STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ORIGINAL

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

APPLICATION OF ENERGEN RESOURCES CORPORATION FOR CREATION OF THE CARRACAS CANYON PRODUCTION AREA FOR AN EXCEPTION TO THE WELL LOCATION PROVISIONS OF THE SPECIAL POOL RULES AND REGULATIONS FOR THE BASIN-FRUITLAND COAL GAS POOL, RIO ARRIBA COUNTY, NEW MEXICO

CASE NO. 14287

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID K. BROOKS, Legal Examiner
RICHARD EZEANYIM, Technical Examiner
TERRY G. WARNELL, Technical Examiner

March 19, 2009

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID K. BROOKS, Legal Examiner, RICHARD EZEANYIM, Technical Examiner, and TERRY G. WARNELL, Technical Examiner, on Thursday, March 19, 2009, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico.

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Examiner Hearing
CASE NO. 14287

A P P E A R A N C E S

FOR THE APPLICANT:

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MR. EZEANYIM: Let's go back on the record.

And at this point, we call Case No. 14287, Application of Energen Resources Corporation for Creation of the Carracas Canyon Production Area for an Exception of the Well Location Provisions of the Special Pool Rules and Regulations for the Basin-Fruitland Coal Gas Pool, Rio Arriba County, New Mexico.

Call for appearances, please.

MR. HALL: Mr. Examiner, Scott Hall, Montgomery & Andrews Law Firm, Santa Fe, appearing on behalf of Energen Resources Corporation. And we have three witnesses this morning.

MR. EZEANYIM: Any other appearances?

Okay. May the witnesses stand up, and state your names and be sworn, please.

[Witnesses sworn.]

MR. EZEANYIM: Mr. Hall?

DAVE POAGE

after having been first duly sworn under oath, was questioned and testified as follows:

DIRECT EXAMINATION

BY MR. HALL:

Q. For the record, please state your name.

A. My name is David Poage.

Q. Mr. Poage, where do you live, and by whom are you

employed?

A. I live in Farmington, New Mexico, and I'm employed by Energen Resources Corporation.

Q. And what do you for Energen?

A. I'm a district landman.

Q. And, Mr. Poage, you're familiar with the application that's been filed in this case?

A. Yes.

Q. And you're familiar with the Carracas Canyon Production Area?

A. Yes.

Q. And the Carracas Canyon Unit?

A. Uh-huh.

Q. You previously testified before the Division and the Commission, I believe, and had your qualifications as an expert petroleum landman accepted?

A. That's correct.

MR. HALL: At this point, Mr. Examiner, we offer again Mr. Poage as a qualified expert petroleum landman.

MR. EZEANYIM: Mr. Poage is so qualified.

Q. (By Mr. Hall): Mr. Poage, if you would, please, explain why Energen wants to establish the Carracas Canyon Production Area and what it seeks by way of an exception to the pool rules for the Basin-Fruitland Coal Gas Pool.

A. What we would like to do is create an area which

we -- they're calling the Carracas Canyon Production Area. It's an area in which we own 100 percent of all the leases. We're the only working interest owner and the only operator.

We would like to have the ability to treat our setback requirements -- under the present Fruitland Coal pool rules, we're required to have 660 setbacks from the spacing unit boundaries. We would like to treat this more like the pool rules allow a federal unit to be treated, in that you would have 660 setbacks for the outer boundaries of the unit and ten-foot setbacks within the interior boundaries of the unit.

Q. Okay. Is Exhibit 1 -- which is also on the screen -- is that the legal description for the Carracas Canyon Unit?

A. Yes, that covers the Carracas Canyon Unit, as well as what we are calling our production of Carracas Canyon production area.

Q. And this is the area that you would have as the production area?

A. That's correct.

Q. Would you give the Hearing Examiner some background on the Carracas Canyon Unit itself?

A. When the original Carracas Canyon Unit was formed in January of 1987, it included just a little over 30,000 acres. The production are we're reviewing right now is

almost encompasses that entire unit that was original.

There were several wells drilled between 1987 and January of 1999. In January of 1999, the unit agreement terms and provisions required the contraction of the unit boundaries. So to present, it was contracted back to 5600 acres at that time, so the present boundaries of the Carracas Canyon Unit are just 5600 acres at the present time.

Q. If we look to Exhibit 2 --

A. Uh-huh.

Q. -- what does Exhibit 2 show us?

A. The area in yellow and bordered by the red outline is upper Carracas Canyon production area. The little outlines in purple, the solid lines are the Carracas Canyon Unit boundaries itself, the actual unit.

The unit exists in 32/4. There's a piece of it over in here, and then there's a split piece right down in here in 32/5, and there's about a section-and-a-half up here in 32/5 as well.

