BEFORE THE OIL AND GAS CONSERVATION COMMISSION

OF THE STATE OF COLORADO

2 4 1996

IN THE MATTER OF THE PROMULGATION AND ESTABLISHMENT OF FIELD RULES TO GOVERN OPERATIONS IN THE IGNACIO BLANCO FIELD, LA PLATA COUNTY, COLORADO	) CAUSE NO. 112) Docket 9-7-3) Docket 9-7-4)

PURSUANT TO NOTICE to all parties in interest, the above-entitled matter came duly on for hearing at the offices of the Colorado Oil and Gas Conservation Commission, Room 801, 1120 Lincoln Street, Denver, Colorado 80203, on Wednesday, September 4, 1996.

BEFORE:

CHAIRMAN ALLAN HEINLE

COMMISSIONER LOGAN MacMILLAN

COMMISSIONER CAROLINE BLACKWELL

COMMISSIONER BRUCE JOHNSON

COMMISSIONER CLAUDIA REBNE

COMMISSIONER MARLA WILLIAMS

COMMISSIONER MIKE MATHESON

Richard Griebling, Director

Brian Macke, Deputy Director

Patricia Beaver, Manager of Commissioner Affairs

CHAIRMAN HEINLE: Right. Next item on the agenda is Cause No. 112, Docket No. 9-7-3, Ignacio Blanco Field, La Plata County. The applicant is Cedar Ridge, through their attorney, Michael Wozniak, and I might just ask -- I am not sure whether the agenda I have is up-to-date and current as to who all the parties are that are going to be actively involved in this proceeding, but, perhaps I can just have you all identify yourself for the record.

MR. EKBERG: My name is Carleton Ekberg, appearing on behalf of Burlington Resource Oil and Gas.

CHAIRMAN HEINLE: And could I --

MR. CHIPPS: And my name is Tom Chipps. I am the general counsel for the Southern Ute Indian Tribe, though we're not listed as an intervenor or a party. Based upon prior practices of the commission, pursuant to the memorandums of understanding, I would like at least permission to have some limited role.

CHAIRMAN HEINLE: Okay. If I forget to give you an opportunity to respond, Mr. Chipps, please remind me.

MR. CHIPPS: I am pretty quiet about such things.

MR. ONSAGER: Paul Onsager with the

Bureau of Land Management, O-n-s-a-g-e-r, and with me is Sheri Thompson, and we're here to observe, possibly ask some questions.

CHAIRMAN HEINLE: Okay. Anybody else? I have got Amoco listed here as intervenor. Is that not the situation, or they just chose not to be present?

MS. BEAVER: I think that they might -- the letter that they sent, just to be -- hear testimony about their opinion.

CHAIRMAN HEINLE: Okay. And Questar.

MS. BEAVER: I think that Questar is not going to participate, beyond their letter, as well.

CHAIRMAN HEINLE: And I believe I saw a letter somewhere from Mr. Keefe, where they have withdrawn as a protestant. So, we're dealing with Cedar Ridge, Burlington Resources and perhaps some comments from the tribe. Very good. What I will ask for is some brief opening comments from the applicant and protestant, and upon completion of those opening comments, we'll proceed with the applicant's case.

COMMISSIONER WILLIAMS: Can I say, for the record, Mr. Chairman --

CHAIRMAN HEINLE: Excuse me.

COMMISSIONER WILLIAMS: Due to my prior

involvement with Burlington Resources, including some at least tangentially related issues with respect to infill, I do feel the need to recuse myself from the hearing of this matter.

CHAIRMAN HEINLE: Okay. Are there any other commissioners that have a conflict of interest? Okay. Very good.

MR. WOZNIAK: Thank you, Mr. Chairman. I am Mike Wozniak, on behalf of Cedar Ridge, L.L.C. and we do appreciate your indulgence to meet late in the day. And I know you have had two days of hearings, and we really appreciate you sticking around for our hearing.

The first application that we have in front of you today is Cause No. 112, Docket No. 9-7-3, and this involves the Southern Ute No. 2-5 well, which is an existing Mesaverde well, which our application requests the right to recomplete the well into the Fruitland Coal Formation. The well is located on 100 percent tribal owned surface and minerals, and Cedar Ridge, L.L.C., along with its affiliates, is the working interest owner on the well. It is located in the northwest quarter of Section 5, Township 32 North, Range 11 West, that's in La Plata County, Colorado. The order in the current spacing order, Cause No. 112,

provides for one well per 320 acres, located in the northeast quarter in the southwest quarter. This is a recompletion of an existing Mesaverde, as I said, and it will be in the northwest quarter, thereby being an exception location, and also the second well producing from the Fruitland Formation in the 320.

So, that's basically a summary of what our application is. I do have to make a comment, touch on a jurisdictional issue. Cedar Ridge is before this commission, in our view, in correspondence with its two memorandums of understanding. One between the BLM and the tribe, and the second one between the BLM and COGCC. The tribe, as you know, under those memorandums, doesn't, in essence, consent to the jurisdiction of the commission, but in correspondence with the terms of those memos, basically, the BLM exercises its trust responsibilities, delegates to the commission the authority, on a limited basis, to hear applications concerning tribal land. So, there is a second procedure that we will be involved with after this, that is basically the BLM's either approval or rejection of the decision that is rendered or issued by the commission.

With that preface, we believe that our

evidence will, basically, on the 2-5 well, show six major points. The first is that Cedar Ridge began working with BLM and the tribe over a year ago to try to get these infill wells located. Initially, as the evidence will show, the BLM had some caution and concern about these wells, mainly because of the gas seep issue, and based upon what you all have been talking about for the last day and a half, you know a lot more about that than I ever will. Basically, over the last year the BLM has become satisfied with the gas seep issues in this area of the reservoir. In April of 1996, through a written decision, advised Cedar Ridge to proceed to file for this exception location. So, we're here, based upon the advice of not only the tribe, their consent, but also with the direction of the Bureau of Land Management.

We will have four witnesses today. Mr. Terry Logan, who's the managing member of Cedar Ridge, and will testify on background, the land issues, and also the engineering. While he happens to be an engineer, in order to save sometime as well, we will have him also talk about land issues, and, hopefully, we'll avoid a witness that way. We will have a geologist, Mr. Matthews, who will talk about geologic issues. We'll have two witnesses from the

tribe, one to address their gas seep program in this area of La Plata County, and then another tribal witness who will basically just discuss their support of the application and why they do support it.

To get back to those main six points. The most important thing in this application, which is somewhat different from some of the others that you have heard on infill in La Plata County, is that Cedar Ridge needs to recomplete this well to protect its correlative rights. You will hear testimony with respect to the effect of adjacent wells, some of which are also infill wells on the reservoir and on production from the north half of Section 5, where 2-5 is located. First point of protection of correlative rights. We believe our application and evidence will show that it does prevent waste. It enables Cedar Ridge to utilize an existing wellbore that otherwise would be abandoned. As I think all of you know, under our statutes, the protection of correlative rights is the prevention of waste. That is part of the definition of the protection of correlative rights. It also will accelerate tax credit, and by accelerating tax credits and production from the area, will enable the tribe and surface owners to economically develop the well.

We will have testimony with respect to increased severance, ad valorem and tribal tax that will be generated through this application. The evidence will also show that the application is consistent with the public health, safety and welfare, which is one of the other standards that the commission will apply. Very little effect on the surface, because it is a existing well. No new effects on road, pipelines, right-of-way, and also the tribe will testify, with respect to the alleviation of any gas seep concerns, so we feel that the public safety issues will be addressed.

Another major point will be that the tribe, as a mineral owner, surface owner and predominant adjacent working interest owner, also supports the application, and all of the hats that it wears. And then, finally, I think the evidence will show that this is not an attempt to do fieldwide downspacing. The tribe will testify with respect to the intent on that issue, and this is not some vailed attempt to go ahead and downspace the entire field. Mr. Soradnik will address that. Even with the three Vastar applications that this commission approved on downspacing this winter in the Fruitland coal, basically, the evidence will show that the tribe has

only supported approximately six in-fills wells over the last four years. So, we don't believe that there's concern from the intervenors on that basis.

