an accurate reflection and the best evidence of what the BLM would say today. And this is a fact, and it's something you can't rewrite, something you should consider.

Now, Richardson in these cases has gone to the OCD and the OCC, and the purpose of our Application has been to accelerate production because of the imminent destruction of the coal by San Juan Coal when they mine it. That's what they do, they take it out.

But this creates and brings to the fore a circumstance again that you have to recognize. After the coal is gone, there is no opportunity to recover the gas. Once the gas is gone, the coal remains. That's a circumstance that I think you need to think about when you deliberate on whether or not we have a public-interest issue that requires you to set aside the Commission's Order.

You know, we are looking for a situation where we could put up to four wells on a section. Mr. Bruce talks about eight wells and what a terrible problem this could be for the mine. I suggest we're getting a little bit hysterical, we're raising a few false issues. Under the economics of this area I don't think there's one operator, even a poor operator, who would try and drill eight separate wells to access PC and Fruitland Coal. That's

just not going to happen, that's a false issue in this case.

Another circumstance, it's 85 percent federal land. Everyone gags when I say that, but it's true. That's the problem with it, it's true. And the BLM is the agency under the federal scheme that is vested with jurisdiction over the management of this region. And MSHA is the agency that makes decisions on mine safety. And when they act, and when they exercise their jurisdiction, it limits what you can do. I'm sorry, but I think that's the fact. And I think those are circumstances you cannot change, circumstances you've got to consider.

When you consider this whole thing and put it in context, I think you have to recognize that the BLM has stated that their policy is to optimize the recovery of both resources, record proper, page 779.

San Juan wants you to disagree, and they are going to present all kinds of evidence about the value of the coal. And I would submit to you that this isn't an either/or issue. Federal policy is, try to maximize the recovery of both. And in that context, comparing employment in the San Juan Basin and the value of a coal mine or a power plant with, you know, the royalty off of a couple of gas wells is just academic and really pretty meaningless.

Policy, public interest, is served by maximizing the recovery of both. I submit the Secretary doesn't have jurisdiction to alter lease terms, underlying agreements, decisions of the BLM, the role or the decisions of MSHA. San Juan would like you to enter orders that conflict with all of these. These are circumstances we must honor, things you cannot change.

The evidence before you is going to talk about the value of coal. Whether it's really relevant or not, we're going to hear a lot about it. Well, I'll tell you something: Richardson does not disagree that there's substantial value in the coal reserves. After they devalue and talk about noncommercial reserves and how shallow it is and all of this, after we waltz through all of that, they're going to recognize that it has value. And as Mr. Roybal indicated, they would pay fair market value -- which I will tell you, what they think is fair market value is very far from what we think.

We also, in terms of the evidence that's going to be presented, agree that having the gas in the coal is a problem. It's a problem for them, it's a problem for us, it is a problem for you. But when you finish this hearing today, San Juan Coal is going to leave and they aren't even going to have told you that they know what they can do with the gas they already have in this mine, because they don't

know.

In this area there are already 70 wells; they're proposing to drill more but don't want us to. The only thing they're asking you really to do is tell Richardson, the owner of the gas, that he cannot produce it. And they think that, under these circumstances, is in the public interest.

Under these circumstances I submit you can't find a public-interest issue. And I'm talking about the priority of the oil and gas, I'm talking about the agreements between the parties, I'm talking about the new proposal we have from San Juan for horizontal and vertical-to-horizontal drilling. They admit that that's needed, by their letter that we received last week, dated February the 5th. I think that you can't find public interest if you recognize that both resources can and should be produced, when you look at the protocol agreement and see they agree to mine around the wells, however you ultimately define public interest. I submit under these circumstances, and on these facts, you simply can't find a public-interest issue.

We're going to receive a statement from PNM -- it was referenced in the statement concerning witnesses previously filed -- and we're going to hear about their need for the coal, and it's true that they do. And they've

made decisions to access this particular coal to use it in their power-generation efforts. These issues have also been to the State Director at the BLM.

The State Director, after reviewing these and rejecting these arguments, said, It is unfortunate that San Juan only recently recognized the potential adverse impacts of CBM development on its ability to mine coal. The BLM had encouraged our lessees to accelerate development of CBM in advance of mining to ensure recovery of methane that otherwise would be lost and to reduce safety threat of methane degassing during mining operations.

That's a BLM decision. But I think it's important, because it flags the point that what we're dealing with is a decision of San Juan, a decision by PNM, where they didn't fully, perhaps, anticipate what might be happening. But I will tell you that failure of individual companies to anticipate what may happen down the road very rarely rises to a public-interest issue, especially when you get there. You have to throw out contracts, ignore agreements, set aside the conditions precedent to the acquisition of the leases, say the person who doesn't own the coal may drill and produce it and the person who does own it may not.

And this is especially true when the very letter they've included as Exhibit Number 69 is an offer, the

first time they've raised these things, to continue negotiations. They don't need you to order them to go out and mediate, they need to pursue the negotiations they started last week. And when those are resolved they need to then take that resulting situation to MSHA and address the mining issues.

The bottom line here is, does this Order violate the public interest? They want you to prevent us from drilling wells that the Commission has found are economic and needed to extract the gas. They want you to shut us down in this area. But they still don't know exactly what they can do, they don't know what they will do. If you read the letter last week, they don't even really know if they're going to be able to do anything at all.

But under this evidence, under these confused circumstances, we submit to you that the Secretary cannot find that the Commission's Order contravenes the public interest. I think you'll find that you may not enter orders inconsistent with the role of other agencies with responsibility for the development of coal, and you should not accept an invitation by San Juan to step outside your jurisdiction into areas delegated to other agencies.

Nonbinding mediation, that takes us back to where we've been. That will not work, and it's outside the issue that's before you.

If on this evidence you say the Commission's Order and in these circumstances is consistent with the public interest, go to MSHA, negotiate, do what you said you would do, you're going to find that you're honoring the regulatory scheme, that you're not contradicting terms in federal oil and gas leases -- something that, if you try to, probably will be of no effect -- you'll require San Juan to take technical issues to the OCD and MSHA, where they belong.

Will this evidence tell us what is the public interest? I'm not sure. But I'll tell you, the evidence and the circumstances of this case will tell you that Richardson, the owner of the gas, can drill in the public interest, that you shouldn't say he cannot and at the same time tell San Juan they can go out and drill on these lands, extract the gas, potentially waste it, all in violation of their leases and underlying agreements.

They ask you to shut us down while they try to figure out what, if anything, they can do. And this is absolutely absurd, to stand here flagging around directly and indirectly health and safety standards, especially when you realize that this Order -- and the mine districts shaded in gray on the plat against the wall -- those are the designated mine districts -- we're talking about two new wells; there were three, one has been drilled, and five

more recompletions -- and you weigh that against the fact there's 70 wells there already, and they're already proposing to start drilling wells of their own.

I think the whole case falls the day they stand up and say, it's against the public interest for Richardson to drill, it's in the public interest for us to do it.

SECRETARY MILLS: Thank you, Mr. Carr.

San Juan, are you prepared to continue with your case?

MR. AUSHERMAN: We are.

SECRETARY MILLS: Please proceed.

MR. AUSHERMAN: I would remind you, Mr. Secretary, that we do have Mr. Real from Public Service Company of New Mexico here to give a statement as part of the public part of the presentation, if it suits you to do that now, or we could do that later.

SECRETARY MILLS: How long is his statement expected to last?

MR. REAL: It's just going to be a very few minutes.

SECRETARY MILLS: Let's proceed with his statement, then.

MR. REAL: Good morning, Secretary Mills. Thanks for the opportunity. My name is Bill Real, I'm senior vice president of Public Service Company of New Mexico.

I'm here today because of the interest, certainly, we have as a utility in the fact that the coal company, San Juan Coal Company, provides the fuel for our San Juan Generating Plant.

I've got a good bit of history with PNM and the utility industry. I've been in the industry for 32 years. I've been with PNM for 25, and over that period of time I've been involved with our gas operations up in the Farmington, our pipeline and gathering, as well as our distribution, and have been in charge of our electric transmission distribution and generation.

The last couple years my involvement has been in the generation side as executive vice president of the power production and marketing, and during that period of time is when we had made the decision to go underground with the coal mine, given the economics that will be described.

The importance, certainly, of this issue for us and for my comments here is the fact that the San Juan Generating Station's sole supply of fuel is the coal mine, as has been described. There's no other economic alternative to bring fuel into that facility. We are approximately half owner -- I think we own 46 percent -- of the facility. We operate the facility. There are other owners as well, which include the City of Farmington and

the County of Los Alamos.

I think what's important to understand -- whether or not it's a public-interest argument or not, it certainly is an interest to our customers -- is the fact that San Juan Generating Station for us provides over 50 percent of the power production in the State of New Mexico for our customers, and probably somewhat over 40 percent of all of our generation capability, including our nuclear plant in Arizona. So it's a substantial resource that any interruption in that fuel supply would create a significant and extreme hardship on our customers. And that is really my concern.

As I heard the discussion, and my familiarity with the dispute that's ongoing, from our point of view anything that would increase the risk to the mine, that risk being primarily through some kind of catastrophe, whether it's a roof collapse or a spontaneous combustion of some sort, but anything that would interrupt the operation of that mine for an extended period of time would interrupt our ability, ultimately, to produce power out of the San Juan Generating Station.

And whether or not that power could in any circumstance be replaced is questionable. Even if you could find the production somewhere else in the west, could you get it redelivered into our market, into the citizens

of Santa Fe, Los Alamos, Farmington and Albuquerque? I don't know, I think that's problematic. And it's a risk that certainly is ever-present when you're dealing with an underground mine, but it's a risk that I don't believe should be magnified or added to if it can be avoided.

That's why today I'm here in support of coming up with a resolution that has been proposed. Perhaps mediation is the appropriate option here.

Thank you.

SECRETARY MILLS: Thank you.

Mr. Ausherman?

MR. AUSHERMAN: We would call Dr. Steve Bessinger as our first witness.

As part of Dr. Bessinger's presentation, we would like to show a video of a longwall mining operation. This might be a time to break and set that up, if you like.

SECRETARY MILLS: Let's swear the witness in first, and then we'll break for 10 minutes.

(Thereupon, Dr. Bessinger was sworn.)

SECRETARY MILLS: We'll recess for ten minutes to permit you to set up.

(Thereupon, a recess was taken at 10: 55 a.m.)

(The following proceedings had at 11:22 a.m.)

SECRETARY MILLS: The hearing will again come to order. Mr. Ausherman, please proceed with your direct

examination of Dr. Bessinger.

MR. AUSHERMAN: Thank you.

STEPHEN L. BESSINGER,

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

DIRECT EXAMINATION

BY MR. AUSHERMAN:

Q. Dr. Bessinger, would you please state your name and your profession?

A. Stephen L. Bessinger, mining engineer.

Q. Is San Juan Exhibit 61 your personal résumé?

A. I don't have a copy of the exhibits.

Q. Sorry.

A. It is.

Q. What is your position with San Juan Coal Company?

A. I'm engineering manager for the San Juan Underground Mine.

Q. Now, Jacques Abrahamse and Lynn Woomer and John Mercier are San Juan employees whose testimony is in the record in this case. Have they reported to you during their tenure?

A. Yes, they have.

Q. And Mr. Woomer is no longer with the company; is that correct?

A. That's correct.

Q. And the others are?

A. They are.

Q. What are your present responsibilities as engineering manager for San Juan Coal Company?

A. Responsible for all aspects of planning with regard to the mining infrastructure and production planning. That would include activities related to mine ventilation and roof control, planning of longwall mining, development of capital and operating budgets, geologic reconnaissance, related considerations.

Q. Are you also involved with considering and managing the operational aspects of conflicts with CBM wells?

A. I am.

Q. Now, referring to San Juan Exhibit 61, would you please describe your education?

A. I have a bachelor's, master's and doctorate in mining engineering.

Q. And what was your dissertation topic?

A. The dissertation topic for the University of West Virginia was Engineering and Economic Risk Assessment for Longwall Coal Mining Systems.

Q. Is that relevant to the issues presented in the San Juan longwall mining operation?

A. Yes, it is. Many of the potential impacts that

we'll discuss today are addressed in one way or another in that analysis.

Q. Are you generally familiar with the longwall mining system and the machinery and the plan advanced by San Juan to develop the coal seam?

A. I am. I was involved in both the mine planning and the equipment design from the outset.

Q. In what capacity were you involved in the mine plan and designing the longwall apparatus?

A. Prior to joining San Juan Coal I was director of global longwall applications for Joy Mining Machinery. And the equipment that San Juan operates was provided by Joy Mining Machinery, so in view of the capital expense involved, there is a significant study and design development to optimize the equipment for this application. I was involved in all of that, and then ultimately the manufacture and delivery and installation of that same equipment.

Q. Can you describe the company, Joy, that you've referred to?

A. Yes, Joy Mining Machinery is the foremost supplier of longwall mining systems in the world, and underground mining equipment for coal mining purposes in general.

Q. And as director of global operations for Joy,

what were your responsibilities?

A. I had responsibility for longwall mining applications globally, wherever either existing mines were going to reintroduce new longwall mining equipment or greenfields properties, where no longwall mining had taken place in the past, were being developed. I was involved with all of those projects.

Q. So after being responsible for global operations for Joy, what made you decide to come to New Mexico?

A. Well, the opportunity here is unique because we have the possibility at San Juan Underground Mine to have a world-class operation, perhaps the foremost underground coal mine in the world, and that opportunity was more attractive than even the global exposure.

Q. In your experience both with San Juan and your previous experience as director of global operations at Joy and other experience described in your résumé, have you been involved with underground coal mines that encounter oil and gas wells?

A. I certainly have, principally through my experience with Consolidation Coal Company but also during my experience with Joy Mining Machinery.

Q. What was your position with Consolidated Coal Company?

A. I was senior mining applications engineer and

manager for the advanced technology longwall program there.

Q. Do you have experience with mining companies degassing or production of coalbed methane in advance of mining?

A. Yes, that's a fairly common practice to facilitate coal mining, and it was one that we engaged in at Consolidation Coal Company and I've seen practiced elsewhere at the time of Joy Mining Machinery.

Q. Do you also have experience and expertise in mines where this degassing gas is produced and collected and sold at the surface?

A. I do. That's also a fairly common practice within Consolidation Coal Company and certainly common elsewhere in the world.

Q. Do you have experience and expertise with the dangers of unstable roof and floor conditions in underground mines, including San Juan?

A. I do. Having had global exposure, including Africa, Australia, UK, Europe and the Americas, as well as San Juan, I can comment on that fairly expertly.

Q. Does that include familiarity and investigating the causes and trying to remedy the situation?

A. It certainly does. Root cause analysis is always an important element in roof control design.

Q. What expertise in geology have you acquired in

your career as a mining engineer?

A. Well, geology is a strong component in the discipline of mining engineering, there is significant coursework involved with that in the undergraduate and potentially graduate programs. My exposure in the graduate programs included specialty study in coal geology, I've also had significant experience in mining exploration and reserve evaluation projects and assessment of geomechanics prior to and during mining through geologic reconnaissance.

MR. AUSHERMAN: We would tender Dr. Bessinger as an expert mining engineer with particular expertise in longwall mining operations.

SECRETARY MILLS: Is there any objection?

MR. KELLAHIN: No objection.

SECRETARY MILLS: He will be admitted as an expert --

MR. AUSHERMAN: Thank you.

SECRETARY MILLS: -- accepted as an expert.

Q. (By Mr. Ausherman) I would like to ask you some questions about longwall mining in general. But first, in your view is coal a mineral resource?