Q. Now, is the production area coterminous with the original unit boundary?

A. It includes all of the -- it does. It's the original unit boundary with the exception of about two-and-a-half sections on the western boundary, which are presently unleased federal lands.

Q. Okay. Would you identify those for the Examiner?

A. These lands right in here.

Q. All right. Are those lands leasable over there?

A. Not at the present time. Section 7 and this S/2 of Section 32 are presently leasable, but the BLM does not have the Carson National Forest EIS completed. So once that gets completed, these will be available for leasing at that time; however, the area over in here that BLM has designated under their present RMP, that area will become a no-lease, no-drilling area.

Q. All right.

MR. EZEANYIM: Let's look at those no-lease, no-drilling areas. Which one is that?

THE WITNESS: It will be these sections just outside of the proposed boundaries.

MR. EZEANYIM: And you said those are no-drilling areas?

THE WITNESS: Yes. Under their present RMP, Resource Management Plan does not allow these leases to be issued or drilled on.

MR. EZEANYIM: Which sections are they?

THE WITNESS: They're just right in here, just outside the boundaries of our production.

MR. EZEANYIM: What are the other ones?

MR. WARNELL: That's the Colorado border just to the north of that.

THE WITNESS: This is the New Mexico/Colorado border right here.

MR. EZEANYIM: That's more unit there on top there. That's Unit 7?

THE WITNESS: The actual Carracas Canyon Unit itself is right in here and down in here.

MR. EZEANYIM: Okay.

THE WITNESS: And the remainder of the acreage that we've got colored in yellow that's outside those unit boundaries are just standard leases and spacing units.

MR. EZEANYIM: Okay. Just so that I understand what you're saying, the Carracas Canyon is -- use your pointer there.

THE WITNESS: This purple line here, that is the Carracas Canyon Unit. It's split in three pieces.

MR. EZEANYIM: Okay.

THE WITNESS: The bigger piece is here, and there's a small piece right here and another small piece right here.

MR. EZEANYIM: Okay.

THE WITNESS: And that's the way it was contracted. It was contracted back to the producing areas.

MR. EZEANYIM: Okay.

THE WITNESS: So it split the unit up in three little pieces.

MR. EZEANYIM: Why did you contract it?

THE WITNESS: Under the unit agreement, you're required to contract it over a certain period of time.

MR. EZEANYIM: Okay.

Q. (By Mr. Hall): So as Exhibit 2 shows us, it shows us the boundaries of the original unit, as well as the boundaries of the current participating areas within the unit?

A. That's correct.

Q. Okay. And the un-leasable areas outside of the unit are not the subject of our application here today?

A. That's correct.

Q. Looking again at Exhibit 2, explain to the Hearing Examiner the ownership situation as shown in yellow.

A. Everything in yellow, the working interest ownership, is Energen Resources 100 percent. We have no partners. There are no other operators within the area.

Q. And the focus of our application today, Mr. Poage, we're looking solely at the Fruitland Coal Formation?

A. That's correct.

Q. Now, within the unit, is there a combination of federal and fee acreage?

A. Yes. There's -- about 95 percent of the whole area is BLM leases. It's federal acreage. And probably 5 percent or less is fee acres. The fee acres exist up here in Section 8, Section 9, Section 10, and then just small parts of

14 and 15. The rest of it's all federal.

Q. Even with the contractions, does 100 percent ownership and 100 operational control allow Energen to operate the entire unit area effectively as a unit?

A. That's correct.

Q. And do unit-type operations allow for the more efficient placement of surface facilities?

A. Yes, that's true.

Q. Okay. Let's talk about the current pool rules that are applicable to the Fruitland Coal Gas Pool. If we turn to Exhibit 3, is that an excerpt from Order No. R-8768?

A. Yes, it is. And Rule 7 outlines the 660 setbacks that are required both for the boundaries of the spacing unit and then for purposes of a federal unit. You have 660 setbacks on the outer boundaries of the unit boundaries, as well as the outer boundaries of the participating area boundaries.

And the reason that that was input at that time is the differing ownership that exists within a participating area as opposed to acreage within the unit but outside the participating area. In the case we have here, we have similar common ownership throughout the entire project area.

Q. All right. And we've highlighted on Exhibit 3 Rule 7 for the pool rules, and if we focus on Rule 782, does that explain how areas within federal exploratory units are not subject to the 660-foot setback requirement?

A. That's correct.

Q. And that's what we're asking the Hearing Examiner to focus on?

A. Yes.

Q. Our proposal is that we remain consistent with those setbacks and flexibility?

A. We want our -- our proposal is that we be allowed to treat this as a federal exploratory unit as far as the setbacks are concerned, such that we will have 660-foot setbacks on the outer boundaries of the unit, and that will protect all the offset operators and the ten-foot boundaries on the interior of our project area.