One final note on a procedural issue on the 2-5 is we don't believe that there are any actual protests, but we believe that there are three interventions. And Amoco filed a letter, has indicated that their nearest production was some 6 to 8 miles away, and so that they clearly weren't a protestant. Questar has filed a letter that basically says they were concerned about -- the well was moving in the direction of a leasehold interest that they own. In fact, the evidence will show that the well moves away from that. And, finally, Meridian -- Burlington, excuse me, is not a cornering or contiguous owner under the provisions of 112. That would be the standards for them to be a protestant; therefore, we believe that, under your rules, the intervenor must show that they are advancing the public interest by their comments, so we would like you to keep that in mind, with respect to the comments of the other parties, we feel the evidence will show they are not protestants. That concludes my opening remarks. We'll await your calling the first witness.

CHAIRMAN HEINLE: Mr. Ekberg.

MR. EKBERG: Thank you. Carleton Ekberg on behalf of the Burlington Resource Oil and Gas Company. Before I start, I would like to mention to the commission that Burlington Resource Oil and Gas Company is a new name for Meridian Oil, Inc, effective as of July 18, I hope July 18. I hope that you understand if every now and then we may use Meridian and understand that we're talking about Burlington Resource, although they may be pretty good about having made the adjustment, not all of the rest of us are.

We are here, we believe, to protest the application 2-5, and let me get to whether we are a protestant or intervenor later. I am not sure it should make any difference what we are. The spacing was established, as Mr. Wozniak said, back in 1988, after substantial deliberation by this commission, and the current spacing in place is 320 acres for one well. And the applicant is really here to add an additional well. We think the burden is on them to show that correlative rights will not be affected; that there will be no waste; that there will be no unnecessary wells drilled, and we ask the commission to hold them to that standard.

Our testimony, we believe, will show

that the coals in this area are continuous; that 320 acre spacing is the appropriate acreage for one well, and that 160-acre wells are, in fact, smaller than the area that will be efficiently and economically drained by one well. We think our testimony will show that the drilling of an additional well will not recover ultimate additional reserves, in the long run, although the applicant may put on testimony that it will accelerate it. We don't believe that it will affect the ultimate production. We also believe that drilling a third well in the section, and perhaps a fourth well in a section, will ultimately affect the correlative rights. That parties in adjacent sections will have to drill additional wells to protect their own rights to their own land from drainage, and that this, in fact, could start the drilling of wells where a number of people would have to drill wells to protect themselves from drainage.

It's easy for them to say that these are limited applications, but we think that the testimony will show that the additional well here may be broader based than the statement of saying that it is limited to this well alone. If parties are required to drill additional wells, surface damages will have -- there will be surface damage impact later down the road.

Not all of the wells that will be drilled to protect correlative rights will be conversion of existing Mesaverde wells to Fruitland coal wells. So, it is very likely that, to protect correlative rights, additional surface damage will be encountered.

Mr. Wozniak questioned whether we were a protestant or intervenor. As we understand the rules right now, notice is to be given to parties who own an interest in the spacing under effect by the application. Protestants are parties who are entitled to notice. Since we do not own an interest in the spacing unit, we did not get notice. We did get notice on the well in Section 7, not the well in Section 5, but we believe that our correlative rights will be affected. And so, in our opinion, we are protestants, not mere intervenors. That's all I have.

CHAIRMAN HEINLE: Thank you. I might just raise an issue that raises a point -- issue that I hear out there. I want to get some advice from our assistant attorney general; that is, whether Burlington Resources, under our rules and regulations and definitions, can indeed be considered an interested party. I think, under Rule 509, that that is a word that certainly is used in 509.a and b. Certainly, the commission, I think, under 509.b has

the -- perhaps has the authority to grant intervention. Lori, could you perhaps comment on that, or would you like a little bit more time?

MS. COULTER: No, not at all. 509.a defines what -- a protest, and 509.b looks at intervenor status, so, under a, to be a protestant, you have to be an interested party. Essentially, under b, you have to be an interested party, or have essentially a, by participation of that party, they would serve the public interest. That's where you are at. It's your discretion whether or not to determine that the public interest would be served. So, what we do, then, is determine interested party status, and that flips back to 508.a, for exception location, and the last part of that indicates persons who would be interested parties would receive notice in exception locations instances where they are existing within that drilling unit, within -- any owner within the proposed drilling units. So, that's the argument that they are not a interested party, if they don't have an ownership interest within the drilling unit itself.

COMMISSIONER BLACKWELL: I am sorry, Lori, what rule?

MS. COULTER: 508.a.

CHAIRMAN HEINLE: And perhaps this isn't

a issue for you, Mr. Wozniak. If it isn't an issue for you, we can move on.

MR. WOZNIAK: Let me address it, and it is a touch of an issue, but it not one that we're going to get hung up about. The way I read 508.a is you need to have an interest in this spacing unit to be an interested party. Meridian clearly doesn't. There's no dispute about that. Alternatively, you could read our application as an exception location, contrary to the -- changing the infill well, and, if so, I believe that's under 508.d, which says any owners of contiguous or cornering tracts towards which the well is proposed to be moved. Now, our case, in Exhibit B in your packet, shows that Meridian's acreage is away from where it's moving, so we don't believe they are an interested party, and we would like you to take that into account.

I am not going to -- Cedar Ridge isn't going to take the position that they cannot participate in the hearing. It's just that we think it's important, when we're talking about correlative rights, on our behalf, that someone that's away from where this well is moving is objecting. And while I am, and I believe our attorney general at our prehearing conference said, from her point of view, an

intervenor can participate the same with -- as the protestant, that being the case, it doesn't matter, except if someone really is an interested party, I think that their testimony bears a little bit more significant weight.

CHAIRMAN HEINLE: I think, as long as that isn't an issue that's being debated, rather than tie up the time, commission time, and your time, we will just proceed with the presentation of your case.

MR. WOZNIAK: That's fine.

CHAIRMAN HEINLE: Mr. Chipps.

MR. CHIPPS: If I could make several brief comments on behalf of the tribe. That may conclude my presence here. First of all, with respect to the memorandums of understanding, previously we had suggested that we might be able to obtain conceptual waiver from the commission and the Bureau of Land Management to avoid this hearing at this level. Kick it over to the Bureau of Land Management. That really was just a one-time suggestion. The tribe is very supportive of the MOU. And we think the relationship between the tribe and commission has been a very healthy one, both for the state and for the tribe. I won't elaborate, but I think the exchange of information between both governments has been very

beneficial for both of us.

With respect to this application, the tribe is supportive of this application, as well as the one that will follow. The tribe wants to reiterate that it's not in support of downspacing. It has not, certainly, on a fieldwide basis, has not taken that position. And we view this as being a correlative rights issue. And, really, with those concluding remarks, in the interest of time, I am, at this time, done.

CHAIRMAN HEINLE: Thank you.

Mr. Wozniak.

MR. WOZNIAK: I would like to call the first witness, Mr. Terry Logan.

CHAIRMAN HEINLE: Would you prefer that I just swear in all of your witnesses at once?

MR. WOZNIAK: Well, assuming if we get through it today, that will be fine. We have Mr. Logan, Mr. Zoradnik and Mr. Matthews and Mr. Baughman.

CHAIRMAN HEINLE: Why don't we go ahead and do it, and with the understanding that if they testify tomorrow, they will still be under oath.

(Whereupon the witnesses were sworn.)

CHAIRMAN HEINLE: Thank you.

BY MR. WOZNIAK:

Q. Could you please state your name and business address and occupation for the record.

A. Terry Logan. My business address is 484 Turner Drive, Building B, Durango, Colorado 81301.

Q. And what --

A. What else was it?

Q. And what was your occupation, Mr. Logan?

A. I am a registered professional petroleum engineer.

Q. Okay. By whom are you employed?

A. Cedar Ridge, L.L.C.

Q. And in what capacity?

A. As a managing member.

Q. Okay. Can you briefly describe your education and your work experience.

A. Yes. Education: I am a graduate, 1978, from South Dakota School of Mines and Technology, Bachelor of Science in Geological Engineering. Background was with Amoco Production. Davis Oil Company Resource Enterprises and now, most recently, with Cedar Ridge.

Q. Okay. And you have testified before this commission in the past?

A. Yes, I have.

Q. And in what capacity was that?
A. As a professional engineer.
Q. Okay. And are you a member of any professional societies?
A. Yes. Society of Petroleum Engineers.
Q. Okay. And attached in the back of your exhibit booklet, I believe, is a -- right towards the end is a set of three resumes, and one of those has your name on it. Is the information on that resume and curriculum accurate?
A. Yes, it is.
Q. Okay. And did you really write all of those articles that you put on that resume?
A. Yes, I did.
Q. Okay. Do I see most of those are in coalbed methane issues; is that correct?
A. Yes, they are.
Q. All right. Are you familiar with the land and the geologic issues involved with this application?
A. Yes, I am.
MR. WOZNIAK: Okay. At this point, I would request Mr. Logan's credentials as a petroleum engineer be recognized, realizing he's going to testify about some background land issues that were

done under his role.