A. Well, I think in most forums it's considered a mineral resource.

Q. Is coal the mineral resource that San Juan Coal Company seeks to mine in its underground mine?

A. Yes, that's the exclusive purpose of San Juan Coal Company.

Q. So how does it plan to do that? What are the methods that San Juan plans to use to mine that coal?

A. The underground mining is primarily facilitated through longwall mining and continuous miner sections are utilized to develop working places for the longwall mining system.

Q. Can you describe what a continuous miner machine is?

A. A continuous miner is a machine that is considerably smaller in size than the longwall mining system. It's an integrated machine frame that's able to cut coal on a working face approximately 10 to 12 feet wide and convey it through the machine to be hauled away from the rear of the machine. The total length is approximately 35 feet, and it's a track-mounted machine, making it highly mobile.

Q. Is that -- I believe you indicated that the function of a continuous miner is to mine something that we call the main roads or the gate roads or the passages?

A. That's correct, the function of a continuous miner and associated section equipment is, from our application, exclusively for the purpose of developing access to facilitate longwall mining operations.

Q. Is that because its movement is more flexible? You mentioned --

A. Well, it's able to work in a smaller space with the intent of -- create a smaller excavation, and the intent being to mine with the longwall mining system, we want to create the least lost coal associated with developing that longwall mining system panel, and the most efficient way to do that is with the continuous miner that creates the required infrastructure with the minimum wastage of the overall resource.

Q. Now, before we get too far down the road, I'd like your help in describing some terms to be sure that it's clear what we're talking about. You've talked about passageways and gate roads and mains. You've also talked about coal panels.

We have on the easel over there San Juan Exhibit 10. Could you use that exhibit to explain to the Secretary where the mains are and where the gate roads are and where the coal panels area?

A. Well, I certainly can. What we see here is a map view of the overall mine area, and you can see that there are some lightly shaded rectangular regions on this map. Some of the regions are in gray lines, others of the regions are in solid green lines.

What we see in the green lines, starting with the

west side of this figure, is our main entry development set. This main entry set will continue across the property to the east and is the spine of all of the mining activities at San Juan Underground Mine. It's a life-of-mine entry set that must continue to serve its purpose of access for men and materials as well as provision of utility access, ventilation, water, electricity.

Q. Why does it have that windowpane pattern?

A. The windowpane pattern that we see, for example, immediately off of the end of the green solid section is indicative of the advance per month that we expect to encounter with the equipment in that area, developing the east main.

Q. Could you give us an idea of the dimension of that main in terms of how wide it is and how long it is, at least right now in its advancement?

A. At this point we're looking at about 8000 feet of total advancement, and it's approximately 1000 feet in dimension across the main set.

Off the main set we develop, as we see with the green lines that run north-south off of the existing east-west main set, we develop what we call gate roads. These are a system, three-entry system, of tunnels which provide access to the longwall mining equipment as it works within the longwall coal panel. The coal panel is bounded by the

east mains on the north end and the two gate road development that we see on the east and west. It's labeled LW-101 and is within the cross-hatched region that we see there.

Q. How long is that panel?

A. That's approximately 10,000 feet in length and approximately 1000 feet in width.

Q. And what's the windowpane pattern with the dates on it in that coal panel, the smaller squares within the long rectangle?

A. That's -- As we see, starting out with the beginning and then succeeding towards the north, those are all the measured progress on the map of the longwall on a monthly basis during the course of the planned production.

Q. So what's the significance to the mine of what we're referring to now as coal panels?

A. Well, the coal panels are the primary source of coal that fuels the generating station. It's also the basis of the economics of the entire plan, because it's implicit in the expectations about this mine that we'll be able to mine these panels in the orderly succession that's indicated by the map without disturbance to the geometry, in order to safely and productively and efficiently, cost-effectively, produce the reserves that are shown on this lease area.

Q. And how long will it take you to mine all the panels shown on that map, is your estimate?

A. Approximately to the year 2017.

Q. And are the labels you see, LW- with a three-digit number after it, is that the methodology for labeling the various different longwall panels?

A. Yes, it is. The longwall panels are grouped into districts. The districts are composed of a small number of longwall panels. The 100 district we see here, the tailgate of longwall 101 and the headgate of longwall 103, likewise from the headgate of longwall 201 to the tailgate of -- or excuse me, from the tailgate of 201 to the headgate of longwall 204, these districts are separated by a barrier pillar for the purposes of isolating the district after only a small number of panels have been extracted, in order to minimize the risk of spontaneous combustion leading to fire and explosion that could be attendant to a spontaneous combustion event.

Q. What's a headgate and a tailgate that you've referred to?

A. The headgate -- The longwall mining system is installed between the headgates and tailgates. In this case, the headgate is the westernmost group of three entries, the tailgate is the easternmost group of three entries in panel longwall 101. And by convention, the

nomenclature suggests that the tailgate is the end -- that the coal flows from tailgate to headgate across the longwall mining system. And in our practice we ventilate from headgate to tailgate, being the prevailing air direction on the face.

Q. Okay, let's take it the next step and take a closer look at the longwall apparatus and where the headgate and the tailgate is. Could you replace the existing exhibit with a new one on the easel? That's the longwall face cutaway, and that's San Juan Exhibit 12.

To begin with -- you've just been talking about the headgate and the tailgate -- could you show the Secretary on that map where the headgate and tailgate would be?

A. Yes, the green entry set that we see here to the west of longwall 101 panel would be represented by this entry here. This is only depicting one of the three entries that exist --

Q. And you're referring to the entry marked on San Juan Exhibit 12 with the words "Coal Direction"?

A. That's correct. The tailgate would be the easternmost of the two gate roads indicated on the former figure. That would be at the top of the figure labeled "Longwall Coal Face Cutaway".

On this figure, what we see is the longwall coal

block here shown is 1000 feet in width and 10,000 feet in length. For our purposes it's also 13 feet in mining height, which is different than the actual thickness of the coal seam. The coal seam in most cases is thicker than the coal that's extracted.

Q. In a minute we'll show the video, but as sort of an intro to the video, because it moves kind of fast, could you orient us to the various parts of the longwall shown on San Juan Exhibit 12 that will be referred to in the video?

A. Yes, what we see here is shields, or otherwise referred to as roof supports. These are hydraulically powered units that provide roof support during the longwall mining process and protect the face personnel from the hazards of unstable immediate roof and, to some extent, the coal face.

Those exist in a continuous row from the tailgate all the way through to the headgate. There are 174 of these units side by side in the case of San Juan Mine.

Q. And so in this diagram it's just a cutaway that's showing only a few shields so you can see what's behind it, the AFC?

A. That's correct. This figure is -- purely facilitates a conceptual understanding but in no way really suggests the actual scale of the longwall mining system.

Underneath the roof supports is the armored face

conveyor, labeled here as AFC. That's a machine that serves several functions. It conveys the coal off of the longwall face in the direction from tailgate to headgate, and it also is an attachment point for the longwall roof supports to act as an anchorage in their successive events during longwall mining. It also is the mechanism on which the shearing machine, which actually cuts the coal, rides and derives its tractive effort.

The AFC is powered by power units both at the head end and the tail end, the tail end not being shown on this figure. Perhaps 3300 installed horsepower might be representative of the San Juan installation.

The shearing machine successively traverses the face in a repetitive fashion, cuts the coal out in unit increments of the drum width. And as that happens, once the coal is cut away, the face conveyor is pushed forward by hydraulic rams mounted on the roof supports.

Then once a section of the face conveyor is advanced, the longwall roof supports use that same advancing ram cylinder to pull themselves forward, thus leaving a void space immediately behind the roof supports. And typically in that void space, the roof that had been supported by the longwall roof supports caves in an uncontrolled fashion into the void space left from the extracted coal.

Q. And where is that void space?

A. That void space is the area behind and above the longwall roof supports.

Q. And what do you call it?

A. It's typically referred to as gob or goaf.

Q. G-o-b or g-o-a-f?

A. That's correct.

The coal is produced onto the longwall face conveyor, changes direction at the longwall head drive and then goes through the stage loader and then is discharged onto the section conveyor belt, the stage loader being the mechanism that allows a moving interface to a stationary conveyor belt.

Q. Is this schematic representative of the way the longwall will generally work at San Juan Mine?

A. Yes, it is.

Q. Have you brought a video to show in greater detail how the San Juan longwall will work?

A. Yes, the video that I've brought is materially identical to the longwall at San Juan, with only small differences due to equipment specifications.

MR. AUSHERMAN: If we may, we'd like to show the video now.

SECRETARY MILLS: Please proceed.

Video soundtrack: "America's most valuable

energy resources are in the form of coal. Today we are using coal in record quantities. We produce much of this coal from underground mines. We are the Consol Coal Group, America's largest producer of underground coal, and we are the most experienced user of the longwall mining method.

"What is longwall mining? Longwall mining is an advanced technology that allows us to remove large blocks of coal, sometimes more than two miles long and a thousand feet wide, in a continuous process. We call these blocks of coal 'panels'.

"We determine the orientation of these large panels when we plan the coal mine. This planning takes into consideration geological factors such as the kind of rock that lies over the coal. Also, we must consider coal quantity, which may vary considerably over the extent of the mine. The initial underground mine plan will determine how the new mine will develop and grow throughout its life.

"When it's time to begin mining, we use continuous mining equipment to develop systems of tunnels or entries that define the panel of coal we will remove with the longwall mining system. We use these entries for fresh-air ventilation, coal transportation and movement of people and equipment.

"When a panel is ready, we set up a rugged chain-type, called the face conveyor, along the coal face in the

back of the panel. This may be a thousand feet long. On the face conveyor we install a powerful machine called a shearer. Two rotating cutting drums are powered by electric motors that may draw a million watts of electric power.

"Then we assemble a row of hydraulic roof supports, called shields, behind the conveyor and the shearer. Each shearer can support 500 to 1000 tons. A longwall panel may use 150 to 250 of these hydraulic shields.

"Once the shields are in place, we can start the shearer. A system of water sprays minimizes coal dust as the shearer begins to remove the coal at a rate of as much as 50 tons a minute. That's enough coal in one minute to generate all the electricity used by an average household over 15 years.

"The shearer will remove a strip of coal 30 to 42 inches wide from the entire longwall face. This coal falls onto the face conveyor. This takes the coal to a conveyor belt for transportation to the surface.

"After the shearer passes by, we advance the roof-support shields one at a time. These shields get their power from high-pressure hydraulic lines, and we control them electronically. Each shield relaxes its pressure on the room and pulls itself toward the face

conveyor. Then it resets itself in firm contact with the roof. Now the next shield can release its pressure on the roof to begin its advance.

"Once each shield is securely in place it pushes the face conveyor toward the coal face, all ready for the next pass of the shearer. As the shields advance, the roof breaks and falls safely behind.

"Typically, it takes nine to twelve months to remove all the coal from a panel. When each panel is completed, we must move the entire longwall system piece by piece to the rear of the next panel, which continuous mining machines already will have carved out, and then we are ready to mine the next panel of coal.

"Consol has been aggressive in advancing longwall mining technology. Today many Consol underground mines feature longwall mining systems with integrated advanced instrumentation, robotic controls and computerized automation to improve their performance.

"One example is this advanced longwall system, the result of 15 years of research and development. This new longwall machinery represents a significant advance of mining automation. The shearer literally can learn how to mine coal by imitating the careful moves of a skilled human operator. Its advanced instrumentation allows it to avoid cutting into rock above or below the coal. This both

improves coal quality and reduces maintenance costs. Already this system has proved its reliability as it produces coal with greater speed and safety. Many of this system's innovations will appear in newer longwall systems as Consol advances the technology of underground mining.

"As demand for American coal continues to grow, longwall mining will help Consol and other coal producers meet it, safely and economically."

Q. (By Mr. Ausherman) Thank you. As we were watching the longwall mine in operation, at one point in the tape it said a height of 40-some inches. I guess -- Is that variable, depending upon which longwall you use?

A. Yes, it is. The depth of cut is selected, individually based considerations for each installation.

Q. And at the San Juan installation, how tall is it?

A. Well, we're presently mining approximately 13 feet high, and the depth is approximately one meter -- 39 inches.

Q. Dr. Bessinger, in the short time we have remaining before lunch, to further orient us on exactly how the longwall machine moves through the coal face, could you use San Juan Exhibit 15 and describe on that exhibit -- it's a little different view than what we've just seen -- how it moves through the coal face -- or through the coal panel, rather?

A. Just to again look at this figure, we see the tailgate entry set shown in the blocks of green near the top of the figure, headgate entry set near the blocks of green in the lower part of the figure, coal panel set up ahead of the row of red representations of longwall roof supports, shearing machine depicted in purple, and the area immediately behind the roof supports within the bounds of the longwall panel shown as gob, or the caved and collapsed area.

The shearing machine will progressively cut strips off of the coal face, and as it cuts a strip the roof supports then move in behind the shearing machine to support the roof and span from their former position to the new coal face, and then you push the face conveyor across in preparation for the next cut for the shearing machine in the opposite direction.

This successive repetition back and forth progresses from the start of the panel to the finish of the panel and is the essential sequence of mining operations within the longwall panel.

Q. Dr. Bessinger, in keeping with our showing how the longwall moves, could you take down the top two exhibits on the easel and now show us how the longwall moves on the underlying exhibit, which is the mine sequence map, Exhibit 10?

A. Yes, if we look back again with reference to the longwall panel 101, marked by the tailgate starting in the far south, also in solid green, and headgate, we're presently mining in panel 101, progressing from south to north in that panel. As we get to the far north extreme of that panel, we will simultaneously be mining panel 101 and developing the entry set for panel 102 immediately to the west and starting the room for panel 102.

When the longwall mining equipment gets to the end of panel 101 it will be assembled and transferred down to the starting room at the far south end of the newly demarked longwall 102. Likewise during the mining of longwall 102 from south to north in the longwall panel, we'll be simultaneously developing the headgate to longwall 103 and the related starting room.

The process will repeat itself again when we've mined with the longwall to the north extremity of panel 102 and reassemble it in the far south extremity of panel 103. At the same time that mining is taking place in 103, development of the headgate and tailgate of longwall 201 will be taking place, as well as development of the starting room.

We'll then move -- Once the equipment and longwall mining has progressed to the north extreme of panel 103, we'll move out of the 100 district and into the

200 district, beginning at the south end of longwall 201, and then progress through the 200 district in like fashion to the way that we progressed through the 100 district, and similarly 300 district, 400 district, and so on.

Q. The shaded areas shown by gray cross-hatching on that map depict the coal leases; is that correct?

A. That's correct.

Q. And why are there longwall panels on only a portion of the coal leases?

A. Well, as the video mentioned, mine plans develop around the knowledge of coal deposit and the roof and floor that surrounds the coal deposit, and only areas that are suitable for longwall mining have longwall panels designed into them. The areas where we have no longwall panels indicated generally are for the reason that they're not expected to be suitable for longwall mining.

Q. Could that orientation shift or change a little bit over the course of the 15 or so years of additional life in the mine plan?

A. Well, there is a possibility for small shifts in terms of whole districts, but there isn't much opportunity for shifting of individual longwall panels within the district, because it's an innate requirement that longwall panels will share a common gate road.

For example, in the headgate, the westernmost set

of green entries of longwall 101, when we've developed panel 102 and the headgate at 102 exists, the longwall mining equipment is set up, the headgate of the former longwall 101 will become the tailgate of the present longwall 102. And as a consequence, the rigorous succession of using a former headgate for a successive tailgate is required.

It's also fundamental to the longwall mining system that once installed in a coal panel, that it can't change its width. The distance between the gate roads has to maintain itself identical to within the width of one shield throughout the length of the longwall panel, so it's not possible to have deviations where the longwall panels get appreciably wider or narrower than the intended width.