Q. Right. By this application, Energen is not seeking an amendment to the pool rules; is that correct?

A. No. That's true.

Q. Now, if we were to apply the rules that are currently applicable to federal exploratory units, would Energen have the same flexibility to locate wells in closer proximity to the boundaries of the participating areas we've shown on Exhibit 2?

A. Yes.

Q. And Energen seeks to have this flexibility throughout the producing area?

A. That's correct.

Q. And you want to avoid having to file unorthodox

well location requests on a well-by-well basis from the Division?

A. That's correct.

Q. Does Energen seek this flexibility for both vertical wells and horizontal wells that would be drilled within standard 320-acre spacing units within the Fruitland Coal?

A. Yes, that's correct.

Q. And that continues to be consistent with the current provisions under the existing rule for exploratory units?

A. Yes.

Q. Now, as proposed by Energen, would any well locations encroach on any other operator?

A. No.

Q. Do Energen's engineering and geologic evaluations indicate that the company would be able to develop and produce additional coal bed methane reserves that would otherwise go unrecovered?

A. That's correct. We have other witnesses that will testify to that.

Q. All right. Let's turn to Exhibit 4. Could you identify that, please?

A. This is a topographic map of the area. The red outline is the boundary of our proposed project area. This

just shows the kind of terrain we're dealing with, and in almost every case we're dealing with the Forest Service. So having this approved gives us a great deal of flexibility as to where we can locate our well sites and in concurrence with the Forest Service.

We've got some really bad terrain in certain areas that are really hard to deal with it, and it requires us a lot to apply for nonstandard locations because of the archeology and the topography that we're dealing with.

Q. And so those conditions, the topography and then the surface management agency requirements, restrict your well locations?

A. Yes.

Q. And so if the Division approves Energen's request, will Energen have the needed flexibility on its surface locations?

A. Yes, it will.

Q. And will Energen also be able to minimize surface disturbance from its activity?

A. Yes.

Q. And will Energen also be able to maximize the use of existing surface facilities?

A. Yes.

Q. Will Energen also realize additional operational efficiency and will project economics improve?

A. That's true. A better location gives us a better operational ability to handle the area.

Q. All right. Now, because Energen controls 100 percent of the lease ownership and the production area, are there any concerns over the impairment of correlative rights?

A. No. There shouldn't be at all.

Q. Let me make sure I understood your answer.

A. Well, I don't think we have any problems with correlative rights since we're the single owner of the entire project.

Q. All right. And this is also true for locations that would be in closer proximity to the boundaries of the established participating areas?

A. Yes.

Q. Energen owns --

A. We own all of the participating areas, as well as all of the outside acreage 100 percent. So we have commonality of our ownership throughout the entire area.

Q. All right. Were the BLM and the Forest Service notified of Energen's application?

A. Yes.

Q. And what sort of reception did you receive?

A. I didn't receive any comments from the Forest Service; however, I did talk to the BLM, and they have received our application and our notice, and they didn't have any

problems with it and were not going to appear to object.

Q. I'll refer back to Exhibit 2. If the production area is approved, would all of your resulting spacing units be standard spacing units?

A. Yes.

Q. You don't have any irregular or nonstandard units that would be created as a result?

A. No.

Q. And, Mr. Poage, in your opinion, would approval of Energen's application be in the interests of conservation, the prevention of waste, and protection of correlative rights?

A. Yes.

Q. Were Exhibits 1 through 4 prepared by you?

A. Yes.

MR. HALL: At this point, Mr. Examiner, I'd like to tender Exhibits 1 through 4, as well as Exhibit No. 5 with some explanation.

Exhibit 5 is our Notice of Affidavit, and when we first put together this application and tried to determine which of the notice rules were applicable, it was our initial determination that this was no more than a blanket unorthodox well location application.

And since Energen owns 100 percent of the working interest and is the sole operator in all the locations that would be encroached toward, under the rules no notice was

proscribed, and we didn't notify any offsetting interest owners because there aren't any.

And I think that's consistent with the rule. What we did, out of an abundance of precaution, we notified the mineral interest owners in the unit. Although I don't think notification of the mineral interest owners is called for under the rules, we did it anyway.

Mineral interest notification did not go out 20 days prior to the hearing, so I would defer to the Examiner's discretion whether you would like to keep the record open for another two weeks to provide for the 20-day period. But again, notification was precautionary in this case, and I would defer to your discretion on it.

MR. BROOKS: Did you notify the overriding interest owners or just the fee mineral owners?

MR. HALL: Just the fee mineral owners and the Government.

MR. BROOKS: Yeah. Well, you're probably right. It's notice to people who do not own worker interests are probably not required. I do have some concerns about this, but I'll wait until -- we can make that decision at the end of the case. I'd like to go ahead and do the examination of the witnesses in a systematic way.