CHAIRMAN HEINLE: Any questions of the commissioners of the witness? So accepted.

MR. WOZNIAK: Okay. Thank you.

BY MR. WOZNIAK:

Q. Mr. Logan, first, I would like to go through a couple of land issues before we get into anything with respect to engineering. Are you familiar with the Fruitland coal spacing in this area?

A. Yes, I am.

Q. Okay. What is the spacing?

A. It's 320-acre spacing.

Q. Okay. And what -- is that Order numbered 112, Cause No. 112?

A. 112, 60 and 61, I think.

Q. Okay. All right. And what does the order provide with respect to well locations and number of Fruitland wells within a 320-acre spacing unit?

A. The rule provides for one well per 320-acre spacing. The location of the wells to be in the northeast corner or the southwest corner of that section, with a certain footage setback from interior boundaries and exterior boundaries of that section.

Q. Okay. With respect to Section 5, where

the proposed 2-5 is to be relocated, does Cedar Ridge and its affiliates own working interest ownership in that section?

A. Yes, we do.

Q. Okay. Who currently owns and operates the existing wellbore for the 2-5?

A. The existing 2-5 is a Mesaverde well that is owned and operated by the Southern Ute Tribe.

Q. Okay. But your company has the Fruitland rights; is that correct?

A. Correct.

Q. Okay. And, just in general, what are you requesting with respect to the 2-5 well?

A. What we're requesting is an opportunity to abandon the uneconomic Mesaverde production, move uphole, and recomplete the Fruitland Coal.

Q. Okay. All right. And you mentioned some footages in your application as to the location of the well. Are those correct?

A. Yes. The footages on the application are correct.

Q. What is the location of the well?

A. Location of the 2-5 proposed infill is 2,035 feet from the west line, by 2,150 feet from the north line of Section 5, 32 North, 11 West, La Plata

County, Colorado.

Q. Okay. And while we're talking about surface issues, who owns the surface and the minerals underlying this section?

A. The Southern Ute Indian tribe.

Q. Do you have a surface owner agreement with the tribe?

A. Yes. As part of the minerals agreement.

Q. Okay. All right. So they have no objection to surface uses of those locations?

A. That's correct. They have no objection.

Q. Anything unusual about the surface area or topography that we should know about in this area?

A. Nothing unusual, no.

Q. Okay. And any comments with respect to the surface impacts on this?

A. There will be little to no surface impacts. This is an existing wellbore, that is -- with an existing road and pipelines already connected to the well, so there will be no additional surface damages.

Q. Okay. And did you prepare some land exhibits for purposes of today's hearings?

A. Yes, I did.

Q. And, all right. If I can direct your

attention to Exhibit A. If you can tell us what's depicted on that exhibits?

A. Exhibit A, which is the first page in your booklet that we have handed out, is a location map, that -- identifying the location of the 2-5 Mesaverde proposed recompletion, along with a box showing the acceptable location, based upon the rules. Also shows the Cedar Ridge coal gas wells, the 5-5 in the northeast corner and the Cedar Ridge well, the 6-5 in the southwest corner. This also shows the location to the closest nonoperated coal gas well -- in this case, Emerald Gas is operating that well, is located approximately 3289 feet north of our proposed 2-5 well, depicted on this location map.

Q. Okay. Okay. I notice that there's two Emerald coal gas wells listed in that section. If I understood your testimony, the spacing order provides for the wells to be located in the northeast and southwest quarter, is that correct; that there's two coalbed wells there?

A. Yes. There's two coal gas wells in the -- depicted on this map. The 32-3 is the infill well that was approved by this commission approximately three to four years ago, I think in 1992, along with several other Emerald infill wells.

Q. Okay. All right. And the proposed spacing unit for the production from the 2-5? What will that be?

A. Excuse me, the question again.

Q. The proposed spacing.

A. Proposed would be a stand-up. It would be the second well in the stand-up spacing unit of the existing Cedar Ridge 6-5 well.

Q. It would be the west half?

A. Yes. It would be the west half.

Q. All right. Thank you.

A. West half stand-up.

Q. Okay. If I can direct your attention, then, to your second exhibit, Exhibit B, which is entitled "Lease Map," and ask if you could comment on what's shown on this map.

MR. GRIEBLING: Mr. Wozniak?

MR. WOZNIAK: Just a second.

MR. GRIEBLING: Can I make a correcting point? I think those infill wells that you reference being approved by the commission were really approved by the BLM.

THE WITNESS: Correct. And they were Bowen, not Emerald, Bowen Edwards. That's the other correction.

CHAIRMAN HEINLE: I am sorry. Continue.

MR. WOZNIAK: Vastar was the only ones that were approved by the commission.

THE WITNESS: Okay.

MR. WOZNIAK: I am sorry. I should have corrected that. Thanks for the correction, Director Griebling.

BY MR. WOZNIAK:

Q. Exhibit B, you started to testify about what's shown on this map.

A. I have got a bigger scale. Can I show you?

Q. Want to put that up?

A. That's the lease map. Can everyone see that? Put it right here. What this exhibit -- this Exhibit B, the second one in your handout. This color acreage, sort of looks green to me, is the Cedar Ridge acreage. Okay. All of this -- every one of these red dots is an existing Fruitland coal gas well that's on production. The black with the arrows are the proposed Mesaverde recompletion ones. To the north of this sort of blue color is the Emerald Gas Operating coal gas wells -- each one of these is a coal gas well -- and depicted in -- a little differently as an offset coal gas well. In yellow is the Red

Willow/Southern Ute Indian Tribe operated acreage, in yellow, this -- which is Pinon, which is a tribe, Southern Ute Tribe. The other acreage that is shown on here is this 80 acres here, which is that list of the mineral owners. And Questar, who has an -- has been able to lease, I think 20 or 30 acres. Haven't been able to pin down exactly how much they leased from these minerals owners that they have attempted to lease from. Also, in this map we see the Meridian acreage, which is located here, 80-acre tract in Section 8. Okay.

Q. If I understood correctly, then, the Red Willow/Pinon; that's tribal. The yellow is tribal predominantly?

A. That's tribal.

Q. You also have Kukui here, who are parties, who withdrew the protest?

A. That's correct.

Q. With respect to Meridian's interests, to your knowledge, is that the only place in the geographic area of your map here that it owns an interest?

A. It's the only place close to, cornering, contiguous, or in this area that would be in this general area of our application.

Q. If I understand correctly, then, your exception location is, in effect, farther north than the 5-5 or 6-5 wells, farther away from Meridian than existing production; is that correct?

A. That's correct. This is the existing coal-gas well. This is the proposed recompletion well. This is the existing Cedar Ridge well. This is Meridian. We are moving away from it.

Q. So, technically, then -- in other words the Red Willow 2-8 well?

A. It's the 8-2 well. Not the 2-8.

Q. All right. And then I notice that the, at the bottom of your map, you mention that there's a few people that you have letters of support from. With respect to this, who are those?

A. Letters of support from White Aspen and San Juan Basin Drilling Associates. Also a couple of working interests owners in the Cedar Ridge acreage, Pinon Operating, along with the tribe. And Hannah, which is one of the mineral owners on this tract here.

Q. Okay. And with respect to -- except for the letter from Amoco, which is an intervention, and then the inquiry from Questar, did you receive any other notice of protest or inquiries about your application?

A. Just Burlington.

Q. Just Burlington. All right. I think that's all the questions on that exhibit. Let's look at your next exhibit, which is C, looks like the topographic map. And please describe what's shown on that exhibit.

A. That's exactly right. Exhibit C is a topographic map. Depicts the mesa quadrangle. This is in southwestern Colorado. The important features shown on this is there's an existing road that goes to both of the wells, with existing pipelines near it. There's another about 6500 foot of elevation, some relief, but generally semi-arid, with no one living within the area.

Q. Okay. I note those dotted lines; that's the road that goes along these wells?

A. Yes. The double-dotted line is one of several roads, existing roads, that are in the area.

Q. Okay. So needless to say, there will be little surface road impact?

A. That's correct. The existing wells, existing pads, existing facilities.

Q. Okay. I think that's concludes the land questions I have, and I see Director Griebling's been asked a question about why Meridian isn't -- the 8-2

well. Maybe you can address that for us.