Q. Does this aspect of the longwall apparatus make it difficult to move or deviate from the plan?

A. It is extremely difficult to deviate from the plan, especially when the panels are grouped in districts as we have here, because once established, the relative dimensions of the districts tie in with the innate requirement for consecutive usage, and it's extremely difficult to modify a mining plan in that regard, once established.

Q. You talked about continuous miners, which is a smaller mining machine. Would it be economic for San Juan

to use continuous miners to mine those coal panels?

A. No, it certainly would not. That was the basis for selecting longwall mining in the first place and is the root motivation for the development of longwall mining as a practice in the general industry.

MR. AUSHERMAN: Mr. Secretary, we are at a breaking point in the subject of the testimony. If you'd like to break for lunch, we could now. Or we could go forward.

SECRETARY MILLS: I'd like to break for lunch, and we'll reconvene at 1:30.

MR. AUSHERMAN: Thank you.

SECRETARY MILLS: We're in recess.

(Thereupon, noon recess was taken at 12:00 noon.)

(The following proceedings had at 1:30 p.m.)

SECRETARY MILLS: This hearing on San Juan Coal Company's appeal *de novo* to the Secretary will come to order.

Mr. Ausherman, please feel free to continue with your direct examination of Dr. Bessinger.

MR. AUSHERMAN: Thank you.

Q. (By Mr. Ausherman) Dr. Bessinger, I'd like to ask you some questions about the geology that surrounds the coal that San Juan mines, that is underground-mined. Are you generally familiar with it?

A. I am.

Q. Would you refer to the diagram on the easel, which is San Juan Exhibit 16, and tell us first, is that to scale, or is that just a cartoon?

A. No, that is not to scale. Notably out of scale are the thicknesses of the segments and the size of the disturbed zones that are indicated.

Q. What does it depict?

A. Well, there are several things depicted in this figure, notably the stratigraphic sections above and below the coal seam.

The region that defines the top of our mining extraction height is called the roof, and for an intermediate distance into this roof, perhaps up to 20 or 50 feet, is the region that most directly controls the stability of the roof that we actually have to work under and maintain over long periods of time.

In a likewise fashion, the floor is defined by the bottom limit of our mining horizon, and the floor or roof may either one come in contact with coal or non-coal materials.

What we see here is a stratigraphic cross-section that's principally composed of relatively low-strength materials, which contributes to the general low integrity of the roof and floor that's encountered at San Juan Mine.

On the right-hand side of the figure we see a typical cross-section through the longwall, right here, there are two lines that project up from there. You notice that both of those lines originate at the top of the rear of the roof support.

The first line, the solid line that arcs upward into the gob -- remembering that we define the gob as that area above and behind the roof supports where rubble-ized material has caved down -- the region underneath that black line would probably be represented by caved material rotated out of place and rubble-ized.

There's a second line there, shown dashed, that would probably represent a region where significant bed separation and disruption has taken place, but not so much rotation and rubble-ization.

If we look also above the coal seam, the Number 8 coal seam that's being mined, we see that there are other coal seams indicated. The two smaller coal seams that are indicated in the immediate roof area are not mined, they're generally caved into the gob. And also the 9 seam, significantly above the other two, likewise falls in the region that we would consider gob, although not necessarily disrupted and rotated perhaps, just fractured downward.

Q. Is it the Number 8 seam only that you're mining?

A. It is.

Q. And why is that?

A. Because that's the only one that occurs in thicknesses and with quality parameters that are suitable to fuel the generating station and be economic for underground mining methods.

Q. Is the Number 8 coal seam particularly suitable to longwall mining in comparison with other coal seams you've encountered in your career?

A. It is, primarily because of its continuity over a large areal extent and its uniformity in thickness and quality.

Q. Does it also present challenges?

A. Well, it does, and those challenges are primarily associated with several factors. One is the weak composition of the immediate roof and floor. Also the fact that the coal seam is prone to a phenomenon called spontaneous combustion or to say that it has a self-heating potential, which is more pronounced in other coal seams.

We also have significant -- with the mudstones, claystones that we see in the near-seam area, we also see significant susceptibility to water-based deterioration, and the inherent characteristics for the deposition of these materials are such that it introduced planes of weakness called slickensides, which have little ability to resist tension and stress.

Q. While we're on that subject, talking about the slickensides, have you brought with you today an example of a rock from the roof of the coal mine that demonstrates slickensides?

A. I have.

Q. Could you hand one of those to the Secretary and explain what it is?

A. I can. What we have here is a mudstone or claystone, as it might be variously described. These samples were collected by John Mercier, a mine geologist who reports to me, without any particular disposition to -- you know, they're just random samples from a roof-fall area where the immediate roof was exposed.

What we see there are glassy-smooth surfaces. Those surfaces are the actual slickensides themselves. You'll notice, too, that those surfaces occur not only parallel with each other but also at other angles so that even on the scale of this hand specimen, we can see that there are multiple planes of weakness that are not oriented in any particular direction that allows us to cope with that by design, by any engineering design.

These slickensides were formed when this material was still moist, and as a result of differential movement has created this very polished surface. Unfortunately, those interrupt the natural integrity of the rock, and so

when it's stressed with any stretching-type forces it simply disintegrates. The integrity to serve as a roof beam is completely destroyed.

That's further deteriorated by exposure to water in a relatively dramatic fashion, and that would be equally representative of the floor materials.

Q. Have you prepared a simple demonstration today to show the effect of water on that material from the roof?

A. I have. If you care to select one of those specimens, you can also verify that -- or satisfy that that composition constitutes a rock under our common understanding. [Places specimen in a glass of water.] I think we'll see that very quickly that will start to decompose, and in the course of our discussion we'll see that that should disintegrate into a cohesionless mass which obviously makes it impossible to deal with from a roof-control perspective and, as an immediate floor for the mining equipment, creates both safety and operational problems.

Q. Can a hydrofracture inject water into this material in the roof?

A. It could, either the hydrofracturing process or the operations of drilling the vertical well could either one create water exposure.

Q. Let me back up. We've heard in the record about

hydrofractures associated with gas wells. Can you tell us what is a hydrofracture and what is the purpose of hydrofracturing a gas well?

A. Well, a hydrofracture is a stimulation treatment that's intended to increase the gas production from a well, and the way that that actually works is that pressurized fluid is exposed to a certain region, certain length, within the intended fracture horizon of the wellbore. Based on largely structurally controlled considerations, then, that pressure creates a fracture which may either be vertical or horizontal and propagates away from the wellbore either symmetrically or asymmetrically and creates new fracture surface that effectively augments the wellbore surface in the region of interest, in the wellbore.

Q. Could the hydrofractures themselves from the gas wells create roof instability at San Juan's mine?

A. Well, they could, particularly those that would occur with horizontal propagation. When we talk about the two forms of propagation, all of the bedding at San Juan is nearly horizontal, and different members in near proximity to the seam are thinly laminated generally weak members with weak contacts at bedding contact planes.

The two forms of fractures that could conceivably be encountered would be vertically oriented or near vertical hydrofractures that could potentially propagate

out away from the wellbore in the plane of this poster.

Q. When you're referring to the poster, which is Exhibit 16, I believe, can you show us where on the poster a horizontally propagating hydrofrac is roughly depicted?

A. Well, there are horizontally propagating fractures depicted in front of the shadow, the gray shadow of the roof-support cross-section on the left-hand side of the figure near the red line labeled "Well Casing".

You can see right here, here and here are three representations, more artist's representation than engineering representation by virtue of the fact that the size of the areas affected on the figure is not this small compared to the actual size that would be expected in reality.

The problem with the horizontally propagating hydrofractures is that, as we saw, we have this slickenside member, and if we inject a foreign material of whatever sort into that -- anywhere within this region, it is going to create a region of tensile stresses where that's been injected, much like the fluid in a blister.

And the problem being that since the roof and floor materials are particularly susceptible to damage by tension and by virtue of the fact that they're particularly susceptible to water damage -- which I think even now we can see that the specimen we've just exposed is starting to

deteriorate -- after any duration of time or even a modest amount of water contact we can see that a large area at some horizon at or near the seam could be affected and could deteriorate in a fashion similar to the process that's taking place in front of us.

Q. Is it likely that that horizon which could deteriorate would include the roof of the underground mine?

A. It would most likely include the roof and the work floor, because the water permeation in the near area to the wellbore is likely to extend over a larger area. So yes, there is likely to be damage in the roof.

And that's the most damaging concern, because the transition from solid to loss of shear strength and ultimately a plastic behavior anywhere in this region makes roof control of the underlying materials almost impossible.

Q. Why are horizontal fractures of the kind you would expect at San Juan Mine more damaging than vertical fractures?

A. Well, they're more damaging for two reasons. In this particular case, again, because of the slickensides that occur, the horizontal fractures create tensile forces in the near area to the fracture which damages, structurally damages, the rock. And also, in the sense that the possibility of which fracture is likely to occur, under the conditions that exist at San Juan it seems likely

that over a large fraction of the reserve area we would see horizontally propagating fractures rather than vertical fractures occur.

So we have water degradation and structural disruption is two mechanisms, and the predisposition for the fracture type that would lead to those mechanisms.

Q. What is it about the San Juan Coal Seam Number 8 that causes it to be predisposed to a horizontal frac rather than a vertical frac?

A. Well, both theory and experience have demonstrated that at shallower depths in the absence of abnormal horizontal stresses in the strata, we actually see bed separation or what's called stratijacking as a phenomenon, rather than the vertically oriented fracturing. And as a general rule of thumb, we see a range from 800 to 1500 feet, being correlated as the minimum depth to create vertical fractures. Anything below that, which a vast majority of the mine reserves are below 1500 feet, results in horizontally propagating fractures.

Also, the horizontally propagating fractures, by virtue of the way that we encounter them with the longwall mining system, is apt to extend over a much larger region of the complete longwall mining system than a vertically oriented frac.

Just intuitively, we can all recognize that if we

were to encounter a fracture that was oriented vertically to the edge of the exhibit or obliquely to it as we mine through it, it would represent a linear feature that transitioned across the longwall face, whereas the horizontal hydrofracture is apt to encompass a large region of the face simultaneously and being enduring as the face passes through it.

That raises the possibility of large-scale ground-control failure and significantly increased hazards to personnel and/or risk of damage or loss to the equipment, not to mention disruption of production and product quality degradation in that primarily when we mine the coal seam we're looking at supplying fuel for the power plant that's principally combustible, and if we have a large-scale ground-control failure that's going to draw in a lot of incombustible materials that would act as a contaminant to the fuel.

Q. Could this roof instability you're talking about actually cave in on the miner and cause it to -- its progress to stop completely?

A. It certainly can, and roof instability of that sort has been experienced frequently by many operators under the different conditions.

Q. What's the range of consequences of having a roof fall on the longwall operation?

A. Well, the least consequence would be a very small localized zone that fell out that primarily impacted productivity to a small extent and diluted product quality. The greater consequence would potentially risk loss of the entire face, permanent loss.

Q. You've described earlier, on the right-hand side, a dotted line defining Zone 2 and a solid curved line defining Zone 1, both of which hit the longwall where rock in the gob is supposed to cave. If you were to draw a similar line defining where the rock would cave in the event of a roof fall onto the longwall, where would it be?

A. Well, if we were to look at the solid line that we see presently arcing upward towards the gob from the back of the roof support and we move the origin of that line in back of the roof support at some point out or ahead of the coal face, thereby effectively bringing the entire operating longwall cross-section into what we've defined to be the gob for conceptual purposes, that's what -- And then with that broken and detached debris sitting down on the roof supports, the likely consequence would be that we would either have the roof support tip forward, since it's depending in its normal circumstances on having the natural integrity of the roof to span ahead of it, or it would actually be completely converged to where it changed in height from -- as it's represented here, to completely

crush down as far as mechanical limitations would allow.

Q. How many shields are there on the San Juan longwall miner?

A. There would be 174.

Q. Could this failure occur on all or any portion of that?

A. It could.

Q. Have you ever been involved in a situation, or aware of one, where a longwall miner was completely lost due to a roof cave-in?

A. Yes.

Q. How much do those shields weigh?

A. Each roof support weighs in the neighborhood of 25 tons.

Q. And when the roof falls, they just can't get them out?

A. No, the hazards associated with trying to work in that condition can be so adverse that -- and the equipment can be damaged as a consequence of the event -- that a combination of those factors leads responsible operators to simply abandon the equipment.

Q. What's the price range for one of those longwall mining systems like you use at San Juan Mine?

A. We would probably expect that to be in the $40 to $60 million range.

Q. Let me go back and talk a little bit more about hydrofractures. On this diagram we have the red wellbore and the red-shaded horizontally propagating fracs.

The infill Application requests two different kinds of wells: new wells that would be frac'd in the coal, and also existing wells that are frac'd when they're recompleted in the coal.

Is there an appreciable difference between the two types in the risk they pose for unstable roof conditions at the mine?

A. No, I don't really think there would be, and I think we can logically conclude that from the fact that the only thing that really is different there is the age of the wellbore. Both the completion treatment and hydrofractures would be new and would be equally damaging.

Q. Does the risk to San Juan Underground Mine from the frac in the coalbed methane wells increase as more wells in the mine are frac'd?

A. Well, it certainly does, because the risk associated with dealing with any one event like this is fairly significant. The risk is multiplied by the number of incidents that have to be dealt with.

And it is also possible that there could be a spacing-interrelated consideration there that could also exacerbate having multiple events.

Mining with the longwall is one of the safest underground mining methods. However, having to move the longwall or deal with the longwall in a condition where there's been a large-scale ground-control failure is one of the most hazardous types of mining work that we would tolerate as a corporation.

Q. Would seven or eight recompleted or new infill wells that are frac'd in San Juan's mining district pose significant risk of roof instability at San Juan Mine?

A. I think they would, yes, both for the reason of destabilizing the slickensided mudstones, already weakened its properties without the slickensides, and also the potential impacts of water.

Q. Could they also pose similar instability problems for the mine floor?

A. They would, yes. In fact, the mine floor can even lead to instability problems in the roof and the rib side, because mining at the 13-foot height, as water damages the floor, if we could imagine no supporting foundation under the walls that we have here, it allows them to roll out and creates an appreciable hazard, and also, because the supporting pillars provide support for the overlying strata, if we see a breakdown in the floor, then it's only able to generate reactions that support the roof. So there's a circular consequence.

Q. You've talked about the safety problems posed by unstable roof and floor conditions. If the longwall miner became stuck, as opposed to a failure in the floor or the roof, would it make it more difficult to meet coal delivery obligations to the power plant?

A. It certainly would. The entire mine plan and production schedule is predicated on the concept of uniform progress consistent with the plan that's been laid out. Any deviations from that would definitely impact the fuel supply.

Q. Just take a look at the piece of rock that you placed in the water about -- oh, half an hour or 20 minutes ago. What's its condition now, as compared to when you placed it in the water?

A. Well, it would appear that it has been significantly attacked by the water and all of the exposed surface has now started to decompose and is sloughed off into the water and that the process appears to be continuing as the water infiltrates the material.

Q. Is that decomposition representative of what you might experience, at least to some degree, with a hydrofracture?

A. Yes, I think any source of water would create that problem. In fact, we experience that now with water that we inadvertently discharge onto the floor materials.

Q. Before we leave the subject of hydrofracturing, I'd like to show you Richardson Exhibit C-28, which was submitted at the Commission level. It is an article by William Diamond entitled "Underground Observation of Mined-Through Stimulation Treatments of Coalbeds". This would be in the Richardson exhibit book, and it's marked.

Are you familiar with that article?