MR. HALL: So with that, we move the admission of Exhibits 1 through 5, Mr. Examiner. That concludes our direct

of this witness.

MR. EZEANYIM: Exhibits 1 through 5 will be admitted.

[Applicant's Exhibits 1 through 5 admitted into evidence.]

MR. HALL: Do you have any questions for the witness?

EXAMINATION

BY MR. BROOKS:

Q. Yeah. I mentioned the overrides because at the time I examined the title to this unit, there were lots of overrides, as I recall. I assume that's still the case.

A. Yes. We have been able to secure some of those overrides, but there are still quite a number of people.

Q. And, of course, there's always a group of people that own fee mineral interests, some of whose names are quite familiar from my research on this project. But those are small tracts, as I recall. They're kind of --

A. There's very little fee acreage involved in this project area.

Q. As I recall, there's some water courses that run through there that look like they may have been homesteaded quite a long time ago --

A. Yes.

Q. -- in the middle of what's otherwise federal land?

A. Yes.

Q. I guess I'm a little bit concerned about how you're going to protect the interests of those royalty owners given that this will not be organized into participating areas the way it would be if it were all a single federal lease.

A. Well, the royalty owners in all but the small amount of fee acreage is just the BLM, the single royalty owner across the board.

Q. I understand that, but you've got these fee tracts.

A. The few fee tracts are almost completely involved in the area that we'll have 660 setbacks. So, you know, nothing would change for them. The acreage for the field lands that exist is the 8, 9, 10, and 14 and 15.

Q. Well, those will have -- 8, 9, and 10 will have 660 setbacks from the north boundaries?

A. From the north boundaries; that's correct.

Q. But not from the southern boundaries.

A. The southern boundary of those three sections is all federal.

Q. Yeah.

A. Those sections were about split in half.

Q. I understand.

A. Yeah.

Q. But -- and then 14 and 15 are not going to be subject to any 660 setbacks, right?

A. That's correct.

Q. Okay. And then there are overrides on a bunch of these federal leases, correct?

A. That's correct.

Q. And so I guess the answer to what you're going to do to protect this royalty and overriding royalty interests, as far as I understand, is nothing; is that correct?

MR. HALL: Mr. Examiner --

THE WITNESS: I don't know how to answer that question.

MR. HALL: Mr. Examiner, could I tie into this?

MR. BROOKS: Okay. You may.

MR. HALL: I think if you look at the rule that I think is applicable here, 19.15.14.12(A)2 -- and it's the only rule that I could determine that would be applicable to the rule for notification of an unorthodox well location -- and it's substantially unchanged from recodification.

MR. BROOKS: And I guess if someone were to ask me the question, what does the OCD do to protect royalty owners and overriding royalty owners, my answer would have to be the same, basically, nothing.

MR. HALL: And I think you should refer to this State's definition of correlative rights as well under the Oil and Gas Act. And it is focused on lease ownership, working interest ownership, in operations and the right to drill, the

right to produce an owner's fair share out of the reservoir.

It doesn't go so far as to address revenue participation concerns. And I think that's reflected in the way the rule on unorthodox well locations is structured now. Notification really goes to operators towards whom you're encroaching, then if you are also the offsetting operator, notify the working interest. It's only where you have unleased acreage where you notify the mineral interest owners.

That's not the case here. Everything is leased, and there is a single operator on both sides of the boundary of any participating area or spacing unit throughout the production.

MR. BROOKS: Okay. Well, I don't think I have any further questions. You may go ahead.

MR. EZEANYIM: Okay.

MR. WARNELL: I have no questions of Mr. Poage.

MR. EZEANYIM: Okay.

EXAMINATION

BY MR. EZEANYIM:

Q. The discussion here has been my concern, but legally I don't understand most of this, so you can put me straight.

But you wanted this blanket authority within the boundaries of the production area, right?

A. That's correct.

Q. And also you want us to include the whole area

within the participating area, right?

A. Uh-huh.

Q. Can you show me on this number two what is the participating area in that? Which one is in the participating area, and which ones are adjacent to the participating area?

Because that's what I read in your application, that you want the blanket authority within the production area to include locations within the participating area and locations adjacent to the participating area. So I want to understand which areas you're talking in terms of this.

A. The participating area is basically the unit boundary.

Q. Okay. I understand that. Which one is the adjacent one that you're talking about adjacent to the participating area? You want blanket authority adjacent to the participating area. I just want to know what you want.

A. Yeah. We want to be able to do ten-foot setbacks for all the areas within the unit and the acreage that lies just bordering the unit. The present pool rules require 660 setbacks for the unit boundary.

Q. Okay.

A. And we would like that, for this particular instance, to be ten-foot instead of 660.

Q. Okay. Bordering the unit, but inside the production area?

A. Yes.

Q. Okay.

MR. HALL: Mr. Examiner, if I might, if you look at Exhibit 2, the 660-foot setback is reflected on Exhibit 2.