A. Let me step back up here. The 8-2 well. This is the orientation of the 320-acre spacing drilling unit, which is north south lay-down 320-acre spacing units. The 8-2 well is Pinon, operated by Red Willow, but Meridian has not signed an operating agreement for this well. They are not participating in the revenues, nor the costs of this well, so they are not participating in this well.

Q. Was there a communitization agreement?

A. There's not a communitization agreement bringing Meridian into this well, yet.

MR. WOZNIAK: That's all of the land questions I have. I would request, just to make this a little simpler, even though I would like to have Mr. Logan be able to testify on the engineering, that we take any cross that he's got, then we can call him back for engineering, because I might want to put our geologist on in the middle, just for flow. It's easier, if that's okay.

CHAIRMAN HEINLE: That's fine, at this point.

MR. WOZNIAK: That would be fine.

CHAIRMAN HEINLE: Mr. Ekberg, do you have any questions of the witnesses?

MR. EKBERG: Just one question on Exhibit A.

BY MR. EKBERG:

Q. Mr. Logan.

A. Yes.

Q. You have drawn and outlined in there in dotted lines in the northwest corner. You said that was a permitted location. Is that presently a permitted drilling widow?

A. That's a drilling widow, based upon the 116, I think, the orders of a conventionally located Fruitland coal-gas well.

Q. Right now that is not a permitted window?

A. Right.

MR. EKBERG: No further questions.

CHAIRMAN HEINLE: Any questions from the commissioners?

COMMISSIONER MATHESON: I am just curious whether the Emerald interests extend into Section 4, or Burlington, Red Willow extend into Section 9?

THE WITNESS: Excuse me? Where do they --

COMMISSIONER MATHESON: Do the Emerald

interests extend into Section 4?

THE WITNESS: Yes, they do.

COMMISSIONER MATHESON: Also in Section 9, whether Red Willow and Meridian are in those sections?

THE WITNESS: The Emerald acreage extends a little sliver on this side, this 80 acres, right here.

MR. WOZNIAK: For the record, Mr. Logan could you identify where that is?

THE WITNESS: It would be the east half of the east half of Section 4. Right? This strip here. Excuse me. West. Yeah. Correct me when I do those things. West half.

MR. WOZNIAK: West half, west half.

THE WITNESS: 80 acres right here and section -- where else were you looking?

COMMISSIONER MATHESON: 9.

THE WITNESS: I do not know.

COMMISSIONER MATHESON: All right.

THE WITNESS: I don't know. I do not know what the acreage position is, apparently, because it was so far out of the area that we were looking at. Well, not so far. It was outside of the area.

CHAIRMAN HEINLE: Any other questions

from the commissioners? Mr. Wozniak, do you have any redirect?

EXAMINATION

BY MR. WOZNIAK:

Q. The only follow-up, since someone would argue that the well's moving closer towards the Emerald acreage. Has Emerald protested this application?

A. Emerald has not.

Q. All interested parties were given notice under your direction and control?

A. Yes. We notified all the cornering and contiguous owners.

MR. WOZNIAK: That's all of the questions we have on the land area.

CHAIRMAN HEINLE: Okay. Thank you. Call your next witness.

MR. WOZNIAK: Mr. Matthews, please.

EXAMINATION

BY MR. WOZNIAK:

Q. Mr. Matthews, state your full name and your business address for the record, please.

A. Curtis B. Matthews, business address, 350 Pearl Street, Bayfield, Colorado 81122.

Q. What is your occupation?

A. I'm a consulting geologist with M&M Geological Consultants.

Q. Would you describe your education for the commission, please.

A. Yes. I have a bachelor of science from Georgia Southern College, now Georgia Southern University, 1974, with a major in geology. I have a master of science in geological engineering from South Dakota School of Mines and Technology, geologic engineering, 1979.

Q. Okay. Are you a member of any professional societies?

A. Yes. I'm a member of the American Association of Petroleum Geologists, and also, the Four Corners Geologic Society.

Q. Okay. And briefly describe your education, I am sorry, work experience, please.

A. Okay. I have almost 17 1/2 years of experience as a petroleum geologist. I have almost eight years experience with Penzoil Exploration Production in Houston, Texas. Last 9 1/2 years, I have been a consultant geologist in Durango and Bayfield, Colorado.

Q. Okay. And you're familiar with the coalbed methane formation, Fruitland coal formation,

San Juan Basin production?

A. That's correct.

Q. All right. And have you prepared a resume and curriculum that's attached in the back of the booklet?

A. Yes, I have.

Q. All right. And are the matters set forth on there accurate, to your knowledge?

A. Yes.

Q. At this point in time, Mr. Chairman, I would request Mr. Matthews credentials as a geologist be recognized?

CHAIRMAN HEINLE: As expert?

MR. WOZNIAK: As an expert geologist.

CHAIRMAN HEINLE: Any questions of the commissioners?

COMMISSIONER MacMILLAN: Mr. Matthews, would you explain what certification by AAPG means?

THE WITNESS: Okay. No testing is involved with AAPG. You have to go through all of your peers. Your name is put out, and to go through, get so many references, active or certified members. And people have a chance to dispute anything on your application. You have to also get some people that -- outside of the industry, to vouch for you, basically,

ethics.

COMMISSIONER MacMILLAN: Doesn't AAPG also review and certify your educational experience?

THE WITNESS: Yes. They do.

COMMISSIONER MacMILLAN: The classes that you have taken are along very rigorous lines of geologic education?

THE WITNESS: That's true.

COMMISSIONER MacMILLAN: That are internationally recognized?

THE WITNESS: That's true.

COMMISSIONER MacMILLAN: And, so, AAPG certification may, in fact, then be the most significant part of your CV here; that the largest professional petroleum geologist organization in the world has certified that you have, in fact, experienced this educational practice, and in addition to that, your ethical practice, as presented in front of this large organization, has never discerned any problems that anyone has experienced with your practice as a geologist since the time that you have been practicing?

THE WITNESS: That's true.

MR. WOZNIAK: And I want to tell you I am dutifully impressed.

CHAIRMAN HEINLE: Almost sounds like an advertisement for AAPG.

THE WITNESS: It's about a 30, 31,000 member organization.

CHAIRMAN HEINLE: Are there any other questions? His credentials are accepted.

MR. WOZNIAK: Thank you.

BY MR. WOZNIAK:

Q. All right. Are you familiar with the application that's before the commission today on the 2-5 well?

A. Yes, I am.

Q. All right. Would you please basically describe the general geographic area, referring to Exhibit D in the exhibit package, to identify where the location is.

A. Yes, sir. Exhibit D is a map from the Texas Bureau of Economic Geology. It shows -- it's a coal rank map. Shows the bituminous coal. Shows the leases in the well in question, in the area of the well. It is situated in the northwest portion of the San Juan Basin.

Q. Okay. And just looking at this, basically, this is just north of the Colorado/New Mexico line; is that correct?

A. That's correct.

Q. All right. And I know the commission has been talking, the last day and a half, about the gas seep area in the Bayfield and Pine River area. I know that's not shown on here, but, roughly where would that be located?

A. If you go east of Durango, the top of the map, it has some values there. It's -- the Pine River is just to the right of that .078, very north portion of the map.

Q. So, approximately how far, in distance, would that be from the Cedar Ridge application area?

A. That's approximately 15, 20, 30 miles.

Q. All right.

A. Air miles.

Q. I know you didn't prepare this map. This is from the Texas Bureau of Economic Geology, but, to your knowledge, is this correct and in what it shows?

A. Yes, sir.

Q. All right. I would like to direct your attention to the next exhibit, which is Exhibit E, which is a structure map. Please, can you identify this exhibit?

A. Yes. Exhibit E, did you say what it is?

Q. Yes.

A. Okay. Exhibit E is a structure map on top of the Pictured Cliff sandstone, which is also essentially the base of the Fruitland formation. The outcrop is shown on the western side here. This map shows the structure in this area is striking north to northeast, and the dip is to the east-southeast. From the outcrop down, for about a mile and a half into the basin, the dip is approximately 14 degrees. At that point, the dip flattens out a little bit to about 9 degrees for that half mile. And then, at that point, the dip flattens to about a degree and a half. That's what's referred to as the hinge line, okay.

Q. And I see that the 2-5 well is marked on the exhibit in Section 5. Right next to it is the 4,276 feet. What does that represent?

A. All of the numbers next to the wells are actual structural tops in these wells.

Q. Okay. And you have mentioned that the outcrop was shown on the left side of map. What is the outcrop?

A. Okay. That's where the geologic formation appears at the surface of the earth, or it crops out.

Q. And so that would be the -- where the

Pictured Cliff Fruitland reaches the surface; is that correct?