A. I am.

Q. Have you reviewed it?

A. I have.

Q. Does it generally talk about mining through certain areas that have been hydraulically frac'd?

A. It does. It speaks to a number of different stimulation treatments that were monitored, government-sponsored treatments, and those treatments occur in a variety of mining districts throughout the United States and occur at various depths and involve various stratigraphic sections as they occur in the different regions.

Q. Now, that article indicates that, at least in some kinds of deep mines, mining companies have been able to mine through fractured areas, does it not?

A. It does.

Q. Are there differences between the mines in the article where that has occurred and the San Juan Mine?

A. Yes, there are. In fact, there are differences within the article.

Again, as we spoke before, the possibility of two types of hydrofractures -- the vertically propagating and the horizontally propagating fractures -- those are segregated within the article, and the observation is made that the horizontally propagating fractures that they have made note of occurred below 800 feet of depth.

And what we see is that the vertical --

Q. When you say below 800 feet, you mean more shallow than 800 feet?

A. In less than 800 feet of overburden cover at the fracture horizon or in the mining horizon.

We see the results of the two outcomes, either vertically propagating or horizontally propagating hydrofractures. The vertically propagating hydrofractures are not as damaging as the horizontally propagating fractures, and that's consistent with my past experience.

The difference that we have at San Juan that we could extend the information in this article to be consistent with is that much of the underground mining area at San Juan falls below the 800 feet that they have suggested here, and others suggest as high as 1500 feet. So we could reasonably expect the horizontally propagating fractures and the attendant consequences on structural

stability of the rock mass and the degradation potential as it's exposed to water.

Q. Does the company's ability to mine through a vertical frac as represented in that diagram suggest that San Juan could mine through a horizontal frac, as you have described, without the attendant roof instability problems?

A. No, those are actually quite different phenomena. The encounterance of the vertical frac is typically one where whatever mining system used would only have a limited exposure to the frac as it moved across the areal extent of it. The fracture would intersect the mining system at some oblique angle, and there would only be a small element of the mining system exposed to the fracture at any given time, and the position of that fracture would move relative to the frame of reference of the mining system.

Whereas a horizontally propagating fracture would intersect a much larger area of the mining system simultaneously, with worse effects on roof stability, particularly, as a result of the tensile stresses developed and the structural breakdown that comes companion with the slickensides, and the possibility would exist that you could create a large-scale ground failure arising from that.

Q. Do you think that the Diamond article supports any conclusions that fractures in the coal seam at the San

Juan Mine do not present a problem?

A. No, I don't really believe that it does. I think the Diamond paper is largely consistent with our analysis. It would just be easy for an unfamiliar reader to assume that the fractures that the Diamond paper reports as having little significance being the vertically propagating fractures would be the type that we might encounter, and that is the part that requires additional insight to realize the difference in consequence between those two.

Q. One other thing just on this question of water and the hydrofrac'ing process, you've talked about the problems created. Does the water sprayed on the shearer, as depicted in the video, create the same safety risks that the water injected by hydrofractures might create?

A. Not to the same extent, for two reasons. One, the water that's produced on the shearing machine typically does not get exposed to the roof materials in the intermediate roof. Two, we try and minimize the amount of water that's supplied, and most of that water actually gets captured as residual surface moisture on the product coal so that we don't actually generate large amounts of pooled water on the floor, and there's virtually no mechanism for water to be exposed to the roof.

Q. Let me ask you some questions about the effects of wells on the longwall system. If you could refer to San

Juan Exhibit 62, I'll ask you some questions about it. Do you recognize that diagram?

A. I do.

Q. What is it?

A. This diagram is a conceptual representation of a longwall mining system installed to mine a panel of coal. At the top of the figure again, we see the headgate -- or the tailgate, I stand corrected. Lower in the figure we see the headgate, entry set, the roof supports that we saw in a previous figure, the shearing machine, the direction the coal flows on out here and up this way.

In this particular case we see that the coal seam is disturbed by wellbores, and the appearance is that the wellbores disturb some areal extent at the coal-seam horizon around here. Again, the figure is also not to scale.

Q. If you were to assume that those wellbores depicted on that diagram as blue lines with white spider-like fracture marks, and the longwall miner approaches the first active coalbed methane well depicted there that's fractured in the coal, could the longwall miner just mine through that active well?

A. Well, no, it couldn't. There are several reasons why it couldn't.

First, under regulations enforced through MSHA

we're required to stop and leave a barrier around wells that are active. In the event that the well had been plugged and abandoned in accordance with MSHA guidelines, we do have a petition with MSHA that would allow us to mine through a suitably plugged and abandoned well.

However, even in doing so, had that well been hydrofractured, particularly with a horizontally propagating fracture, if for the moment we assume that the equipment is not to scale but the relative scale here would be 1000 feet across, then the areal extent as indicated by the maximum dimension of the spider-like cracks could define the radius of influence of that horizontally propagating frac, which means that perhaps 200 feet of the longwall face could be impacted as it transitions through there. And it's fairly well known that even as little as 50 feet of disturbed area is sufficient to create a large-scale breakdown in ground control. Having done that, it's also not uncommon for that breakdown, then, to propagate away from its original site.

Q. So there are really two problems when you come to a wellbore. One is the bore itself, and the other is the fracture?

A. It is, yes.

Q. Now --

A. And the wellbore-affected zone.

Q. -- how do you get rid of the problem of the wellbore itself?

A. Well, you can't entirely get rid of the problem of the wellbore itself, because surrounding the wellbore just from the process of drilling is an affected zone, smaller than the affected zone from hydrofracturing or other stimulating treatments but nonetheless still present.

So the most that you can hope for in terms of mining through a suitably plugged and abandoned well is to take care of the wellbore itself and any casing, and then you have to be prepared to transit through, mine through the either immediate zone around the wellbore that's disturbed or any zone that's disturbed by any stimulation treatment.

Q. So if you plug and abandon the well, you could mine through the well as a regulatory matter; is that correct?

A. That's correct.

Q. Does plugging and abandoning in the well solve the fractures that have been left behind?

A. No, it doesn't. That remnant of damage is permanent, in fact, probably increases with the duration of time that it stays there.

Q. I talked a little bit in opening about San Juan Coal's operational alternatives as a longwall advances

toward a CBM well in the coal seam. What are its two alternatives?

A. Well, basically the two alternatives are, in the event that we do not have the wellbores plugged and abandoned consistent with the entry guidelines, it's necessary for us to stop before we encounter the wellbore at a distance specified by the regulations. Alternatively, if we have plugged and abandoned the wellbore adequately, we're able to mine through it.

Now, if we did have to stop, obviously that means we then have to re-establish ourselves somewhere. And provided that there's a sufficient distance of coal ahead of the wellbore, because the barrier region exists on either side of the wellbore with respect to the longitudinal direction of the longwall panel, we would have to go in, drive another starting entry -- for conceptual purposes let's assume it starts at the area identified as "Stage Loader", and come across the panel at right angles. We would develop a new starting entry set and have to move the longwall completely around to that new starting entry set before we could start mining.

However, if the spacing between wells is such that there isn't a sufficiently attractive zone of coal before we would have to stop and move again, then we'd just be inclined to either move completely around that area of

closely spaced wells or potentially abandon the entire panel.

Q. Are you describing the bypass alternative?

A. This would be the bypass alternative, yes. We would effectively have two choices: the so-called buyout or bypass alternatives, buyout implying that we were able to suitably plug and abandon the wellbore.

Q. Reach some agreement, whatever form --

A. Uh-huh, correct.

Q. -- to enable you to do that?

A. Right. An ability that we don't have at the present time.

Q. Could you turn back to your exhibit notebook, and in the white notebook here of San Juan exhibits, turn to San Juan Exhibit 64? Did you prepare this chart?

A. I did.

Q. What does it depict?

A. Well, this effectively describes the advantages and challenges associated with the so-called buyout or bypass alternatives.

Q. Which alternative is preferable, of buyout and bypass?

A. Well, it's certainly preferable to achieve an arrangement that allows wells to be suitably plugged and abandoned, and we've identified that as buyout.

Q. And can you describe the advantages and the challenges in that approach?

A. Well, the advantage is that we're able to continue to mine the panels in the sequential fashion that's necessary for the longwall to be safe and efficient, and we don't waste any of the coal resource, albeit if we encounter a well we do still have to negotiate the difficulties provided by the wellbore and the stimulation fracture affected zone. But we don't lose the time and money associated with moving around the well and don't lose the resource.

The challenge associated with that, of course, has been to date that we've been unable to reach mutually agreeable terms with the operators who have CBM wells in our mine area.

Of course, we would have the costs of plugging and abandonment, the problem that we've been discussing of the residual effects of fractures and water degradation and of course the fact that more wells enhances the -- makes more difficult the problem that confronts us, both in terms of safety and cost.

The safety consequence, again, anytime we have to move the longwall equipment, we're dealing with very large pieces of equipment, lots of manual labor and a very high historical incidence rate across the industry of serious

and disabling injuries that occur during this type of activity.

Q. To contrast for us the situation with the bypass, are there any real advantages to a bypass?

A. Well, no, there really aren't any significant advantages. I mean, the only thing that we can say about bypass is that it's the only alternative that's available to us presently, and it's the only way that we can comply with the MSHA regulations when we encounter a well that we can't suitably plug and abandon.

Q. What are the problems associated with bypass?

A. Well, of course, as we can see just conceptually looking at this plan, we bypass a great deal of coal, we have to move the longwall, which entails considerable expense, considerable lost time. We estimate a 30-day outage of production to move the longwall around a well site, and we have the safety exposures that we've spoken of as well.

Q. Has San Juan had any discussions with MSHA personnel about the barrier sizes to be left around wells that need to be bypassed?

A. There has been discussion, and there's been a difference of opinion in the interpretation of the MSHA regulations associated with that. We have had two interpretations, one that suggested that a 600-foot-

diameter barrier would have to be left at the nearest approach to any well, and the other suggested a 300-foot barrier, diameter, that would have to be left around any well.

Q. Could you turn to Exhibit 13 in the San Juan Exhibit book?

A. I might also mention that --

Q. You may still have that. If not, I'll get you a copy.

A. In either event, as we approach the wellbore, whether we leave it or mine through it the consequence is the same to the gas operator who completes in the Fruitland Coal, because the result of that near approach is that there's little or no residual gas available to be produced from that well.

Q. Would you refer to San Juan Exhibit 13, entitled "Estimates of Bypassed Coal"? Do you recognize that?

A. I do.

Q. What is the top of that depiction shown, the top half of San Juan Exhibit 13?

A. Well, the uppermost figure in that exhibit shows a block of coal 1000 feet wide, which correlates to our face length; 600 feet long, which would correlate with the conservative estimate of the bypassed coal; and 13 feet thick, which is consistent with our current mining height.

What we see there is an estimation of the tonnage of coal that's involved in that block that we had to bypass and an estimation of the time and impact on royalties that are a consequence of that.

Q. Would you look at the -- And of course, that's based on 600 feet in depth; is that correct?

A. Six hundred foot is a conservative estimate, yes.

Q. And if it were 300 feet, it would be half of 800,000 in lost royalty; is that correct?

A. That's correct.

Q. Look at the bottom part of Exhibit 13 on "Bypassed Coal Panels" and describe why the number for lost royalty, if you have to bypass an entire coal panel, is so high.

A. Well, on the left-hand figure there we see two wells that would appear to be in the gate roads that bound the longwall panel. The problem with that is that if we cannot drive the gate roads on the spacing and sequence that we've defined for the mining districts, it's impossible for us to delineate the boundaries of the longwall panel and operate the longwall mining system.

On the alternative figure, to the right at the bottom of the page, we see a representation of three wells that would be centrally located in a panel, but at a spacing that leaves no opportunity to move around a single

well, mine a reasonable amount of coal and then move around the next well. That's an example of the scenario I illustrated earlier where we have to mine around the wells as a -- or move around the wells as a group, and that could lead to the abandonment of a complete panel.

Q. In addition to the lost coal shown on San Juan Exhibit 13, how long does it take to disassemble and move and reassemble a longwall?

A. Well, we would expect at least 30 days outage, production outage, to do that.

Q. Would that result in difficulties in maintaining the scheduled supply of coal to the generating station?

A. Well, there's no doubt that would have a significant impact in our delivery schedule.

Q. Now, let me ask you some questions concerning the bypass of specific wellbores in San Juan's coal panels. Let me show you San Juan Exhibit Number 66. Do you recognize that?

A. I do.

Q. Is that a work in progress?

A. Yes, it is.

Q. That's something that the company has completed?

A. No, that represents our current efforts to -- It's really a still frame in an ongoing, continuous process to evaluate the impacts that we would suffer by having to

use the bypass alternative, and we have only partially characterized the impact in that figure, so it's neither complete nor to scale.

Q. Can you show us what it depicts with the red shading and the like?

A. Yes, what we see here is a similar mine plan that we've reviewed previously -- Panel 101 is demarked now with blue instead of green outlines -- Panel 102 and 103 immediately adjacent to it, and that declining 100 district.

What we see is -- the other symbols that we see -- for example, the green dot, the red diamond and the red flag, black flag, the purple square, as identified in the key at the margin of the drawing, all represent either proposed or existing wells, oil and gas wells, which are either completed in the Fruitland Coal or penetrate the coal with completion in different horizons.

The figure that we see as an example at the top of this panel 605 -- we see a maroon square and also a black flag with a circle around it and then red-shaded cross-hatching -- that's an example of one of the areas that we've identified where we would have to move around two wells, not have a gap for just the one.

Alternatively, at the bottom of that panel 605, or close to the bottom, we also see that there is another

black flag with a circle around it and a barrier of coal left as an example of where we move around one well, the element of which this is a work in progress.

Also note that there's a green symbol right at the margin of that red-hatched area in the southernmost half of panel 605. That's also a well, and we have not taken into account the impact of that well on this figure.

Q. Let me ask you to turn in your exhibit notebook, the white one there to your right -- it's beneath the black one -- and turn to San Juan Exhibit 67.

A. Okay.

Q. What is that?

A. That's a figure that was prepared at my direction, that is also a work in progress because it's based on the work in progress seen from this evolving mine-plan model.

What we have compared by the two colors of bars is what we expected to produce if we're able to exercise the buyout option as we've identified it, versus the impacts that are created by having to go to the bypass alternative as we've just defined it.

Q. And the number -- I'm sorry.

A. We can see that at the bottom we have longwall panels identified by number as we have them on the Figure 66 and previous figures, and the difference in the height

of the bars on the vertical scale allows us to see the difference of the tons that are lost as a result of the bypass option, even to the degree that it's developed here. As it becomes further developed, we will probably see those bypass losses increase.

Q. Thank you. Let me change gears and talk about the subject of degassing operations at San Juan Mine. So far, has it been necessary to degas coal from the mining operations?

A. We have encountered areas where we have delays associated with methane being produced by the rib side. It has thus bar not been to address that by degasification in advance of mining. However, we plan to do that because we see that the problems associated with that will increase in the near future.

Q. The purpose for degassing is what?

A. The purpose for degassing is to take methane out of the coal and surrounding horizon and channel it out of the mine without having to become entrained in the mine-ventilating airstream.

Q. Is it necessary to do that to meet MSHA regulations?

A. In order to meet MSHA regulations and produce in a fashion consistent with the plans that we have and delivery schedules that we have.

Q. What's the maximum concentration allowed by MSHA of methane at the working face where the longwall is mining the coal?

A. We would have to make changes to diminish the concentration if it rose above one percent by volume.

Q. At this point have you had to make changes because it's risen above one percent?

A. There have been instances, both on the longwall and in the continuous miner development, particularly the east mains, where we've had to make those changes.