Q. (By Mr. Ezeanyim): Okay. That's all I have. Essentially, what you want us to do is treat this production area as if it's a federal exploratory unit?

A. Yes.

Q. Okay. Do we have your witness on engineering to testify before us so we know why you want it?

MR. HALL: Yes, sir.

MR. EZEANYIM: Okay, I'll defer my further questions. Call your next witness.

MR. HALL: Mr. Examiner, at this point, we call Andrew Benson.

MR. EZEANYIM: Mr. Benson has been sworn.

ANDREW C. BENSON

after having been first duly sworn under oath,

was questioned and testified as follows:

DIRECT EXAMINATION

BY MR. HALL:

Q. For the record, please state your name.

A. Andrew Benson.

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

A. I live in Birmingham, Alabama, and I'm employed by Energen Resources.

Q. And what's your current position with Energen?

A. I'm a development geologist.

Q. You've not previously testified before this agency; is that correct?

A. Not in New Mexico, no.

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

A. I have a bachelor's degree in science in natural resources from the University of the South in Tennessee and a master's degree in geology from the University of Georgia.

And did you say work experience as well?

Q. Yes.

A. I've had roughly ten years of experience in the petroleum industry; two of that were as a petrologist and sedimentologist for a core lab in Houston. The remaining eight have been with Energen Resources in the capacity of development geologist.

Q. And your area of responsibility now for Energen, does that include the San Juan Basin?

A. Yes, it does.

Q. And working the Fruitland Coal?

A. That's correct.

Q. Are you familiar with the application that's been

filed in this case?

A. I am.

Q. And you're familiar with the lands that are the subject of the application?

A. I am.

MR. HILL: Mr. Examiner, we'd offer Mr. Benson as a qualified expert petroleum geologist.

MR. EZEANYIM: Mr. Benson, are you a registered petroleum geologist?

THE WITNESS: In the state of Texas, yes.

MR. EZEANYIM: Mr. Benson is so qualified.

Q. (By Mr. Hill): Mr. Benson, would you explain to the Examiner, have you conducted a geologic investigation to determine whether the increased flexibility that Energen is seeking under the rules is necessary to fully and adequately develop the Fruitland Coal gas reserves in the Carracas production area?

A. I have.

Q. And what have you concluded?

A. We've concluded -- I have concluded that the reduced setbacks would allow us to drill horizontal Fruitland Coal wells to a longer length, and by increasing that length, we would improve our recovery factors in those wells, and we would increase our reserves and that we would allow for a more efficient exploitation of the Fruitland Coal reservoir in this

area, which would thereby reduce the need for additional well drilling beyond the current spacing.

Q. All right. Would you give the Hearing Examiner a general overview of the geologic setting for the Fruitland Coal formation in this area?

A. Sure. The Fruitland Coal reservoir was deposited during the cretaceous -- during cretaceous times of what's now the San Juan Basin that's situated on the western margin of the western interior seaway, which is northwest trending elongate intercontinental seaway that bisected what is now the continental United States.

The deposition along that western margin was coastal type deposition. The Pictured Cliffs sandstone underlies the Fruitland Coal formation at this location, which -- that was a progradational shelf-shore face and beach-type deposit, and it provided the platform on which the Fruitland Coal deposition occurred.

The Fruitland Coal was deposited initially as peat in a coastal swamp setting, an alluvial deposition in an upper delta plain type environment.

Q. I'd like for you to describe the nature of the Fruitland Coal in the immediate vicinity of the Carracas production area. If you could refer to your first Exhibit 6, would you identify that, please?

A. This is a structure map, and it's actually drawn

on the top of the Pictured Cliffs sand, which immediately underlies the Fruitland Coal. The structure here -- basically, we've got an anticline sort of on the western and southwestern portion of the property. That's an extension of the Ignacio anticline, and that dips down into a syncline here, sort of in the central and getting on to the northeastern portion of the property.

This steeply up-dipping portion here is representative of the basin margin, and that's where we dip up along the edges of the San Juan Basin.

Q. Okay. Briefly explain the symbology on the exhibit --

A. Sure.

Q. -- would you, please?

A. The triangles here are existing Fruitland Coal wells. The triangles are vertical wells, and then the blue bars are horizontal wells. And the blue bars are a little bit cartoonish. If you refer to the handout exhibits, it may be a little bit easier to see. The actual well bore itself would be represented by the kind of small hairline there in the blue bar.

And the bar shows us where we actually entered the coal and the TD of the horizontal leg. So the bar, actually, represents the length of the horizontal well that's actually in the reservoir.