A. That's correct.

Q. All right.

A. This also shows that these leases occur in the -- within the Hogback monocline also.

Q. Okay. And I see this is again taken from published data. Could you comment on that, whether you have updated and reviewed this yourself for accuracy?

A. I had -- did not do this map in the book. I have updated this map, since this is a 1993 map. But, this map was used for -- because of space, size and fit of the book. Mine is large scale.

Q. Is the map accurate?

A. Yes, it is. I did -- of course there's a few additional wells here. Contour lines are essentially the same. I moved them a little bit, but this map is -- reflects the structure.

Q. Okay. This indicates on the map itself it's interpreted by J. Close. Do you know who that is?

A. Yes.

Q. Who is Mr. Close?

A. Mr. Close is a geologist with Burlington

Resources.

Q. Okay. You have no reason to doubt the accuracy of this map?

A. No.

Q. Okay. If I can direct your attention to your next depth map, which is Exhibit F. Can you tell us what's depicted on that exhibit?

A. Yes. Exhibit F is a map showing the depth from the surface to the top of the intermediate Fruitland coal zone. In the 2-5 well in question here, the depth from the surface down to the top of the intermediate coal is 1797 feet.

Q. Okay. When you get down to the 1-7, which is the second application, what's the depth on that? I can't read it on here.

A. It's 1464 feet at the 1-7 well.

Q. Okay. So this is to the top of the intermediate; is that correct?

A. That's correct.

Q. All right. And, again, this map appears to be taken from published data that you -- from the GRI Institute; is that correct?

A. That's correct. It's another J. Close map.

Q. Okay. And you verified this for

accuracy, based on your data?

A. Yes.

Q. Okay. All right. And then I assume you prepared some stratigraphic cross sections for the purposes of today's hearing.

A. That's correct.

Q. All right. Can we have those, Terry. It's sort of hard to see these in your packet. The first exhibit is Exhibit G, which is an index of the -- of these cross section. The first, if you could take us through that, and then we'll move on to the actual cross section.

A. Okay. These cross sections are stratigraphic cross sections. The two involved with this well are the D-D' and G-G' cross sections. First one is D-D'. It is a northeast to southwest cross section. The northeast well is the Emerald 32-1. The next well is the 2-5 well, the well in question, and the southwestern well is the Cedar Ridge 6-5. This first cross section is a strike cross section. The G-G' well cross section is essentially a dip cross section. And it runs from the west, Cedar Ridge 3-6 through the 2-5 to the Cedar Ridge 5-5.

Q. Okay. So, that's the index itself of the two stratigraphic cross section. Can you now take

us through the cross sections themselves and tell us what is shown on the cross sections, starting with Exhibit H first, which is the D-D'.

A. Okay. Exhibit H is the D-D' cross section, northeast to southwest. That's the strike cross section of the down structural strike. This shows the Fruitland coal zone. This is a stratigraphic section, hung -- the datum is hung on the Torstein, right over the basal coal, so altered volcanic ash. Very good marker beds. And that's the datum on these cross sections.

This shows the upper Fruitland, the intermediate Fruitland and basal Fruitland coals. The upper Fruitland coals are very thin stringers. They are possibly continuous, and some of them are discontinous. These little dark lines with question marks show that they might or might not be laterally continuous, these very small stringers.

The two coals of importance here are the intermediate and basal coals. This cross section shows these two very well. Shows that the thicknesses are approximately the same. They are laterally continuous. They have good lateral continuity between these three wells, along the strike. At the very bottom of the formation, there's some very small

stringers that might or might not be laterally continuous, but the main coals in question are laterally continuous.

Q. So, Cedar Ridge proposes to complete this in both the intermediate and the basal coal; is that correct?

A. Yes.

Q. If I understood your testimony, both those coal seams are laterally continuous in this area?

A. Correct.

Q. The little question marks are merely just evidencing the stringers that may are may not be continuous between the three wells?

A. That's correct.

Q. Okay. All right. If you can then direct your attention to Exhibit I, and explain to the commission what's shown on that exhibit?

A. Okay. This is essentially a dip cross section, from the west to east. From the Cedar Ridge 3-6, Southern Ute 2-5 to the Cedar Ridge 5-5 wells. This also shows very small stringers in the upper Fruitland zone, which might or might not be laterally continuous. The two coals of importance here are the intermediate and basal. Also show the same

thicknesses, and it shows that they are laterally continuous. There's good lateral continuity in these wells in the dip direction also. And these -- the black on here is the coal or the coals.

Q. All right. Those two wells appear -- or the three wells appear to be approximately 2500 feet and 2100 feet apart, and the northeast to southwest, they are a little bit farther at least on the -- between the Valencia Canyon Well; is that correct?

A. That's correct. Basically what these three show is that in a strike and dip direction, that the basal and intermediate coals are continuous.

Q. Okay. Thank you. Okay. All right. Then, going back to your exhibit book, the next map is listed as Exhibit J, which appears to be an isopach map. Can you please describe what's shown on this exhibit?

A. Okay. Exhibit J in the book there is a net isopach or thickness map on the intermediate Fruitland coal. In the 2-5 well, the thickness of the intermediate coal is 38 feet. It's also 38 feet in the 32-1 and -- I lost my spot here. 35 feet in the 6-5 well.

Q. Okay.

A. On the D-D' cross section, even though

this map looks kind of extreme, these are 1-foot contour intervals. And so, actually, if these were 5-foot contour intervals, there would only be about 2 lines on this map, so --

Q. All right. So a fairly uniform --

A. Yes.

Q. -- formation.

A. Yes.

Q. And, again, this is from published information at the GRI; is that correct?

A. That's correct.

Q. You verified this on your own?

A. Yes.

Q. All right. Let's look at your Exhibit K, which is the basal isopach map.

A. Okay. This is a thickness map on the basal Fruitland coal. It shows the same thing. The coal is essentially the same thickness. It varies a little bit. Foot or two, but this is also a 1-foot contour interval. And, in the 2-5 well, the basal coal is 25 feet thick.

Q. Okay. Now, it looks like when you get down to the 1-7, it's fairly uniform still?

A. Yes. It's 27 feet thick in the 1-7.

Q. All right. All right. Now, based upon

your cross section and the study you have done, and review of the published data, I take it you have an opinion, on a professional basis, as to whether the coals in Section 5 are continuous?

A. That's correct.

Q. Okay. What is your opinion?

A. That the intermediate and the basal coals in this area are laterally continuous.

Q. When you were doing your reviews, did you notice any evidence of major faults in the area?

A. No I didn't. There is a little bit -- you can see, on these cross sections, a very small amount of thickening and thinning between the wells here and there. That could be interpreted as faulting, but it is really -- it looks like it's stratigraphic in nature. Most of the thickening zones that thicken a little bit are due to sand build-ups and not faulting. There are no major faults.

Q. Did you notice any geologic anomalies or any other unusual things in this area?

A. No. There appear to be no geologic anomalies in this area. There's a major structural feature, which is the Hogback monocline. That's all.

Q. All right. Were these exhibits, along with the published data that you have talked about,

with the remaining exhibits, were they all prepared under your direction and control?

A. That's correct, except for the J. Close maps.

MR. WOZNIAK: That's all the geologic questions that we have for Mr. Matthews.

CHAIRMAN HEINLE: Mr. Ekberg. Do you have any questions of the witness, Mr. Ekberg?

MR. EKBERG: No, sir, we do not.

CHAIRMAN HEINLE: Any questions from the commissioners?

COMMISSIONER MacMILLAN: Can you tell me what zones are perforated in the wells on the cross sections and how these wells are completed?

THE WITNESS: That's one for Terry.

MR. LOGAN: Could I address that question since I --

COMMISSIONER MacMILLAN: You are going to do it later?

MR. LOGAN: I can address it right now.

COMMISSIONER MacMILLAN: As long as the cross sections were here. Oftentimes it's common to put those perforated intervals on the cross sections.

MR. LOGAN: Some of these are not perforated. They are open hole cavity completed on

the D-D' cross section. The Valencia Canyon 32-1 has two type of completions in it. There's an open hole cavity completion in basal coal, and a perforated hydraulic fracture stimulation in the intermediate coal. Of course, the 2-5, there's nothing there.

COMMISSIONER MacMILLAN: Yeah.