Q. And is it common to make those changes? Is that the exception rather than the rule?

A. At the moment it's the exception, but we anticipate that it could become something we do with increasing frequency.

Q. Do you do it in a way to avoid spontaneous combustion in the process?

A. We do. The mine-ventilating airstream has constraints on the pressures that can be created to develop airflow. The pressure differential across a pillar has to be maintained by our standards at or below three inches of water gauge, which is a measure of pressure. If we maintain the pressure below three inches of water gauge, there's little risk that we'll have oxygen effectively pulled into the pillar to support spontaneous combustion

within pillars. If we go above that, then we have that risk.

Because we're limited on pressure differential that we're able to develop, that constrains us to the volumes that we're able to develop within the mine-ventilating air circuit.

Q. Are there two ways that commercial gas might at least possibly be recovered at San Juan Mine?

A. There are.

Q. What are those?

A. One means would be the consequence of in-seam drilling in advance of mining, and the other one is the possibility of gas from gob vent boreholes.

Q. Let's start with in-seam drilling. Would this be also known as horizontal drilling?

A. It would be.

Q. Can you show us how San Juan would generally develop those horizontal wells? And why don't you just use San Juan Exhibit 62 to show us that? Well, let's use San Juan Exhibit Number 15.

A. Although this would not really be consistent with what we see in the figure in terms of the longwall mining system, if we were to assume that this was a gate road development section --

Q. And you're referring to the headpiece side?

A. Referring to the headgate side, where the working face might be down here and none of the longwall equipment would yet be installed, we might choose to drill an in-seam hole that went out into the coal and then turned parallel to the intended direction of the gate road development, and then follow that direction for a distance of 2000 to 5000 feet.

The intention there would be to drain methane from the immediate gate road development section area so that we wouldn't burden the mine-ventilating airstream during the course of mining. And the companion consequence of that is that we typically evolve what could be commercial concentrations of methane in the collected gas.

Q. You say that there would be two to how many thousand feet exposed to the coal?

A. There could be 2000 to 5000 feet of wellbore in-seam.

Q. How many feet of conventional coalbed methane well is exposed to the coal --

A. Well, a well --

Q. -- at the San Juan Mine?

A. -- vertically drilled from the surface, we would probably see somewhere in the neighborhood of 15 to 30 feet of contact, of the length of the wellbore through the seam. And if it was hydrofractured it would perhaps only develop

several hundred to a thousand square feet more of surface area, which is certainly very small in comparison to the area created either by rubble-ization in the gob or the periphery of wellbore in-seam.

Q. Do you frac those horizontal holes?

A. We do not. We rely exclusively on the surface area of the wellbore in desorbing coal seam.

Q. Because it's so long, you don't have to frac it?

A. That's right.

Q. Can this gas from horizontal wells be recovered and available for sale at the surface at San Juan Mine?

A. It potentially could be, provided that sufficient quantities and quality are involved from the coal seam.

Q. Is the main uncertainty whether the gas exists in the coal seam to make it feasible?

A. At this point the characteristics of the coal seam with respect to desorption rate or evolution rate and the total residual gas in the seam are questions that would govern that.

Q. Now, Richardson has indicated in this proceeding through representations in the testimony -- the examination of his expert, that the gas content in the infill area may be in the vicinity of 240 cubic feet per ton. Have you encountered anything like that?

A. No, we have not encountered anything that would

be suggestive of gas concentrations like that in the coal seam.

Q. Is what you've encountered significantly less than that?

A. Yes, it would be suggestive of significantly lower quantities than that. Having experience with this in the past, with coals that had gas content in the neighborhood of 100 to 200 cubic feet per ton, what we see here is significantly less than that, in the present workings.

Q. Now, recall the video that we showed where the crushed coal is being conveyed on the conveyor. In a scenario like that, if there were concentrations of 100-to-200-cubic-feet-range, would your gas monitoring measurements be higher than they have been?

A. Well, it certainly would be. I mean, I think the thing that we have to realize is that the mine-ventilating airflows are intended to dilute and render harmless relatively low infusion rates, and if we encounter higher rates than that, then it's necessary for us to pre-drain that methane, which has the consequence of capturing it in concentrated form as opposed to being diluted as it is in the air.

So one of two alternatives exists: Either the gas is not present in elevated concentrations and we're

able to mine it without pre-drainage --

Q. And that's been the case to date?

A. Which has been the case to date. -- or it exists in greater concentrations than that, and our only alternative is to pre-drain it down to levels comparable to what we experience now, because it's impossible to simply ventilate the mine with more air because of the concerns for spontaneous combustion.

Q. Is there still technical work ongoing to determine the feasibility of whether gas can be recovered at the surface at San Juan Mine?

A. There is. We have only really looked at the technology and the regulatory impacts as it pertains to the equipment and activity of drilling underground and MSHA's enforcement of their regulations.

Q. Are agreements with stakeholders still needed in order to allow the capture and sale at the surface?

A. Assumedly there would be, if there are stakeholders beyond those that I've identified.

Q. Have other mine's you've been involved with captured gas for sale at the surface through horizontal drilling?

A. They have.

Q. And what mines would those be?

A. Well, mines of the Consolidation Coal Company

Group, primarily the Virginia Operations Group.

Q. How did the gas content in the coal at those mines compare with what you've experienced here?

A. Generally, the gas content was much higher there than what we've presently experienced. That would be something in the, you know, 90-to-200-cubic-foot-per-ton range, and we've certainly seen nothing like that in terms of its impacts on underground operations or anything at this moment which would suggest that the gas exists that would be pre-drained and amount to volumes that would be as commercially attractive as they are in that circumstance.

Q. Let's discuss the other degassing method that could lead to capture of commercial gas at the surface, and that is gob vent boreholes. Could you use Exhibit 63 in your white San Juan notebook and describe for us what that is?

A. Again, Exhibit 63 is a conceptual rendition of a gob vent borehole as it would exist after the longwall had mined past it and the gob had formed and migrated upward along the wellbore length. The wellbore is shown in red in that figure, and the gob has the enclosed dots or fractured line segment appearance to it.

In that case, the wellbore is intended to collect methane that exists in the void space in the rubble-ized gob.

Q. How can gas be removed in this diagram from gob vent boreholes when the coal in the Number 8 seam has already been extracted?

A. Well, there are several factors that contribute to remnant gas in the gob. One is that the complete Number 8 coal seam is typically not fully extracted by our activities. We only are extracting 13 feet at the moment of what might be as much as 30 feet or more of coal in the Number 8 seam.

Then there are the small rider seams that occurred above the Number 8 coal that we saw previously, and of course there's the Number 9 coal. And then of course the possibility also exists, depending on the local stratigraphy, that we could have gas migrate from the coal seams and be remnant in the surrounding strata, either roof or floor.

Q. Have other mines that you've been associated with successfully captured gas from gob vent boreholes?

A. They have.

Q. What are the challenges to recovery of commercial gas from gob vent boreholes at San Juan Mine?

A. Well, the first problem that we always have to be cognizant of is the potential for spontaneous combustion, so we have to be sure that we don't introduce oxygen into the gob. This limits how much volume we can evolve in

terms of production at the surface. If we evolve too much volume from the surface, that's going to cause the infiltration of oxygen from the mine-ventilating area into the gob.

Also, the constraint on potential gas quantity exists. We presently have gob vent boreholes in our panel 101, longwall panel 101, and the production to date has been effectively zero.

Q. Why would that be?

A. It would appear that there's an innately low gas content in the stratigraphic cross-section that is represented by the initial area of panel 101, and it's also possible that our gob is tighter than gobs that are encountered elsewhere, thereby having less void space in it, and less opportunity for free methane to exist in the void space.

Q. Now, there's a third source of degassing at San Juan Mine, and that's the ventilation system, correct?

A. That's correct.

Q. The methane is liberated through the ventilation system?

A. Right.

Q. Is it feasible to capture commercial methane from the ventilation system?

A. At this point there's no demonstrated

commercially viable technology to capture the low concentrations of methane that are exhausted from the mine ventilation system.

Q. So at the current stage of San Juan's mining operation -- Let me back up. Does the ventilation system vent methane that's liberated from the gate roads and mains?

A. Well, at this point the ventilating airflow, insofar as there is no in-seam drilling, there is virtually no production from gob vent boreholes, the ventilating airstream dilutes all methane that's liberated throughout the mine, which amounts to more than 14 miles of entries or tunnels and in excess of an estimated 14 million square feet of exposed surface area.

Q. So the methane that's being liberated in the ventilation system is currently from a huge exposure to coal; is that correct?

A. Well, it is, yes, tremendous by comparison to anything that's involved with, you know, CBM oil and gas exploitation of the Number 8 coal seam.

Q. And even tremendous compared to the horizontal boreholes?

A. Oh, definitely, yes.

Q. Would you turn to San Juan Exhibit 69 in the white book? Do you recognize that?

A. Yes, I do.

Q. What is it?

A. That's a letter that was drafted by Mr. Gilfillan, reviewed by myself and undersigned by Evan Jones, directed to Mr. Richardson.

Q. Can you describe the letter?

A. Yes, basically this letter was created with the intent to tray and break the ice with some good will, insofar as we are confronted now with the bypass alternative and have had no success to date with reaching any agreements that would allow us to plug and abandon. The intent in creating this letter was to try and offer up some sort of middle ground that could foster resolution of this conflict. It discusses the two possibilities of making gas available that was produced either from gob vent boreholes or in-seam drilling.

Q. Would that gas be made available at the surface to Mr. Richardson in this case, at no cost to him in bringing it to the surface?

A. Yes, as it's stated in here, that would be the case. It was our intent to capture the methane for our own purposes to facilitate coal mining and then provide that to Mr. Richardson as the owner of the gas estate in an attempt to allow them to benefit from the fact that we're able to capture it.

Q. Are there still some things to be worked out?

A. Very much so.

Q. Does the ultimate viability of what the letter describes depend upon how much gas is encountered?

A. It depends on how much gas is encountered, what the desorption characteristics are that are specific to the areas where we might drill or the gob we might develop, and also the composition of that gas in terms of its commercial grade.

MR. AUSHERMAN: I have no further questions.

I would move the introduction of San Juan Exhibits 61 through 64 and Exhibits 66, 67 and 69.

SECRETARY MILLS: Any objection?

MR. KELLAHIN: No objection.

SECRETARY MILLS: The exhibits will be admitted.

MR. AUSHERMAN: Also Exhibit 70, sorry.

SECRETARY MILLS: Any objection?

MR. KELLAHIN: No, sir.

SECRETARY MILLS: We'll admit that.

Would you care to cross-examine Mr. Bessinger?

MR. KELLAHIN: Sorry?

SECRETARY MILLS: Would you care to cross-examine the witness?

MR. KELLAHIN: Yes, sir.

SECRETARY MILLS: Please proceed.

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Dr. Bessinger, when we deal with the coal seam Number 8, is that what is identified and characterized as the basal coal?

A. Yes, it is.

Q. Of the other coal seams, how many are there?

A. They vary in number, depending on the location. There are numerous small coal seams that are genetically related to the Number 8 coal that may occur at different horizons throughout the cross-section.

Q. Using your numbering system, is the Number 8 the lowest coal?

A. Yes.

Q. And they're numbered from the surface down?

A. With respect to our numbering system, yes.

Q. When you look at the basal coal, which is your Coal Seam 8, the coal in that seam is naturally fractured, is it not?

A. It is naturally fractured, but to a much lesser extent than many other coal seams.

Q. And there's naturally occurring water within the coal seam that you mine, right?

A. Well, it's known to occur elsewhere, but we have an experience that shows that we have very little water

infusion from the coal seam or the surrounding strata.

Q. When Richardson produces his coal gas wells and he produces water in association with those wells, is he not producing water out of the coal seam?

A. I would assume that he is, although I have no knowledge of his operations.

Q. Hasn't San Juan Coal offered to assist Mr. Richardson in the disposal of his produced water?

A. I'm not aware of that. I would have to -- have not knowledge of that particular subject.

Q. This is the exhibit I'm familiar with. It's Richardson Exhibit 1-A from the Commission hearing. Can you see that if I put it here?

A. I can see it.

Q. All right, sir. When I look at this display, I'm trying to orient Section on this display to Section 30 on your Exhibit 66. Do you see the two?

A. I do.

Q. On Richardson's Exhibit Section 30 has a proposed PC well in the northwest quarter section to be recompleted in the coal, and he has an existing coal well in the southwest quarter of 30. Right? See that?

A. I see two wells in Section 30 where you've indicated, yes.

Q. And the color code would indicate the type of

well, would it not?

A. Seems to, yes.

Q. Below that in Section 31, in the northwest quarter of 31, there is a Pictured Cliff well. Do you see that?

A. I see a well there, yes.

Q. And it's color-coded as a PC well?

A. It looks to me like it's color-coded as a Fruitland well, but perhaps I'm mistaken.

Q. This one here. So it would be recompleted, right? I've confused you. The coal wells are existing in the red. The PC wells that would be recompleted in the coal are in the blue, right?

A. If that's your definition.

Q. Let me take you over to your display, and I want to find the wells in the west half of Section 30. I see a well up here in the northwest of 30, and I see one in the southwest of 30, and there's a third well that's identified on this as a Richardson-operated well. Do you know what that well is?

A. No, I'm not sure what the status of that well is.

Q. Do you know if that well even exists?

A. At this point I'm not sure of the status of that well, whether its existence or which formation it might exist in.

Q. Let me see if I understand how the mine proposes to do this. You have these north-south gate roads, right?

A. Uh-huh.

Q. And then periodically there will be an east-west gate road?

A. No.

Q. What is the east-west line just above this well location in the southwest quarter of 30?

A. Well, what you're seeing there is a set-up room, and you could also -- we don't really have it depicted in the same fashion there, but there would be a recovery room as we approach the well in the direction of mining, there would be a setup room on the other side, in the bypass scenario as we've described it. Those would only exist in the bypass scenario.

Q. Let me see if I understand how the bypass scenario works. If you start at this point on the display to the south and you want to mine this mine block through here, you're starting on the south side and you're moving north?

A. That's correct.

Q. And as the longwall miner approaches the gas well, it's going to stop at a certain distance, is it not?

A. It is.

Q. Under this schematic, how far away will the

mining stop before it gets to the gas well?

A. Well, I believe that schematic -- There are two things about it. One, that one stops with respect to the Richardson well that's indicated there, and we're showing a 600-foot region around that well, per the scale of that schematic, although that overall drawing is not to scale. That was a --

Q. I understand.

A. -- how it appears there, so --

Q. If I'm trying to understand the dimensions, the east-west dimension on the south side is going to be about 1000 feet?

A. That's correct.

Q. And the setback to the south of the gas well is going to be 600 feet?

A. Three hundred feet, if that's the part that is subject to interpretation, we could have to stop variously 150, 200, 300 feet, prior to the point of closest approach to the well and restart a similar distance on the other side of it.

Q. According to the MSHA regulations --

A. According to the --

Q. -- the Code of Federal Regulations, they use a 300-foot diameter?

A. That's how it's stated in the Code of Federal

Regulations, although it's variously interpreted by MSHA personnel.

Q. So when I look at this schematic, am I intended to understand that your assumption is that you will stop 300 feet short of that wellbore?

A. We would stop either, depending on the interpretation that results, 100 to 300 feet prior to, and restart 150 to 300 feet beyond the well, at the point of closest approach to the well.

Q. To restart the longwall miner, do you have to construct this connection between the two gate roads?

A. We do. It would not exist if we did not have to use the bypass scenario.

Q. If you're using the bypass scenario and construct that connection, then you could proceed northward through this mine block until you get to the same distance from that gas well?