Q. Okay. Let's turn to Exhibit 7. Would you explain that, please?

A. This is a net thickness map of the Fruitland Coal in the area at a cutoff of less than 2.0 grams per CC. One thing to really kind of point out -- two things, really, to point out here is the thickness is a little bit greater to the southwest and thins on average to the northeast that represent, really, a depositional dip.

So as you move southwest, you would be moving more toward our coastal swamp and alluvial-influenced deltaic setting where the coal deposition was the thickest. Then it thins to the northeast as you move towards that western interior seaway.

Another thing to point out here is the channelized nature of the coal. You can see the thicks and thins really sort of follow the northeast elongate patterns there.

Q. On your exhibit, you show a cross-section line in red. If we turn to Exhibit 8, is that your cross section?

A. Right. And that just shows us the nature of the average general nature of the coal in this area.

Again, thicker on the southwest end of the property and thinning somewhat towards the northeast, but still a very good continual horizontal target about even 20 feet or so on the northeast side of it.

Q. From your investigation, do you conclude that the

Fruitland Coal formation in the area is a large homogeneous reservoir?

A. Yeah. I would call it homogeneous just to the extent that it's geographically extensive, it's productive, and it's correlatable over the entire area.

Q. Now, in your opinion, in this immediate vicinity, is the coal compartmentalized?

A. Yes. The primary, I guess, mode of compartmentalization out here is faulting and fracturing. I think that's pretty widely recognized in the literature of this area with respect to geology, is that fractures and faults are both fairly abundant, and they can both accentuate and impede flow within the reservoir.

The flow of gas can be impeded along faults. Typically, when you have faulting, you develop what's called fault gouge. You also will develop some mineralization along the fault plain that may impede flow. Then mineralization is also common along fractures.

Q. Does compartmentalization exist within the area covered by a 320-acre spacing unit?

A. Almost certainly.

Q. Okay. Where is the Carracas Canyon production area situated in proximity to the high productivity area in the pool?

A. The high productivity area is about a township to

the west. And it really -- I'll show you where it would be. It sort of follows the northwest trending line. It's a rather large area, but at its closest, it's about a township away from us.

MR. EZEANYIM: So you are on the low productivity area?

THE WITNESS: Well, I wouldn't call it a low productivity area, but it's sort of a formally defined area in the central portion of the basin that's been labeled the high productivity area.

MR. EZEANYIM: So what are you saying? Are you in between them? Which one are you?

THE WITNESS: We lie outside of the high productivity area, yes.

MR. EZEANYIM: Because if you are outside the high productivity, according to the rules, then you are in the low productivity area.

THE WITNESS: I agree then.

MR. EZEANYIM: That's what the rules say, right? Go ahead.

Q. (By Mr. Hall): Mr. Benson, in your opinion, if the Division approves Energen's application, will Energen be able to recover additional incremental reserves that would not otherwise be produced?

A. Yes.

Q. And will waste be avoided as a result?

A. I believe so, yes.

Q. And in your opinion as an expert petroleum geologist, will granting Energen's application be in the interest of conservation and result in the protection of correlative rights?

A. I believe so, yes.

Q. Were Exhibits 6, 7, and 8 prepared by you?

A. They were.

MR. HALL: That includes our direct of this witness, Mr. Examiner. We would move the admission of Exhibits 6, 7, and 8.

MR. EZEANYIM: Exhibits 6, 7, and 8 will be admitted.

[Applicant's Exhibits 6, 7, and 8 admitted into evidence.]

MR. BROOKS: I have no questions of this witness.

MR. WARNELL: I have a question, Mr. Benson.

EXAMINATION

BY MR. WARNELL:

Q. Could you on your cross section here, which is Exhibit 8, could you tell me where those wells are --

A. Sure. Yeah. If you refer back --

Q. -- on Exhibit 7?

A. If you refer back to the thickness map there, it's kind of hard to see that line. It's fairly thin. The

well is right here --

Q. Okay.

A. -- right here, and the final well is right here.

Q. And they're all vertical wells?

A. Yes. This is the vertical well. This is a Pictured Cliffs well, which is why it doesn't have a triangle on it.

Q. Okay.

A. And then this well here was built initially as vertical, and then the horizontal leg was sidetracked.

Q. How many existing vertical and horizontal wells?

A. Horizontal wells, we have drilled 48. Energen has drilled all of the horizontal Fruitland Coal wells in this location. We drilled 48 of them; 27 were new wells, and 21 were sidetracks of existing vertical wells.

As far as the number of existing vertical wells, we have drilled six vertical wells since we've had the property.

MR. WARD: I think it was probably roughly 70 when we took over; that includes Pictured Cliffs and one disposal well, and then the rest were Fruitland Coal.

THE WITNESS: I can establish that and send it to you, if you'd like.

MR. WARNELL: Well, let's see how the rest of it goes. That's all I've got for now.