MR. LOGAN: That's why it's -- the 6-5 is both hydraulically fracture stimulated and perforated in the basal and the intermediate coal.. The Cedar Ridge 5-5 well, both of these are open hole cavity completed, but casing set above it. Same situation at 2-5. Nothing there yet. The 3-6, perforated and fractured stimulated in both -- the combination of both, perforation, it's primarily just the intermediate, and the basal are perforated. Where there's perforations, there's open hole cavity. Typically everything is open.

COMMISSIONER MacMILLAN: The zones that are hydraulically fractured, do you know what the size of the fractures are?

MR. LOGAN: Yeah. What they did, these were operated by Amax or Lab Petroleum, which completed the 3-6, roughly 100,000 pounds of sand with varying volumes of water. I think this one is about 120,000 gallons per zone, about 100,000 pounds of

sand. It's electrical fracture stimulation size.

COMMISSIONER MacMILLAN: The same would be true, then, for the other zones that are hydraulically fractured?

MR. LOGAN: That's a standard completion technique. Could vary a few thousand gallons or pounds either way. That's the standard technique.

COMMISSIONER MacMILLAN: Are there quantification methods for the open hole cavitation?

MR. LOGAN: Which is better?

COMMISSIONER MacMILLAN: Say again?

MR. LOGAN: Do you mean which is better?

COMMISSIONER MacMILLAN: No. I meant as far as how that method is done and how one might determine how large the cavity may be, either by time of circulation --

MR. LOGAN: Yes. There's several things. One, this may sound like a little bit of an advertisement, but GRI has reports on one of the wells, 5-7, which is not on these cross sections, but it's a nearby well, which goes through the specific procedure. It's publicly available data from the Gas Research Institute that goes through the procedure, plus the measured cavity size. There's also another publication from GRI that goes through the procedure

on doing open hole cavity completions, so, yes, there are ways -- typically, the cavity size is about 10 feet in diameter. It's almost physically impossible to make it larger than that. So, everything that we have, that has been published by the Gas Research Institute, ranges from about anywhere from 2 foot diameter up to 10 to 12 foot diameter. 12 foot is the largest they have ever seen.

COMMISSIONER MacMILLAN: In your estimation, the completion -- the open hole cavitation completion technique in the 5-7 is similar to the other wells that had open hole cavitation completion, for example, the 5-5 for both of those zones, and the other ones that you have mentioned?

MR. LOGAN: Yeah. The procedure was identical, yes. The completion procedure for open hole cavity completion was identical.

COMMISSIONER MacMILLAN: Good. Thank you.

MR. LOGAN: Okay.

CHAIRMAN HEINLE: Any other questions from the commissioners?

COMMISSIONER MATHESON: Note for the record. This is the third nomenclature for Fruitland coals that we have seen in one day. Sounds like the

stratigraphers got a little work to do. That's all.

CHAIRMAN HEINLE: Any other questions? Any redirect, Mr. Wozniak?

MR. WOZNIAK: No, sir.

CHAIRMAN HEINLE: One of the commissioners needs to make a phone call. Why don't we take a five-minute break.

(Recess.)

CHAIRMAN HEINLE: Let's get back on the record.

MR. WOZNIAK: You want to give Mr. Matthews one more question from Commissioner MacMillan.

COMMISSIONER MacMILLAN: In Exhibit J, which is the thickness of the intermediate Fruitland coal zone, can you tell me what the value is of the well immediately to -- the well located in the northeast quarter of Section 6?

MR. MATTHEWS: Okay. I think that is.

MR. WOZNIAK: That's the 3-

MR. MATTHEWS: I think that is 28 feet. I believe it was. Yes, it doesn't -- I think that was the one that doesn't have a value. I think it's 28 feet.

COMMISSIONER MacMILLAN: Are you sure?

In other words, are those contour lines going up or down?

MR. MATTHEWS: I think they are going down. I did not look to see that -- did not see that well -- have that well to check on that map. There's reentrant right there, you can see down in the northeast quarter of Section 8. 32 feet.

COMMISSIONER MacMILLAN: Yes.

THE WITNESS: There's reentrant right through there. It would be 28 feet.

COMMISSIONER MacMILLAN: Well, if it's not -- if it is 28 feet, it's not contoured properly, is it? And then I guess it brings up the question of the value of the well in that southwest of Section 5, which would be the 5 --

MR. LOGAN: 6-5. That's the 6-5. Southwest corner. It's kind of hard to see those numbers.

CHAIRMAN HEINLE: Can't have two conversations going on at once here. Tough to get it on the record. Commissioner MacMillan, did you get your question answered?

COMMISSIONER MacMILLAN: No. I am requesting -- asking for the value located in the southwest, now, of Section 5.

MR. MATTHEWS: That is 35 feet in the 6-5.

COMMISSIONER MacMILLAN: It is. That contour is correct?

MR. MATTHEWS: Yeah.

COMMISSIONER MacMILLAN: Thank you.

CHAIRMAN HEINLE: All right.

MR. WOZNIAK: We would like to go a little bit out of order and call Mr. Baughman with the tribe, because he has to leave tonight, and I would state that he is probably going to have exactly the same testimony in this case as he is in the 1-7. I would sort of like -- and I have asked Mr. Ekberg, and he doesn't seem to have an objection -- that he talks about both of them together, because his issue is a little bit different than specific to either well.

CHAIRMAN HEINLE: Okay.

EXAMINATION

BY MR. WOZNIAK:

Q. Mr. Baughman, would you state your full name and business address for the record.

A. My name is Dick Baughman. It's spelled, B-a-u-g-h-m-a-n, and my address is Post Office Box 737, Energy Resources Division, Ignacio Colorado, 81137.

Q. By whom are you employed?

A. The Energy Resources Division of the Southern Ute Indian Tribe.

Q. In what capacity are you employed?

A. I am a petroleum geologist.

Q. Okay. How long have you been a petroleum geologist?

A. 13 years. I have worked for Exxon Company, U.S.A., as a private consultant and for the tribe.

Q. All right. And are you familiar with the coalbed methane development in La Plata County, Colorado?

A. Yes, I am.

Q. And, okay. And did you prepare a resume/curriculum vitae that's at the back of the exhibit package?

A. Yes.

Q. Are the matters set forth in there accurate?

A. Yes, they are.

Q. Briefly describe your education for us.

A. I have a bachelor of science in geology from Arizona State University, and a master's of science in geology from Northern Arizona University.

Q. Okay. I was checking your resume for a couple of things I need to check. I would request that Mr. Baughman's credentials as petroleum -- expert petroleum geologist be recognized.

CHAIRMAN HEINLE: Any questions from the commissioners? So accepted.

BY MR. WOZNIAK:

Q. All right. Have you studied the Western Hogback region on the Southern Ute Tribe reservation?

A. Yes, I have.

Q. And for what purpose?

A. We first started looking at it in 1992 for purposes of the gas seep and possibility of it.

Q. Okay. And did you prepare an exhibit that's in the packet that is in a map, that describes some of your studies?

A. Yes, I did. I believe it's at the end of the --

Q. It should be Exhibit 2, which is at the end of the book. If I can direct your attention to that and ask if you can maybe put it up on the board and you can describe what's shown on this exhibit.

A. This is a map of Fruitland coalbed methane development in the southwest part of the Ignacio-Blanco Field. The red dots depict well

locations of Fruitland coalbed methane wells. The colored stripes along the edge depict the outcrop -- the Fruitland coal outcrop. These are zones where any particular coal seam would occur as mapped by the U.S.G.S. in 1987. The magenta stripes you see along the outcrop in three different places represent places where we have gas seeps. The big blue triangles with the red dots in them represent Fruitland coal bed methane wells that were converted to observation wells, and the small triangles along the outcrop, with the circles inside of them, represent locations where there are soil vapor tube locations, and there's approximately 130 of those.

Q. That's the existing monitoring system right now?

A. Yes, it is.

Q. Okay. And who operates the monitor system?

A. The operators take readings from the observation wells. The Bureau of Land Management takes readings from soil vapor tube locations. And I am out there about once a week and also look at springs levels, both here at Soda Springs and at Houston Well and at springs along the road here in Valencia Canyon itself. The operators also watch

those same areas.

Q. Okay. And in addition to the pressure observation wells and monitoring vapor tubes that you mentioned, are there any other portions of your monitoring system?

A. We have a gas collection system right here, installed by Emerald Gas Company, which basically is a blanket collector over places where we have had lots of seepage. And gas that comes up, gets trapped underneath that blanket collector, and is then piped through a meter. We have three temperature detectors in this area. One of them in the third coal seam from the bottom. One as a sort of a blanket over here, is in the same kind of area, buried about the same depth, and one hanging in the tree right here.