A. That's correct.

Q. And the assumption here is that you would stay a certain minimum distance away from the gas well?

A. That's correct.

Q. Does it matter to you what type of gas well it is, in terms of how far you stay north and south of that wellbore?

A. No, it's primarily based on the regulations --

exclusively based on the regulations, which is what we developed this scenario against. We treat all wellbores that originated for the purpose of oil and gas production similarly under the vertical wellbores, same under the regulations.

This is not to say that our practice might not actually have to stop sooner than that, but I alluded to the fact that we would probably revise these plans, and when we did, that we would probably use more coal. The MSHA regulations do not specifically address the consequence of hydrofractures, merely the existence of wellbores.

Q. Let's look at those regulations. Let me show this to you. Are these the regulations you're referring to?

A. They are.

Q. At this point, has MSHA approved -- MSHA has only approved what you do with regards to plugged and abandoned gas wells?

A. That's correct.

Q. Has MSHA approved in writing for you what you're going to be required to do with the presence of producing gas wells?

A. No, they haven't, that's a subject that while the Code of Federal Regulations states it in a fashion that

might seem clear to some of us, the fact is there are two interpretations of that, and depending on the personnel from MSHA that a discussion is held with, you will get one or the other of those interpretations.

Q. Do you have anything in writing about MSHA about what they're going to require for the setback from existing producing gas wells?

A. At this point, we're hoping that we will be able to get them to follow what's stated here in terms of our conventional understanding of it.

Q. Okay, have you sought an application of filed an application with MSHA to address the size of this protection pillar that you have to leave?

A. No, we haven't because it's not necessary for us to apply for that permission. This would be a determination that's rendered probably through discussion leading up to action, and the action will either be acceptable to MSHA or they will notify us that it's not acceptable.

Q. Has MSHA at this point approved mining of any of the mine districts that currently contain producing gas wells?

A. Yes, they have.

Q. Show me which districts and what numbering system you'd like to use to show me those.

A. Well, our MSHA-approved plan primarily is set to -- It's a stepwise-type of plan where the detail increases as you approach the execution of activity under that plan. So we have ventilation plans that show work out into the 200 district, which has wells in it.

Q. On Exhibit 66, Dr. Bessinger, show me what is the area that currently contains the mine main, any of these gate roads and where the longwall miner is now.

A. Well, presently the area shown in blue on Exhibit 66 is the active workings as of the date of preparation of that figure. Longwall panel 101, the first panel in District 1 where longwall mining commenced, the gate roads are developed for that, and mining has been ongoing since the 14th of October in that panel 101, progressing south to north.

Q. In terms of leaving these protection barriers or pillars, do those decisions about the safety in terms of regulation -- are they made by any other agency, other than MSHA?

A. At this point I think MSHA -- unless the State through its mining regulations were to choose to become involved in some fashion, the principal governing regulation would be provided by MSHA, as far as mine plans and mining activities are concerned.

Q. What's the vintage of Exhibit 66? I couldn't see

the date. What's the date?

A. That says February 3rd was the date that that was printed.

Q. Did you have a concept for dealing with the existing coal gas wells in the mine area when you took your leases, the four leases?

A. There were some discussions. However, the number of wells that existed at the time that the leases were granted is less than what exists today.

Q. At the time you obtained your leases, all four leases were taken after the Division issued an order for drilling an original well in the coal gas reservoirs on 320-acre spacing, did they not?

A. To the best of my knowledge, that's the case.

Q. Dr. Bessinger, let me show you Richardson Exhibit 4-A. It's out of the exhibit book. That spacing order predates all four of your leases, does it not?

MR. AUSHERMAN: If you know.

THE WITNESS: Well, I'm not entirely familiar with the document that I'm looking at, so if you'll give me a minute to review that.

MR. AUSHERMAN: Tom, is this the one?

MR. KELLAHIN: That's the OCD Rules.

MR. AUSHERMAN: A-4, A-3.

MR. KELLAHIN: He's looking at it.

THE WITNESS: Well, I've read this document, but I can't say that I'm particularly familiar with documents of this sort or this order, and it predates my involvement with BHP as an employee, so --

Q. When did you become involved?

A. September of last year, although I was previously involved with other aspects of the mine design and mining equipment design with my former employer, Joy Mining Machinery.

Q. When we look at the royalty that the coal company pays the federal government on the value of the coal, what's the price used for the coal to calculate the royalty?

A. I don't recall that. I believe that royalty is -- I don't recall that.

Q. I don't care about the percentage of the royalty. What is the price at which you calculate the royalty owner?

A. I don't recall that number.

Q. Do you know if it's the value or the price of the gas at the mouth of the mine?

A. I don't believe that that royalty has anything to do with gas content associated with coal royalty, to the best of my knowledge.

Q. Well, I'm talking to you about the coal royalty. You pay a coal royalty, do you not?

A. We do.

Q. And it's a percentage of value?

A. It's -- There are multiple considerations, but yes.

Q. Do you do it in terms of ton of coal?

A. Yes.

Q. And is the ton of coal at the surface of the mine?

A. It's tons of coal that are produced, yes.

Q. Produced, at the surface, it's --

A. Right.

Q. -- brought to the surface of the mine?

Can you tell us what value is used for that ton of coal?

A. Again, I'm afraid I don't recall that number, so I cannot tell you that.

Q. You told me the longwall miner is currently in -- I can't read that far. What section is that currently in, 34?

A. That would be 35.

Q. Has San Juan Coal made any kind of studies to determine how close it can get to an existing coal gas well in this area before you start interfering with the drainage area for that producing gas well?

A. Let me see if I understand your question. Are

you asking about how close the mining activity, the longwall, can approach before the gas -- it interferes with gas that might otherwise be produced from the well?

Q. Yes, sir.

A. No, I don't know that we know that explicit number.

Q. Can you give us an estimate on a daily basis of the volume of gas being vented from the mine?

A. Yes, I think we're probably venting -- very slightly, but probably someplace in the neighborhood of 1.8 million cubic feet per day.

Q. That's calculated based upon a volume of air captured at a certain point and then calculated?

A. That's correct.

Q. It doesn't run through any type of measuring device that will measure the continuous stream of gas being vented?

A. Well, that calculation is largely based on the fact that the volume of airflow, although it varies slightly, is relatively steady, and we then measure the concentration of gas prior to exiting the mine at the bottom of our shaft. That's periodically done, based on those periodic measurements and an assumption of average airflow, that's where the number 1.8 million arises.

Q. Have you made an assessment of the volume of gas,

methane gas, present in any of the other coal seams, other than the basal coal?

A. I'm not aware that that's been characterized to any reportable extent.

Q. Is there a certain minimum thickness in the coal seam that you require before the project, then, is uneconomic? Is there --

A. Yes, there is.

Q. -- a threshold? I'm sorry?

A. There is.

Q. What is the threshold number?

A. It's roughly nine feet. That's a mechanical minimum. The economics of it would depend on the efficiency of production as the mining height decreases, and it certainly would.

Q. What does it cost to bring a ton of coal to the surface of the mine?

A. Well, at this point I'm not sure I know that answer specifically either, because the way that we do our cost accounting, I'm not exposed to that number.

Q. Do you know whether or not your costing of it for a ton of coal includes paying for the value of the gas otherwise vented?

A. I'm not aware that we have any cost transfers or otherwise are involved with the gas, other than the -- in

terms of recognizing the value of entrained gas.

Q. You talked -- In response to Mr. Ausherman's questions about your qualifications, you talked about your experience with regards to risk associated with mines --

A. Uh-huh.

Q. -- risk analysis?

A. That's correct.

Q. Did you review any risk analysis prepared prior to your employment that were presented to you by San Juan Coal Company?

A. I have seen several different risk analyses, yes.

Q. Did any of those risk analyses deal with the presence of producing coal gas wells in the mine area?

A. Of the ones that I saw, they did not.

Q. How many producing gas wells do you have to be worried about within the mine districts that you intend to mine?

A. Well, I'm not sure I have the exact answer for that, for two reasons. One, we're in the process of identifying wells that we presently recognize and wells that we are not currently aware of -- that's to say ground-truthing wells that may not be in the literature. So at this point I can't be explicit about how many wells, exactly, there are over the mine property.

Q. I understand you have not presented to MSHA a

plan for specifically dealing with the presence of producing coalbed methane gas wells within any of the mine districts?

A. A plan to deal with the coal, no, because at this point, other than to enforce 75-1700, there is no requirement for MSHA approval with respect to that.

Q. So if you follow the Code of Federal Regulations for those existing wells that penetrate through the coal seam and you step back either using a 300-foot radius or a 600-foot radius --

A. Well, it would be 300- or 600-foot diameter, so it would be --

Q. I'm sorry, diameter.

A. -- 150 or a --

Q. Right.

A. -- 300-foot radius.

Q. Whatever that works out to be, then, you could leave that gas well in place and mine around it, pursuant to this option where you would leave the gas well in place?

A. At a minimum, that would be the case. The other alternative is, if we find that the fracture-associated zone is greater than the minimum statutorily required zone, we would potentially stop even shorter than that required as a minimum by statute.

Q. Have you made a determination yet as to the area

that might be affected outside of that safety barrier?

A. That's still ongoing. As you can see by reviewing the Diamond paper, the behavior of hydrofractures is somewhat unpredictable and actually requires site-specific experience before we can start to make conclusions about that, and at this point we have no site-specific experience for San Juan Mine.

Q. Are you worried about the presence of any coal gas wells that are outside the mine district?

A. Well, we are, because what we said about this plan being a work in progress, the initial mine plan was created to optimize the resource recovery, the economic productivity and the safety afforded to our work force, and to minimize any other harmful effects to other considerations consistent with our zero-harm guideline.

The impact of wells to the mine plan would be that as we identify wells as new wells are created and we make plans that work around existing wells, it may be necessary for us to appreciably reshape that mine plan to try and preserve the economy and maintain the uniformity of fuel supply at the San Juan Generating Station.

Q. When we look at the mine district layout that we have before us --

A. Uh-huh.

Q. -- how far does a gas well have to be away from

that mine district in order to not have an effect on the mining operations?

A. Well, it's not really so much a question of how far away it has to be in the sense that the statute, however it's interpreted, tells us what the minimum is from a statutory perspective. Further investigation should direct us as to what to expect, whether it's more or less than what's required by the statutory interpretation.

But the other part about that is, the mine plan may change. See, there's a region around the mine plan that's depicted there that could be included in future mine plans as a result of having to borrow the mining layout design to best suit the need to address the bypass alternative.

Q. Let's talk about the immediate needs. As you continue to mine north, when do you first encounter in your estimate an existing gas well that is going to be a problem?

A. In the first panel of District 2, longwall panel 201, should be this well here indicated by the diamond, in the --

Q. -- southeast of 36?

A. Southeast of 36.

Q. Okay. And how long will it be before that well poses a risk to you?

A. Well, I'd have to refer to the dates exactly on here, but it looks that probably could start to be a risk sometime during the calendar year of 2004.

Q. When we look at the MSHA regulations under this Code of Federal Regulations, it talks about giving the Secretary -- talking about MSHA -- Secretary and authorized representative the authority to make that safety barrier larger or smaller.

A. That's correct.

Q. Have you made any filings yet with MSHA to increase the size of the protection barrier?

A. No, we have not. There would be no reason for us to make a filing, because we can at our option leave a larger barrier than is required by the statutory minimum.

MR. KELLAHIN: Thank you, Mr. Mills.

SECRETARY MILLS: Any redirect?

MR. AUSHERMAN: No.

SECRETARY MILLS: You're excused.

Call your next witness, please.

MR. BRUCE: We call Mr. Smith to the stand, Mr. Secretary.

(Thereupon, Mr. Smith was sworn.)

MR. BRUCE: Before we begin, Mr. Secretary, the exhibits that Mr. Smith will be looking at are primarily San Juan Exhibits 45 through 59 in that book right there.

There will be, in addition, in the newer book, Exhibits 71 through -- primarily 71 through 75.

SECRETARY MILLS: Thank you.

DAN PAUL SMITH,

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 name and city of residence for the record?

A. Yes, my name is Dan Paul Smith, and I live in Dallas, Texas.

Q. What is your occupation?

A. I'm senior vice president for Netherland, Sewell and Associates in Dallas, Texas.

Q. What kind of business is Netherland, Sewell?

A. We are international oil and gas consulting firm.

Q. And what is your relationship -- or what is the relationship of Netherland, Sewell to San Juan Coal Company in this matter?

A. We were hired by San Juan Coal Company in 2002 to conduct a study of the proven and the probable and the possible gas reserves that would be contained on the Deep Lease and the Deep Lease Extension as of January 1, 2002.

Q. Would you please summarize your educational and

employment history for Mr. Mills?

A. Yes, I graduated with a bachelor of science in petroleum engineering from Mississippi State University in 1973. I then spent three years with Exxon and five years with Pennzoil as a petroleum engineer and then joined Netherland, Sewell and Associates in 1980 and have been with them for the past 22 years.

Q. Is San Juan Exhibit 24 simply a copy of your résumé?

A. Yes.

Q. And are you familiar with the reservoir engineering matters involved in the area of Richardson's Application?

A. Yes, I am.

MR. BRUCE: Mr. Secretary, I tender Mr. Smith as an expert petroleum reservoir engineer.

SECRETARY MILLS: Is there any objection?

MR. KELLAHIN: No objection.

Q. (By Mr. Bruce) Now, before you start your technical presentation, Mr. Smith -- and Mr. Secretary, I'm going to start off with Exhibit 71 here -- would you identify Exhibit 71 and tell the Secretary a little of what Netherland, Sewell does for its client?

A. Yes, I believe Exhibit 71 actually has five sheets involved, and the first sheet is entitled "Whom Do

We Work For?" And the importance of this is to really try to have you understand who we are and what we normally do. This is not our normal course of business.

We typically work for three different types of entities. We work for major oil and gas companies, for government oil companies, and then for financial institutions. A great deal of our work is done for financing projects around the world, and a lot of our work involves estimating the proven, the probable and the possible reserves and certifying these reserves so that projects can be financed.

We also are involved in preparing SEC filings with many of our clients in that we provide the estimates of proven reserves that are included in those filings.

The next page is a list of our current coalbed methane clients. Netherland, Sewell has been quite blessed in that we have developed a very strong base of coalbed methane work, and these are a list of some of the top clients that are operating in the U.S. and around the world.

Our experience essentially has followed the industry in that early on we were involved in the Black Warrior Basin of Alabama and moved into the San Juan Basin of New Mexico, and now we're very heavily involved in the Powder River Basin, which essentially has been the

direction of the industry.

We have approximately 30 current coalbed methane clients that we conduct various types of studies for, including annual reserve certifications, including development studies and including the estimates of their reserves, of course.

We're now working on projects in the United States, as well as projects in Australia, Mexico, China and Slovakia. Of these thirty projects that are involved here, I've been personally involved in approximately 17 of these.

The next page is a list of the oil and gas reserve terms, and the importance of this is to kind of set forth that in our opinion you cannot discuss reserves or resources of coalbed methane without properly labeling those reserves.

So this is a bit of a chart that explains the various classifications that are tagged to oil and gas reserves, all the way from discovered to undiscovered reserves. Of course in this case, they are discovered. And there are commercial and noncommercial reserves.

And then under the -- when they are commercial and discovered, then there are three classifications that we'll deal with. One is proven, the second is probable, and the third is possible. In all of our works with our oil and gas companies and the banks, we are very careful to

label our estimates as either proven, probable or possible.

The next page shows the authorities that are responsible for setting the reserve rules, including the Securities and Exchange Commission, Society of Petroleum Engineers, Society of Petroleum Evaluation Engineers and the World Petroleum Congress. The estimates that we've made for BHP San Juan Coal Company are in accordance with all four of these reserve definitions for proven, probable and possible reserves.