EXAMINATION

BY MR. EZEANYIM:

Q. You said that the Fruitland Coal is homogenous. Did you say that?

A. It depends on what your definition of homogenous is. Again, to that extent, I would say that it's homogenous just because it's present in the entire area. It's generally thick, generally occurs in one seam that's very correlative.

Q. That's why I'm asking that question. It's in one section and divided in the other, so I don't know. It depends on what you call homogenous.

A. Right. Again, to me, that means that it's present, it's correlatable. If you get into actual reservoir properties and start talking about faulting and fracturing the compartmentalization of the reservoir, that's where I would say it's heterogenous and compartmentalized.

But in a really generalized, gross sense, it's homogenous in that it's there, it's productive, and I can correlate these thick seams all across the area.

Q. Okay. Explain to me within the unit, you know, you said that it might prevent southern wells to be drilled. I don't know how you put it, but what you are trying to demonstrate to me is that you are going to prevent waste by these actions if we approve this application to allow you to do what you are going to do.

Can you explain to me, as a geologist, how you're going to prevent waste?

A. Yeah, I think two ways. As far as just the coal as a gas resource, as a reservoir, I think that by allowing us to lengthen -- by reducing the setbacks and thereby allowing us to lengthen our horizontal wells. We'll be better able to recover the gas that's there. So I think that's one aspect of it.

And by allowing us to lengthen our horizontal wells, you'll allow us, basically, to improve our recovery factor and increase the reserves or add incremental reserves to our existing horizontal -- or to our wells as they're currently planned with the setbacks. That will reduce the need for additional drilling, and so that will avoid unnecessary use and waste of surface, surface resources.

MR. EZEANYIM: Okay. No further questions.

MR. HALL: Thank you, Mr. Benson.

At this point, Mr. Examiner, we will call Bryan Ward.

MR. EZEANYIM: Mr. Ward, you are sworn, and you are under oath still.

BRYAN WARD

after having been first duly sworn under oath,

was questioned and testified as follows:

DIRECT EXAMINATION

BY MR. HALL:

Q. For the record, please state your name.

A. Bryan Ward.

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

A. I live in Birmingham, Alabama, and I'm employed by Energen Resources Corporation.

Q. And in what capacity?

A. I'm the reservoir engineer primarily for the Fruitland Coal.

Q. Have you previously testified before the Oil Conservation Division?

A. No, I have not.

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

A. I received my B.S. in geology with a minor in fuel mineral resources in 1997 from the University of Alabama. I received my B.S. in mining engineering with a minor in petroleum engineering in 1999 from the University of Alabama.

I worked two years as a consulting geologist under a professional geologist there in Alabama while finishing up my engineering degree and then worked three years as a land manager, mining engineer, for a mining company, and then worked for the last approximately eight years for the Energen Resources as a reservoir engineer.

Q. And you're familiar with the application that's

been filed in this case?

A. Yes, I am.

Q. And you're also familiar with the lands that are the subject of the application?

A. Yes, I am.

MR. HALL: At this point, Mr. Examiner, we offer Mr. Ward as an expert reservoir engineer.

MR. EZEANYIM: Mr. Ward, are you professionally registered in geology or engineering?

THE WITNESS: No, I'm not.

MR. EZEANYIM: Accepted.

Q. (By Mr. Hall): Mr. Ward, have you conducted an evaluation to determine whether granting Energen's request in this case would allow Energen to recover coal bed methane reserves?

A. Yes. I did conclude that by increasing lateral length with the proposed reduced setbacks this would add incremental reserves beyond what we have now.

Q. Do you have some exhibits prepared that would demonstrate this to the Examiner?

A. Yes, I do.

Q. Let's refer to Exhibit 9. Would you explain this, please?

A. Exhibit 9 is roughly six different cases showing different examples within our production area where we

currently have future wells planned for different lateral lengths within existing setbacks -- the 660 setbacks -- within each drill block. The top here, cases one through three are 160-acre drill blocks, and then the 320-acre drill blocks are represented by cases four through six.

I will note that the majority of our existing locations we have left remaining in the Carracas Canyon production area are mainly 160-acre drill blocks.

Q. Would it help the Hearing Examiner's understanding if we compare Exhibit 9 to some of the other exhibits you've prepared? And I would note your second column refers to Exhibit -- tell us how we should use these.

A. As we go through Exhibits 10 through 13, I will show exactly the lateral length before with our current existing setbacks, then what they would be after if the proposed setbacks were accepted.

So I show the incremental length regarding those, the percentage increase of that length, and then I show the corresponding reserves with current setbacks, and then the corresponding reserves after the setbacks; therefore, showing the incremental reserves we would add.

And then over to the right you will see the recovery factors for each drill block as well.