Q. Did you take any daily surveys of any of these areas?

A. Cedar Ridge personnel look at the springs here at Soda Springs on a daily basis. Emerald personnel look at the springs along Valencia Canyon on a daily basis. And, periodically, I look at this Houston well, which is a hand-dug water well.

Q. So, this is a cooperative effort between the industry and tribe and the BLM with respect to monitoring the gas seep?

A. And -- industry, Bureau of Land Management and the tribe, yes.

Q. All right. And I also noticed, when you look at your map in Section 6, there are -- there appears to be a monitor well which is roughly between the proposed 2-5 well and the outcrop; is that right?

A. Yes. This is the first recompleted Fruitland well that's been converted to a observation well and it's functioning that way now and taking continuous readings, as I understand it.

Q. Okay. And then there appears to be another one, down close to the 1-7 well, which is the 5-13; is that right?

A. Yes. There's also an observation well, 5-13.

Q. All right. Well, based upon all your studies Mr. Baughman, do you have a professional opinion as to the effect of these recompletions on gas seeps?

A. I don't believe that the recompletion will have any effect on it at all.

Q. Okay. And what's your thinking along -- to come to that conclusion?

A. Two reasons. That the pressure here in the 4-6 is very steady, and there is production

between the proposed recompletion, which is the Cedar Ridge Southern Ute 3-6, between the proposed recompletion and the leak area.

Q. Okay. That's the case also in the 1-7 and 6-7 well?

A. Yes, it is.

Q. All right. Based upon your work for the tribe, the tribe doesn't have a concern at this point that this will cause any additional problems with gas seeps?

A. I don't think it will cause any problems, and if it does, we will detect it on the two observation wells and in our monitoring in this area right here. There's a spring right here that's still flowing artesian right here. That's what Cedar Ridge looks at and it's, to this date, flowing artesian.

Q. Okay. And did you prepare this exhibit?

A. Yes, I did.

Q. Okay. On behalf of the tribe, in essence, right?

A. Yes, sir.

Q. All right. That's all of the questions we have for Mr. Baughman. One last -- I am sorry. Your testimony would be the same with the 1-7 well as it is with the 2-5?

A. Yes, it would be.

CHAIRMAN HEINLE: Mr. Ekberg.

MR. EKBERG: Just two questions.

BY MR. EKBERG:

Q. What is the bottom hole pressure in the 4-6 well, the one that was recompleted for an --

A. I really don't know, but I think they are -- Terry Logan can answer that.

MR. LOGAN: I don't have the exact pressure with me, but it is normally pressured, with gradient of .434 psi per foot -- it's 259 psi is what it is. The 259 psi at whatever the gradient works out to. It's about 509 feet deep, if I remember right, where that pressure gauge is.

MR. EKBERG: We have no additional questions that relate to the gas seep. May be other questions that relate to pressure later on.

CHAIRMAN HEINLE: Any questions of the commissioners?

COMMISSIONER MATHESON: Mr. Baughman, on the Cedar Ridge 3-6, 4-6 and 6-7, I guess those are the intervention wells between the subject wells here and outcrop. Water production, historical, current, how does it look?

THE WITNESS: I don't have the numbers

right at the top of my head. I can tell you that water production in these four wells right here.

MR. WOZNIAK: Can you identify those for the reporter?

THE WITNESS: The Emerald Valencia Canyon Southern Ute 17-1. The Emerald Canyon Southern Ute 20-4. Fuelco 44 Canyon 21-1, and the Fuelco Southern Ute 16-2. The production in those wells is much greater than I believe any of these wells. There's also fairly high production down in here, and in these three wells right in here.

COMMISSIONER MATHESON: And so north and south, you have a feel for water production. Really not very well in the application area.

THE WITNESS: I have made maps of water production. I don't know the numbers off the top of my head.

COMMISSIONER MATHESON: I guess what I am trying to get at, I mean, we have seen large water production in this area in the past. Are we still seeing it, with these new wells, are we anticipating lots of water production? Trying to get some feel along those lines. Maybe Mr. Logan can help us with that too.

MR. WOZNIAK: We're going to have a --

there's an exhibit in there, Commissioner Matheson, that deals with actual water production from every well pretty much on that map. That when Mr. Logan goes through some more engineering, we'll give you every -- more data than you are going to want.

COMMISSIONER MATHESON: I am sure it will be too. Okay. That's good enough now.

CHAIRMAN HEINLE: Any other questions from the commissioners of this witness? Any redirect?

MR. WOZNIAK: No.

CHAIRMAN HEINLE: I guess we have another question. Commissioner Matheson.

COMMISSIONER MATHESON: The Valencia Canyon seeps, it is a similar problem to Pine River Ranches and elsewhere along the outcrop, and I know that the tribe has been working actively with the operators in the area to figure out what's going on. Have you folks made any determination at this point as to cause?

MR. WOZNIAK: As to this area or the --

COMMISSIONER MATHESON: This area.

MR. WOZNIAK: This area.

THE WITNESS: It's my opinion these seeps were caused by downdip dewatering. There's very clear correlation between the time that dewatering

started and the advent of leaks.

COMMISSIONER MATHESON: How is it, then, infill drilling and continued -- increased water production is not going to be a concern for future seepage here?

THE WITNESS: Well, I think there's a barrier out there, except in a few locations. I believe there's at least one barrier that exists, paralleling to the outcrop here, and I believe that barrier is pierced right here at Valencia Canyon.

MR. WOZNIAK: That's in section --

THE WITNESS: In Section 17 of Township 33 North, 11 West. I could go over the reasons why I think that barrier is there. I can't absolutely prove it.

COMMISSIONER BLACKWELL: Could you outline that barrier again, please.

THE WITNESS: It parallels the Hogback, approximately half a mile from the Hogback.

COMMISSIONER BLACKWELL: All of the way.

THE WITNESS: I don't know about down here, to tell you the truth. But I believe it's in this area right in here, between Section 31 and Section 16 of 3 North, 11 West.

COMMISSIONER MATHESON: What would be

the nature of that barrier? Do you have a feeling yet?

THE WITNESS: I believe it's a fault. There's a couple of reasons that -- this area used to be overpressured, before it -- dewatering and development occurred. And it was overpressured, and yet it didn't leak out the Hogback, so something was holding it in there. That's the first good reason.

Secondly, I have looked at water chemistry and changes in water chemistry at the wells, measured the water, and I can see a difference between here and here. The well on this side of the so-called barrier cleaned up. The total dissolved solids, with time, decreased. On this side of the barrier, they actually increased. And when you look at a total dissolved solid map of the basin in this area, these wells are quite high, up to 11, 12, 13,000 PPM. These wells over here are relatively low. They started low and then they went lower, indicating that the source of water for these wells out here was this area, and the source of water over here was the Hogback itself. In 1992, we started looking at the Hogback for gas seepage because we thought this problem might occur. We didn't know whether it would or not. We found a few places with methane, and a few places with a small

amount of hydrogen sulfides, but nothing of any significance. Approximately two years after production started, in this area here --

MR. WOZNIAK: In which area is that?

THE WITNESS: In the Valencia Canyon Gap area, 33 North, 11 West, actually in April of 1995, we found gas venting out of Valencia Canyon Gap so forcefully that it would flow -- if you punched a hole in the soil, it would flow a geyser up that high of gas, and that definitely was not there before. So, we see a direct correlation between the timing of downdip dewatering and the advent of these leaks.

At the time, in April of 1995, we did not have leaks here, and we didn't have any leaks here, and we only had two seeps that were leaking here. By September of that same year, all of these leaks had occurred. And above those leaks, above the coal, we have a Pinon Juniper forest that mostly died where we had the leaks. And some of those Juniper trees are 3 to 500 years old. So, they died, virtually, overnight, and in a few months. And then the leaks seems to have reached a equilibrium. And I am not sure how to explain that yet. But it did -- the strips here don't seem to have stopped, or they seem to have stopped growing.

With the BLM, we put these soil vapor tubes on the ends of these strips, and then in some cases, we went a little past it to see if it was growing and it didn't appear to be growing. We also had reservoir modeling out here that indicates that the downdip dewatering here should cause a serious amount of leakage out here that we're not seeing.

COMMISSIONER MATHESON: So, this barrier would be between basically the existing monitor wells, let's call them, and then the active production wells?

THE WITNESS: Yes.