This all really leads into the next exhibit, which explains why this is all important.

The proven reserve classification indicates that it has a 90-percent certainty of being at least equal to our estimates or greater.

The proven plus the probable reserves have a 50-percent certainty. That's your best guess.

And the proven plus probable plus possible reserves have a 10-percent chance of being at least equal to or greater, the reserves that you've estimated.

All of the estimates contained for the San Juan Coal Company properties are either the proven or the probable reserves, classifications.

Q. And now San Juan is a little different because of what you're hired for, but generally with Netherland, Sewell's clients you need these definitions, you need to

meet these definitions because of filings they have to make with, say, the Securities and Exchange Commission?

A. Exactly. And it defines the risk of the reserves, the relative risk of the reserves, and all of our clients and the people who use our reports insist on it.

Q. Okay. Well, let's get to your technical data, and we'll start off with your conclusions. Could you just first identify what Exhibit 72 is?

A. Exhibit 72 is essentially a summary of the results of our study, which lists a breakout of the original gas in place and the reserves for the three producing horizons that we've evaluated, which include the 8 coal, the 9 coal and the Pictured Cliffs.

To jump right to the results --

Q. And before we do get to the results, over on the right-hand side is your results, and I want to clarify something for the Secretary. You have your results on gas in place or reserves based on quarter section; is that correct?

A. That's correct.

Q. And you've also got some numbers listed there that say -- for instance, the first one is "Cox equals 3800".

A. That's right.

Q. "Cox" refers to Dave Cox, who was Richardson's

engineer?

A. That's correct.

Q. Okay. Now, when he did his numbers, he based them on a half section, right?

A. That's correct.

Q. So in order to make it comparable, anytime you see a number that is listed as a Cox number, it needs to be divided by two?

A. That's correct, and there's six numbers on here -- and I'm glad you pointed that out, because for direct comparison the Cox number should be divided by two, as you stated.

Q. Okay. Well, let's go ahead with your conclusions and with this exhibit.

A. Essentially, the original gas in place, based on our estimates for the 8 and 9 coal combined, is 20.6 BCF of gas. There's an additional 1 BCF of gas in the Pictured Cliffs reservoir, by our estimates, which results in a total gas in place in all three zones of 21.6 BCF.

As Mr. Bruce mentioned, my estimates are based on reserves per quarter section, as we'll discuss later. So I've converted my estimates to the gas in place per 160 acres or per quarter section and listed them on the next-to-the-right-hand column.

So for the 8 and the 9 coal, by my estimates, in

the 60 sections that are involved -- excuse me, the 60 160-acre blocks that are involved in the Deep Lease and the Deep Lease Extension, the average gas in place is 344 million cubic feet per 160-acre section.

Q. And that would be both the primary coal seams; is that correct?

A. That's correct, that includes the 8 and the 9 coal.

Q. And to digress a moment, all of the production out there at this time is from the 8 seam, is it not?

A. That's correct, we're not --

Q. There are no wells completed in the 9 seam?

A. Not to my knowledge.

Q. Okay. So this is, to an extent, optimistic, because it adds both seams?

A. Well, certainly, we've given full credit in our study to both the 8 and the 9 coal.

Q. Okay, go ahead.

A. So the 344 million cubic feet in place for the 8 and the 9 coal would compare to one half of Mr. Cox's number, which would be 1.9 BCF in place. Generally, there's about a six-to-one ratio, then, of Cox reserve estimates to Netherland, Sewell reserve estimates in the coals.

The Pictured Cliffs being such a minor volume

only results in a slight increase per well, on average, up to 361 million cubic feet per well for Netherland, Sewell, and then 2 BCF in place per 160-acre section for Cox. Again, about a sixfold difference.

When you convert these to reserves, the Netherland, Sewell estimate of ultimate reserves for the 8 and the 9 coal would be 11.4 BCF, and then adding in the Pictured Cliffs can round that off to about 11.9 BCF.

And again, just a comparison by 160-acre block would be 208 million cubic feet per 160-acre block for Netherland, Sewell, and then about 1.3 BCF for Cox. Again, about a six-to-one factor.

Q. So he comes up with reserves or gas in place which are six times as large as your estimates?

A. That's correct.

Now, the right-hand column only really has one number there. It's the performance-based average PDP, which is proved developed producing well, ultimate. What that number is, for all of the wells that have been drilled and placed on production that have production history, I've projected those based on historical data and projected them into the future to determine an average ultimate for those wells of 153 million cubic feet per well. This compares to the volumetric ultimate at 160 acres of 208 million cubic feet per well.

Q. Now, because of this rather large disagreement between you and Mr. Cox, Richardson's engineer, could you identify San Juan Exhibit 73 and summarize the areas of agreement and the areas of disagreement which you have with Mr. Cox?

A. Yes, based on the prior hearings, we were able to identify a list of items that we appear to be in reasonable agreement, including:

The structure on the top of the coal, or how the coal dips away as it moves from west to east,

The coal thickness we appear to be in general agreement on, in that when you look at the bulk volume of the coal, based on our estimate in the Deep Lease and Deep Lease Extension and compare that to the estimate set forth by Richardson, there's only about a 7-percent difference in those two estimates. So generally the amount of coal that's there, we're in pretty good agreement on.

The next two really tie together in that we're using a potentiometric surface of about 5100 feet, which is essentially the effective water level that would be above the coal that defines the pressure in the coal, and generally Mr. Cox and myself agree on that potentiometric surface being approximately 5100 feet, so that at the majority of the points across the structure we agree on the pressures that you would encounter in the coals.

We agree that Coal 8 and the Pictured Cliffs communicate to some extent.

We agree on the adsorption data. And we'll discuss this a little bit later on, but basically there are two adsorption points that have been measured out there, and Mr. Cox and I both used this same adsorption data.

And we agree generally on abandonment pressures, although generally I go to a lower abandonment pressure, which is a little more aggressive, resulting in more reserves, than Mr. Cox did.

In terms of areas of disagreement, the top one is the most important one in that the gas content of the coal is affected by whether or not you consider that the coal is saturated or undersaturated. And this will become, as we will discuss, the most important difference that we have in our interpretations.

The next two really tie together in that the use of analogy wells and type curves for the typical expected well performance of a coalbed methane well, we generally prefer to use wells that are in the Deep Lease or Deep Lease Extension, whereas Mr. Cox has used wells that are some distance away from the project area.

Q. Twelve to 15 miles?

A. Excuse me?

Q. Twelve to 15 miles?

A. Twelve to 15 miles in some cases, yes.

Reserve categories we've discussed already. We are careful to classify our reserves, and we're not certain what classification Mr. Cox's estimates are.

And then finally computer simulation. We have not done a computer simulation of this area and don't think it's really appropriate or needed to estimate reserves here.

Q. Now, referring back to your Exhibit 2, based on the final column, the performance, these wells are producing 100,000 to 200,000 cubic feet of gas per well. Would this amount -- just this amount of production, pay out the costs of drilling, completing and fracture-treating a well?

A. Based on the work that we did last year at a gas price of about 320 per MCF at the time, the break-even point for the wells in this area was in the range of 100 million to 200 million cubic feet per well.

Q. Okay. So that would, in essence, just pay out the well? No profit over and above that?

A. In that range, yes.

Q. In that range. Now, do oil and gas operators drill wells merely to recover their costs?

A. They would not intend to do that.

Q. They always look for a return over and above

merely cost recovery?

A. Yes.

Q. That's what they hope for.

Now, let's move back to the big booklet and Exhibit 45, and could you very briefly go through this and discuss what Netherland, Sewell examined in order to reach its conclusions?

A. Yes, I'll summarize this very quickly, since it's already been submitted to the record. But for the most part, our analysis was based on quarter sections. Every 160-acre block was analyzed separately and independently.

We prepared geologic maps of the S8, the S9 coals, as well as for the Pictured Cliffs. We used for the coals the available core samples and the available measurements of ash content and moisture content and the specific gravity, and assigned a value for every 160-acre tract, based on these core samples.

We then prepared isopach maps that allowed us to estimate the thickness of the coal in each 160-acre tract, and then we used the desorption tests that were run on 18 wells in the Deep Lease and Deep Lease Extension to estimate the gas content.

And combining all of this data, we then estimated the gas in place for each 160-acre tract. And then using the abandonment pressures, which we previously mentioned

that we have general agreement on with Mr. Cox, we then estimated the amount of that gas in place that would be recoverable in each 160-acre block.

We then assign reserve categories, either proved or probable, and conducted cash-flow analysis of each 160-acre block to determine if drilling there for either the coal or the Pictured Cliffs would be commercial.

Q. Okay. Now, you mentioned the geology, and you've already said that with respect to the Fruitland Coal geology Netherland, Sewell and San Juan and Richardson all basically agreed on the coal thicknesses, *et cetera*?

A. Now, what about -- Did San Juan also look at the Pictured Cliffs formation in this area?

A. We prepared a structure and isopach map of the Pictured Cliffs and the Deep Lease and the Deep Lease Extension.

Q. Okay. Well, let's just look at the isopach. And Mr. Secretary, I'm referring to San Juan Exhibit 38 in the big booklet. Yeah, and it's the isopach map of the Pictured Cliffs formation.

Just briefly, Mr. Smith, what did Netherland, Sewell's Pictured Cliffs geology show?

A. Well, as indicated on Exhibit 38, the left rectangle is the Deep Lease and the center rectangle is the Deep Lease Extension, which are the two areas we were

focused on. And as shown by this Pictured Cliff isopach map, the Pictured Cliffs is essentially confined to the southeast portion of the Deep Lease Extension.

Q. Now, there is -- the Pictured Cliffs formation extends over this entire area, all of the leases, right?

A. That's correct.

Q. But as far as contributing anything to production, it would only be in the southeast area of the Deep Lease Extension?

A. We think the commercial development of the Pictured Cliffs would be limited to the southeast area, that's correct.

Q. So based on this map, no one's going to drill a Pictured Cliffs well outside of this far southeast area?

A. Not specifically for the Pictured Cliffs.

Q. Okay. Is the Pictured Cliffs also pressure-depleted?

A. Yes, it is.

Q. And that's another reason not to drill a well simply to test the Pictured Cliffs?

A. That's correct.

Q. Now, as you mentioned, your key disagreement with Richardson's engineer is gas content. What are the key factors in determining the gas content?

A. There are really two primary methods used to

assess the amount of gas that is being held in coalbed methane: adsorption and desorption. And it will be important to understand the differences between these two processes.

The adsorption isotherm approach is a test to determine the amount of methane gas that can be held in theory by a coal, whereas the desorption test is a test that attempts to measure the amount of gas that is in the coal. So in other words, the coal in some cases is capable of holding a lot more methane gas than it has. The coal has escaped for some reason, and you find many coals around the world that are undersaturated in that they aren't saturated with the full amount of methane that they can in theory hold.

And did San Juan take desorption tests and measure the amount of gas in the coal?

A. That's correct. Those estimates are indicated on Exhibit 46.

Q. And is Exhibit 46 just a summary of the various tests that were taken on the wells in the Deep Lease and the Deep Lease Extension?

A. That's correct, this is a summary of each of the 18 wells that had desorption tests conducted on them. This is an average gas content and value that was obtained for each of those 18 wells, spotted in an areal sense across

the Deep Lease and Deep Lease Extension.

Q. And what is the approximate range of values?

A. The lowest value on here is 11 cubic feet per ton, and the highest value is 98 cubic feet per ton.

Q. And what is the approximate value used by Mr. Cox in making his calculations of gas reserves in these leases?

A. I believe his average value was in the neighborhood of 240 cubic feet per ton.

Q. So substantially higher than what was tested by San Juan?

A. That's correct.

Q. Now, you mentioned adsorption/desorption. Let's turn to Exhibit 47, and if you can explain to the Secretary how that comes into play.

A. Yes, the adsorption isotherm is a test that's conducted on core samples wherein the coal is taken to a lab and crushed up and methane is introduced to the coal under pressure steps, and then the amount of gas that is adsorbed onto the coal has been measured, versus pressure. So as I mentioned, for the coal samples that were taken, this curve would represent the amount of methane gas that could be held in this coal at various pressure levels.

Q. Okay. And what do the red dots show? So that the curve is the adsorption isotherm, that shows the amount which could be held?

A. That's correct.

Q. And what are the red dots?

A. The dots to the lower side of the adsorption curve represent the desorption tests that were conducted.

Q. Okay. So you mentioned the potentiometric surface and the pressures. How do you determine gas content of the coal from this chart? Because the parties really didn't disagree on the pressures?

A. We did not disagree on the pressures, and we did not disagree on this adsorption curve that's shown on Exhibit 47.

Q. So how do you get gas content?

A. Yes, the approach that we took is shown on Exhibit 48, and what we've done is, we've taken the desorption data, and we've fit a line through it that we can use to relate the depth to the top of the coal to the gas content that would be indicated by the desorption test -- not the adsorption test, but the desorption test -- so that at any point or any 160-acre block out there, if we know the top of the block then we can go in and estimate the gas content that would roughly correspond to that that would be obtained based on the desorption data.

Q. And then that final number is then shown on Exhibit 50?

A. That's correct.

Q. But just flipping back to 47 again, just for the Secretary's information, if you had a pressure and the coal actually held as much gas is it could, if the pressure was 300, then you'd go up to 300 and then over to the left, and you can say the coal was holding 270 standard cubic feet per ton; is that correct?

A. That's correct.

Q. But if you don't have to go up to that line, if that line is inapplicable, instead you go up to one of these red dots and over to the left --

A. That's correct.

Q. -- and you get a much lower coal gas content, isn't that --

A. Yes.

Q. Now, you mentioned all the data from the wells. Is San Juan's Exhibit 74 a summary of all the data, of all the desorption data that was taken?

A. Yes, it is.

Q. And it just summarizes the numerous tests on the 18 wells?

A. That's correct. There are a total of 95 separate coal samples that were placed in the canisters and analyzed to determine the gas content, and Exhibit 74 is a tabulation of those 95 samples and indicates on here the amount of gas that was desorbed from each sample and then

an estimate of the gas that was lost in obtaining the samples.

Q. Was this exhibit prepared by you or under your supervision?

A. Yes, it was.

Q. One final matter on the desorption. Do the numbers that San Juan obtained with its actual tests conform to the most recent literature on the San Juan Basin insofar as the desorption data goes?

A. Published literature indicates that the expectation is that the San Juan Basin would be undersaturated because it was deeper at one time, at higher temperature, and raised to a shallower depth at a lower temperature, and since it can hold less gas at the lower temperature, it would then be undersaturated --

Q. Okay.

A. -- relative to its capacity to hold gas.

Q. And perhaps we didn't really explain these saturated or undersaturated, but referring back to 47, Exhibit 47, Mr. Smith, the fact that the desorption measurements show that the gas content is below this adsorption isotherm means it's undersaturated; is that correct?

A. That's correct, if the coal were fully saturated, you would expect that the desorption measurements at any

pressure would correspond to the adsorption curve.

Q. Okay. And is San Juan Exhibit 75 a copy of the paper that you were talking about?

A. This is a copy of a paper that was published in the *AAPG Bulletin* in November, 2002, that indicates that an area of the San Juan Basin where the Deep Lease and Deep Lease Extension are located -- that it would be expected that the coal would be undersaturated.

Q. This is just a portion of the paper that's actually also in the book with the full paper, marked as Exhibit 26 from the Commission Hearing; is that correct?

A. That's correct.

Q. And in looking at this, this really just contains the summary data, just to make sure that the Secretary knows what he's looking at. In looking at the page 2 where it summarizes the various data, the area of the Basin we're in is under the Trend 2 area, is it not?

A. That's correct.

Q. Okay. So it gives various data, including gas content and *et cetera*, and basically this paper agrees with the data that you came up with independently, does it not?

A. That's correct, the third item down indicates that it would be expected to be undersaturated under Trend 2.

Q. Okay, let's quickly go through a few remaining

exhibits, Mr. Smith. Let's move to your Exhibit 52 next.

A. Yes, Exhibit 52 is the end result of the calculation for each 160-acre block that combines the pressure of that block, the coal thickness of that block, the gas content, the estimated coal density and the ash content of each block and calculates the amount of gas that is originally in place for the S8 coal.

Q. Okay. Now, this is gas in place, this isn't what you would expect to recover from a well?

A. That's right, that's the gas that was originally there before any production.

Q. Okay. Then let's move to your Exhibit 56 next, and could you identify that?

A. Yes, Exhibit 56 is an indication of the reserves that would be expected from the 8 coal, the 9 coal and the Pictured Cliffs, based on our analysis.

Q. Well, let's look first at the Deep Lease. Do these -- As an engineer, do the numbers, the reserves, the 8 seam and the 9 seam, which hasn't been produced yet, and the Pictured Cliffs, do they justify the drilling of wells in the Deep Lease?

A. It would be dependent on the gas price that you could achieve, but certainly those would not likely be attractive investments for drillers.

Q. Okay. At 20 bucks an MCF a lot of things would

look more attractive, wouldn't they?

A. Yes.

Q. Now, when you move over into the Deep Lease Extension, there's more gas there?

A. Yes, there is.

Q. But again, really until you get to the far east side of the Deep Lease Extension, and really more particularly on the southeast side, do there appear to be commercial reserves?

A. Those are certainly the better wells on the Deep Lease or Deep Lease Extension, and the profitability indicators for those would certainly be more attractive than the areas to the west.

Q. Okay. Now, your next two exhibits, Mr. Smith, we apparently didn't have -- we don't have the blown-up copies of these, so they're kind of hard for the Secretary to read, but could you just go briefly through Exhibit 57 and 58 and discuss what these show?

A. Yeah, at the last hearing we went into these in a great amount of detail, but they are basically maps that are not readable in this form but that have production plots for the wells that have been drilled and actively produced in, first of all, the Deep Lease on Exhibit 57, and then the Deep Lease Extension on Exhibit 58.

The production graphs are the ones that we've

used to estimate the proved developed producing reserves for each of these wells, and these two exhibits were prepared as an indicator for how the wells that had been drilled performed relative to the volumetric estimates that we have prepared.

Q. And what does Exhibit 57 show?

A. In general, the only commercial Deep Lease producing well is in Section 36, which is the 36-3 well. There are also three other wells, I believe, by now, that have been drilled in Section 36, but they are noncommercial currently.

Q. And this shows that there's no -- very little productive Pictured Cliffs reservoir in this area; is that correct?

A. That's correct.

Q. And then moving on to 58, there's the dark green line and then the light green line. It shows that this is an area of what, thicker coal and thicker Pictured Cliffs in the southeast area; is that correct?

A. That's right, in the southeast area the light green line corresponds to the Pictured Cliffs being greater than five feet thick, and the dark green line indicates that the S8 coal is greater than 16 feet thick. This also corresponds to the area where we see the best producing wells.

Q. Okay, although you can -- You can read it on here, of course I need stronger bifocals at this point in my life, but it does have estimated ultimate recoveries on some of the wells in this area, does it not?

A. Yes, it does.

Q. And some of these wells in the far southeast corner of the Deep Lease Extension --

A. Yes, you can see --

Q. -- are commercial?

A. That's correct.

Q. But that's about the only place?

A. Yes.

Q. Okay. One final matter, and I'd ask you to go back to your Exhibit 72, Mr. Smith, and just to try to get a comparison, perhaps -- and for purposes of this estimate, I'd ask you to assume that the oil and gas royalties are one-eighth on these leases. I think perhaps Richardson testified to that in the previous hearing, and the leases are in the record, which would state their royalties.

But first of all, what is the life of these coalbed methane wells?

A. It varies, depending on how good the wells are, but generally probably in the range of five to 20 years.

Q. Okay. Now, you show, you know, your average proved well with reserves of 153 MCF or 153,000 cubic feet.

What type of royalty income could you expect over the life of one of these wells?

A. Because I can't do that math very well, I'm going to round off to another number. If you assume that the average well was 250 million cubic feet --

Q. Okay.

A. -- at a very nice gas price of four dollars an MCF, that would be essentially a million dollars' revenue.

Q. Gross revenue?

A. Gross revenue. And then with the one-eighth royalty on top of that would result in $125,000 of royalty.

Q. Over the life of the well?

A. Over the life, that's correct.

Q. Now, you know, comparing one thing, you're talking about even assuming a better well than what you have on your Exhibit 72 of, say, 250,000 cubic feet recovered from a well, and is this even in the league with the amounts of gas liberated by the mine ventilation system that was discussed by Mr. Bessinger?

A. Let me think about that before I answer. I would say the mining process would certainly be a more efficient methane extraction process than drilling a well. That's your question?

Q. Yeah, just because of the exposure of the coal and the fracturing of the coal; is that correct?

A. That's correct.

Q. So you're dealing with apples and oranges?

A. That's right.

Q. Okay. You can't compare what's ventilated with what might be recovered by a conventional coalbed methane well?

A. That's correct.

Q. Were Exhibits 71 through -- And finally, the one final exhibit, which we really didn't go into was Exhibit 79 [*sic*], and Exhibit 79 is just an update of the production charts that you previously submitted to the Commission?

A. That's correct.

Q. Were Exhibits 71 through 76 prepared by you or under your supervision?

A. Yes, they were.

Q. Mr. Secretary, I'd move the admission of San Juan Exhibits 71 through 76.

SECRETARY MILLS: Any objections?

MR. KELLAHIN: No objection.

SECRETARY MILLS: So admitted.

MR. BRUCE: I pass the witness.

SECRETARY MILLS: Cross-examination?

MR. KELLAHIN: No questions.

SECRETARY MILLS: Do you have any further

witnesses, Mr. Ausherman?

MR. AUSHERMAN: We do not.

SECRETARY MILLS: Does Richardson have a case-in-chief to put on?

MR. CARR: No, we do not. We stand on the record we made before the Commission, the briefs we've filed and the arguments presented today.

SECRETARY MILLS: Then what I'd like to do is give the parties an opportunity to make any final arguments, and then I'm going to ask that in the next ten calendar days you prepare and submit proposed findings of fact and conclusions of law for my benefit.

So Mr. Ausherman, whenever you're ready to make your closing statement we'll hear it.

MR. AUSHERMAN: I'll make a brief response to the points made this morning by Mr. Carr, and then we can save the rest for our post-hearing submittal.

The first point I'd like to respond to is the thought that the Secretary should not really consider much in this proceeding, that it's very narrow. We strongly disagree with that. We heard that the Secretary really shouldn't consider much in this hearing because it's not important what the coal is worth, or it's not important that it's worth many multiples of what the gas is worth, it's not particularly important that the infill could cost

the State millions of dollars of royalty, and maybe you shouldn't consider the safety impact because MSHA has already done so.

We don't agree with that. And it reminds me of the argument that we heard below, before the Commission, which was, the Commission shouldn't consider the waste of coal, the Commission shouldn't consider conservation of all mineral resources, the Commission shouldn't consider the public interest, and we don't agree with that.

We think that the time is now. There comes a point where all of these matters need to be considered and considered in the context of due regard for the conservation of all mineral resources. And we appreciate the Secretary accepting this review. It's a *de novo* review. Section 26 specifically provides for that and provides for the introduction of additional evidence to consider conservation of all resources, gas and coal, and to consider not only the things that have been considered before, but the things that clearly have not been.

And some of the things that have not been considered before is the value of coal. Not been considered before, the conservation of coal. The public interest has not been considered before.

In order to do those things, you need to engage in a relatively broad inquiry because of the standard set

forth in the statute. The standard set forth in the statute is to give due regard to the conservation of the State's oil, gas and mineral resources.

And in order to do that, you need to consider the comparative value of coal. You need to consider the fact that the gas resource is relatively marginal. You can't leave it to others to do that.

An example of why you can't leave it to the Commission, for example, to do that, other than the fact that this is a *de novo* review from the Commission decision, is that if you were to look at Paragraph 22 of the Commission's Order, it provides on the level of comparing the economics of coal and gas, if Richardson is willing to accept the risk, the Application should be approved.

We would submit that that is not the level of analysis that's appropriate for the Secretary. The Secretary needs to compare the coal that Richardson could be destroying, compared to the value of the gas that Richardson could be extracting, and engage in a more realistic comparison than simply deferring to Mr. Richardson and whether he's willing to take the risk.

So I disagree with Mr. Carr that this is a narrow inquiry. I agree that the basis of the inquiry is the public interest, but that includes a lot that hasn't been considered to date.

I also disagree that this is a regulatory morass and that the Secretary just shouldn't or is somehow incapable of going here. That's just not right.

The BLM issues are before the BLM. The BLM did not address whether or not infill wells should be granted. That's the issue here.

Conversely, as the Commission has recognized, you should not address the priority issues before the BLM. That's not a matter that is before you.

And by the same token, we do not intend to plow the same ground with MSHA. The MSHA situation presents the Secretary with a choice. The MSHA situation is a given that we need to bypass coal. The question is -- If we don't reach buyout the question is, is it in the public interest to require that when the coal that's being bypassed is worth so much more than the gas that's causing the bypass?

And the other thing that we are asking you to consider is two new developments that happened since the Commission heard this.

The first one is that we heard the concerns of the Commission that it would be better if both resources could be produced, it would be better if you could consider some sort of multiple mineral development arrangement. And toward that end we are trying to come up with a way that we

can make gas available at the surface to the producers so that it's not just vented but it could be, if the gas is there, captured.

I was surprised, I guess, by the response to that today. I think it takes looking a gift horse in the mouth to a new dimension. We are willing to take the gas from our degassing operations, bring it to the surface at no charge to Mr. Richardson, and make it available there to him, in lieu of his need to recomplete or drill new CBM wells. Now, if the gas is available and the feasibility is there, then the arrangement will work. And if the gas is not available, then the coalbed methane wells would not be a feasible way of getting it to the surface.

And what we've heard from Mr. Smith is that there's a significant chance that in some parts of this area the gas is not going to be available, because it's just not in the reserves. In those places where it is, we hope we could recover it.

And the second thing that we would hope you would consider is our proposal to try to break through the logjam with some form of nonbinding mediation to allow for a short period before you decide the matter in order for parties to submit to mediation and come back at that point in time, if the mediation hasn't resolved it, to make the decision.

We're not asking to defer your decision

whatsoever to a mediator, we're just asking that it's in the public interest to allow that opportunity to proceed before you render your decision.

MR. BRUCE: Mr. Mills, just one thing, and this will take 20 seconds. Since we just saw the Dugan letter to the Secretary, I would point out that Dugan recognizes that the infill order approved by the Division allows the drilling of two additional Fruitland Coal wells in each section. The result of full development is eight wells in each section, four Pictured Cliffs and four Fruitland Coal wells.

This contradicts Mr. Carr's opening where he said nobody's going to do that. Obviously, Mr. Dugan is thinking of doing that. At this time no one does have any more than four Fruitland Coal/Pictured Cliffs wells in the section, but the result is an incremental increase of four per section, and we think that does have a severe effect on the mine. Thank you.

SECRETARY MILLS: Thank you.

Mr. Carr?

MR. CARR: May it please the Secretary, I'd like to respond briefly to certain things that were said and provide just a very brief closing.

SECRETARY MILLS: Go ahead.

MR. CARR: I think Mr. Ausherman misstates my

earlier comments. I did not say you should not consider much. What I said was, you should stay within your jurisdiction and you should not go sailing forth into areas that have been reserved by statute in a regulatory framework to other agencies.

What I was trying to say was simply, remember that you're not just empowered by the Creator with a right to sail forth into the world and do good. Maybe that would be a good idea, but that's not where we are here.

And when you approach these issues you've got to look at the statute. And of course it says you're to look at all mineral resources. But what you're charged with doing is looking at a particular order and determining if that order, within the circumstances of this case -- whether that order in those circumstances contravenes the public interest.

If you listen to San Juan, it sounds like this Order of the Oil Conservation Commission, an Order that will result in two additional wells being drilled in the mine district by recompletions in an area where they already have 70 wells -- it sounds like the Oil Commission's decision is going to destroy their mining effort.

Look at that Order. It's the Order they ask you to set aside. All it says is, infill drilling should be

approved and that those wells would be efficient and economic. That's the Order that San Juan says here contravenes the public interest.

And at the same time, while they're attacking infill drilling, we have learned in the last few days that they're proposing to drill. I'm sorry they think we're suspicious or looking a gift horse in the mouth. It may have been a good-will effort. It raises issues, important issues, that don't sound here. They go before the Oil Conservation Commission.

If that is again saying you shouldn't consider anything, I really think whether you drill a horizontal well and whether you have to frac it or not and whether you get anything out of that is really something for the engineers at the OCD.

I'd be a little more enthused about it being good will, if it wasn't presented five days before a hearing and if the good instead of just coming to us over the last many years, I think it would be more valuable to us if, in fact, they said we're going to produce gas and we'll make it available to you, instead of saying we'll give it to you if we have any, in a context where they also suggest they may do other things, mix it with nitrogen, I don't know, but render it really of very little economic value to us.

But the letter does do something, as I pointed

out this morning, very important. It admits you need additional wells to remove the gas before they drill. That's Richardson's proposal. I guess that's *their* proposal. And in this context the OCC's Order isn't in contravention, it's in agreement with what they're saying. And it certainly doesn't in that circumstance contravene the public order.

It seems to me that the letter they have presented today conflicts with the position they're taking before you. They say don't allow infill drilling, but we want to drill. I think that's a conflict.

If we all agree there needs to be drilling to degas before mining, then I submit to you testimony on economics, on reserves, on safety become less and less important to you and more and more important to the OCD and MSHA, because the issue for you is an order that says wells should be drilled. If we agree on that, then the whole thrust of this thing shifts elsewhere: to the OCD, how to drill; to MSHA, how to do it safely. And we're left with a position that we all agree with, consistent with what the BLM has said: Produce them both.

I don't think you produce them both by shutting us down and letting them produce gas that we own, that they do not. I think you say, Negotiate. But I don't think you order us to go back into mediation.

We've been in arbitration because the problem is, they recommend it be nonbinding, and we can't get there because you can listen to their witnesses -- today you can listen, our position -- and we just don't come close on underlying value.

But that isn't the issue before you. The issue is, does the order that says infill wells should be drilled violate the public interest? They in their letter suggest drilling is needed. We say drilling is needed, the OCD has found what we have proposed as efficient and economic, and we submit in this circumstance you cannot find the public interest has been contravened.

SECRETARY MILLS: Thank you. The deadline for submitting the proposed findings of fact and conclusions of law would be the 20th of February, Thursday.

MR. CARR: I'm sorry, did you say February 20th?

SECRETARY MILLS: Yes.

I'm looking at the Dugan Production letter which we had earlier indicated we were inclined to admit as public comment. If there's no objection, we will admit it as public comment and label it PC-1.

MR. BRUCE: No objection.

MR. CARR: No objection.

SECRETARY MILLS: And as per the original Order issued, we reserve the right to ask the parties to respond

to any additional questions that may assist us in rendering a decision in this matter.

I want to thank everybody for briefing the issues so well and arguing them so well.

And with that, we will adjourn the hearing today.

Thank you.

(Thereupon, these proceedings were concluded at 4:10 p.m.)

* * *

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 February 15th, 2003.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 16th, 2006