COMMISSIONER MATHESON: And, though, up by Valencia Canyon, you are thinking there's a penetration of that barrier that's accounting for those seeps, you said here, the southern two seeps. Is there a similar penetration of the barrier there? Do you think the seepage is related to the wells that you have shut in for monitoring?

THE WITNESS: Well, this monitoring well is rock solid. It doesn't move.

MR. WOZNIAK: That's this monitoring well.

THE WITNESS: The Cedar Ridge Southern Ute 4-6. I believe that the outcrop has been filled with water, primarily, not from out here, but -- from

the overpressurized region, but from recharge coming down along the Hogback. And that these wells right in here intercepted that water, and there's a fault going right through, the leak right here, and that this --

MR. WOZNIAK: Where is that fault? I am sorry.

THE WITNESS: That fault is in the far northwestern part of Section 6 of 32, 11, and by intercepting the water that was filling up the Hogback here, it caused that leak right here. And these wells here are very shallow. They were actually drilled originally as observation wells, and then they were put on production, and they are 3 to 400 feet deep, and I believe that these two wells directly caused these leaks. And that this group of wells right here caused this leak, and that these four wells right in here, right in Section 17 and Section 21 in 33 North, 11 West, caused this leak right here. And that's the other reason I didn't answer your question about the fault. If there were a permeable barrier caused by diagenic alteration of the rock, or something like that, it would be unlikely like we would see it in all four coal seams there, and that's why I think the barrier is a fault, and I am, at present, working on that. And, actually, I think maybe there's two

barriers in here, but I am still looking at that. I am looking at Landsat and radar images and the aerial photos, trying to identify that, because I see possibly a reason for two barriers in there.

COMMISSIONER MATHESON: Do you know -- when were these wells shut in for monitoring purposes?

THE WITNESS: At various times, and I don't know. I don't know the dates. All of them, as far as I know, except for the Cedar Ridge Southern Ute 4-6 has been shut in and converted in the last few months. We don't have a whole lot of data on this, except for the Southern Ute 4-6.

COMMISSIONER MATHESON: How long has the 4-6 -- how long has that been --

MR. LOGAN: It's been shut-in, oh, for a year, because we also have a flowing spring right here. We used to have a flowing spring here, and it doesn't flow anymore.

COMMISSIONER MATHESON: In light of everything else we dealt with, you're feeling comfortable with these? You have had a sufficient period of record to make these statements, I guess.

THE WITNESS: Yes.

COMMISSIONER MATHESON: Okay.

CHAIRMAN HEINLE: Commissioner

Blackwell.

COMMISSIONER BLACKWELL: I just want to clarify. Is it your testimony, then, that allowing the recompletion into the Fruitland in these two locations would not cause an increase in gas seepage along the Hogback, because of the existence of barriers between those locations?

THE WITNESS: I do not believe that the recompletions will have any effect on the seepage of the Hogback. And at this point, I believe there's a barrier there, but, at this point, I can't prove it.

MR. WOZNIAK: Is part of your answer also based upon the fact there are the two monitor wells that are in between there, and the fact there is production between the Hogback and the proposed recompletion?

THE WITNESS: Yes.

CHAIRMAN HEINLE: Commissioner Matheson.

COMMISSIONER MATHESON: One more for Mr. Baughman, as long as we're on environmental matters, I guess. Do you feel comfortable with the cementing within the existing well; that it is sufficient, after the recompletion, to prevent any near-region-to-the-well problems, because I haven't looked at the cement jobs.

CHAIRMAN HEINLE: That might be a question of, perhaps --

MR. WOZNIAK: Do that tomorrow.

CHAIRMAN HEINLE: I have that on my list too. Mr. Ekberg.

MR. EKBERG: There's been some additional testimony since I last had a chance to cross examine. I would like to ask a few questions.

EXAMINATION

BY MR. EKBERG:

Q. You have stated that you believe there is a barrier between the wells that are going to be recompleted and the outcrop.

A. Yes, I have.

Q. That you haven't completed your studies.

A. No.

Q. So, that is a postulate right now?

A. Yes, it is.

Q. It's not scientific conclusion?

A. It's not the interpretation at this point.

Q. Is it possible that a downdip infill could impact --

A. Sure.

Q. Okay. One other thing. One of the

things that you said about the barrier, it might be a fault.

A. Uh-hum. (Witness nodding in the affirmative.)

Q. Your geologist did not testify to the existence of any faults.

MR. WOZNIAK: Well, point of clarification. It's not his geologist. He represents the Southern Ute Tribe. That's who he's for. It's not his geologist.

MR. EKBERG: I would withdraw the question.

MR. CHIPPS: That was the nature of my objection as well.

MR. EKBERG: No more questions.

CHAIRMAN HEINLE: Any redirect?

BY MR. WOZNIAK:

Q. The only redirect I have, Mr. Baughman, has anything you have talked about today changed your conclusion that you don't have a concern, on the part of the tribe, as to the contribution of the gas seep based upon these infill wells?

A. No. I haven't heard anything today to support my changing my opinion.

MR. WOZNIAK: That's all of the

questions that we have.

CHAIRMAN HEINLE: Another question.

COMMISSIONER JOHNSON: I am not sure how to ask it, but some of the things I have been hearing -- you believe there's any communication, either by water or otherwise, from the formations below the basal Fruitland into the Fruitland formations?

THE WITNESS: I have no such evidence -- I have never seen of an instance where I believe that was occurring.

COMMISSIONER JOHNSON: Thank you.

MR. WOZNIAK: Again, how many miles is this from the Pine River area?

THE WITNESS: It's at least 30 miles from the Pine River Gap area.

MR. GRIEBLING: Can I ask a question along this line? We were concerned about proximity of water production to these wells. And we have a map we're trying to find that you all generated showing water production in the area, which indicates that the nearby producers did not make a lot of water and that the two recompletion sites were not at locations that we could project would make a relatively high amount of water, whereas there were high water producers near

we'll do the best job we can, I guess, of answering it, but I guess it is of concern, because of the position that this witness has for the tribe and that perspective, and also his expertise and knowledge of gas production in the area, but also the water.

MR. WOZNIAK: It's very difficult for the applicant who -- we have no control over Mr. Baughman. He is here, graciously, and has given two days, and, unfortunately, it's one day short, and everybody hoped, including the commission, that we would be able to go first thing this morning, so we apologize for that. But it's hard when you are begging to ask people to stay an extra day, when they have commitments, so I apologize.

COMMISSIONER MacMILLAN: One question I guess, if I may, Mr. Chairman. One thing that I don't believe has been explained on this map is the color patterns of the outcrop.

THE WITNESS: Those are zones where any particular coal seam will occur, as mapped by the U.S.G.S, and they didn't give us the exact locations. We're in the process of doing that right now. We have mapped the area around Valencia Canyon Gap there, mile on each side of it, in detail, and we're in the process of mapping the rest of it.

BY MR. WOZNIAK:

Q. How many years do you expect to keep studying this? The tribe is going to be involved. This isn't going to end next week?

A. No, it's not. I have been studying, basically, I have been paying attention to it since 1992. I have been on the Pine River investigative team for -- been almost three years looking at it. And it's quite possible that the leakage, especially of Valencia Canyon Gap, could last much longer than Fruitland coalbed development, possibly several hundred years. We're in the process right now of maneuvering to drill a couple of slant holes into the coal at Valencia Canyon Gap to produce the gas and get it under control, trying to stop it in that area. We probably can't do that, but we can at least remove the safety hazard right there.

Q. Again, is anyone living in this area, Mr. Baughman?

A. No one has lived there for about 50 years. No one lives there. Just oil field personnel out there. And -- I take it back. Rancher once in a while. We're keeping him out of the Hogback itself.

Q. You didn't mean to point at Commissioner MacMillan? I want to make sure.

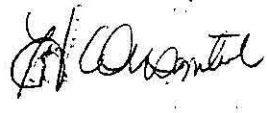
CERTIFICATE

STATE OF COLORADO) ss
CITY AND COUNTY OF DENVER)

I, Harriet S. Weisenthal, Certified Shorthand Reporter and Notary Public for the City and County of Denver, State of Colorado, do hereby certify that the foregoing proceedings were taken in shorthand by me at 1120 Lincoln Street, Denver, Colorado on the 4th day of September, 1996, and was reduced to computer-aided typewritten form under my supervision;

That the foregoing is a true transcript of the proceedings had; that I am neither attorney nor counsel, nor in any way connected with any attorney or counsel for any of the parties to said action or otherwise interested in the event;

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal this 13th day of September, 1996.
My Commission expires October 15, 1997.



Harriet S. Weisenthal