Q. Okay. For case number one on Exhibit 9 -- let's look at Exhibit 10. You can run through that for us.

A. Exhibit 10 here shows at the top our current setbacks based on 660 feet. These drill blocks, spacing units, are stand-ups, and we have situations where we drill from existing locations where we're trying to drill horizontal wells, primarily east/west, due to that's the best direction based on the stresses and so forth in the area. We like to drill east/west, but with the current setbacks, we're approximately able to drill a 1300-foot lateral.

With the proposed setbacks, we would be able to increase that, basically doubling the length of that by reducing down to ten feet.

Q. Now, let's look at Exhibit 11, and run through that for the Examiner. What does this show you?

A. Exhibit 11 shows 320-spacing units with lay-downs. Each 320 -- one 320 to the north has three vertical -- or two vertical wells, one in the S/2, and we're drilling from the existing location off the initial well in the 320.

We're drilling east/west direction, primarily roughly about a 2000-foot lateral with current setbacks. By expanding or reducing setbacks to ten feet, we would be able to increase the lateral length by 650 feet.

Q. Then you can refer back again to Exhibit 9, and it would show the incremental recoveries you would expect to realize?

A. Right. So for Exhibit 10, we would realize about .6 BCF of incremental reserves, and Exhibit 11 would indicate roughly .18 BCF incremental reserves.

MR. WARNELL: That's that case three there?

THE WITNESS: Yeah. Case three references Exhibit 11.

MR. WARNELL: All right.

THE WITNESS: Case one is Exhibit 10.

MR. EZEANYIM: What's the method of calculating these numbers? How did you calculate these numbers?

THE WITNESS: Generally, under standard reservoir engineering practices using our current data within the Carracas area and offsetting operating areas, we have with our current gas contents permeabilities from well tests, initial reservoir pressures, along with the thickness and so forth provided by our geology, but also using COMET as a reservoir simulator to help model the production and so forth based on what data we do have.

Q. (By Mr. Hall): Now, Exhibits 10 and 11 show incremental recoveries for well lengths within sections where the well locations are within standard setbacks now?

A. Yes.

Q. If we look at Exhibit 12, what does this show us?

A. Exhibit 12 shows an example of the few undeveloped 320s we have in the Carracas Canyon area. And,

generally, we try to place this well outside the existing spacing unit by virtue of either existing locations, and some locations we don't have any existing locations because of the topography, so we work with the Forest Service to get a new location approved. And drilling a lay-down unit east/west, we can approximately achieve a 4000 lateral under current setbacks.

With the proposed setbacks, we would increase this to approximately one mile, just over 5,000 feet, which would add about 1300 feet of an additional lateral. Mainly here, the pink area shows the additional length. We would gain it at the entry point of the coal and on the end of the lateral as well.

Q. And Exhibit 12 corresponds to case number four on Exhibit 9. And that shows your expected incremental recovery?

A. Right. With the additional 1300 feet, we would gain about .36 BCF.

Q. All right. Let's look at Exhibit 13 now. Would you explain this exhibit, please?

A. Exhibit No. 13 also represents a lay-down spacing unit as well. It's currently undeveloped. Sometimes we're having to drill from an existing location right along the section boundaries or from a new location, depending on topography and archaeology. Because of the current setbacks, we would only get a 4000-foot lateral in the previous case.

But down here with the proposed setbacks, we only

gain incremental length on the end of the well. That's primarily due to -- because of the entry point, we need at least 700 to 900 feet to build a curve to get to the legal window. So we could only gain about 650 feet of additional length here, which if you go back to Exhibit 9 -- which is Exhibit 13 -- corresponds to case six, which we would gain about .26 BCF on incremental reserves.

Q. All right. Now, refer back to Exhibit 2. Were you able to develop a case study showing an average for the incremental reserves you would expect to gain based on the available drilling locations within the production area?

A. Yes, I did.

Q. Could you show us that, please?

A. Yeah. Go back to Exhibit 9. Under Exhibit 9, cases two and five noted there by an asterisk, also in bold, blue text, shows with existing setbacks what our future proposed lateral lengths are based at this time, based on the information we have within the reservoir and geology and surface.

With the proposed setbacks, it shows after what we would have in lateral length. And in both these cases, we took the average length of our proposed future wells -- and the majority of them being 160s, but then we do have a handful of 320s -- and we just show what the average length before and after is for each case on the 160-acre drill block versus a 320

drill block.

And I was able to show the incremental reserves that we would gain. That's on a per-well basis.

MR. EZEANYIM: The Basin Fruitland is developed on 320, right?

THE WITNESS: Yes. With the approval to drill a second well in the 320.

MR. EZEANYIM: Okay.

Q. (By Mr. Hall): Is Energen proposing these new setbacks for both vertical and horizontal wells?

A. Yes.

Q. Within the production area, is Energen limited to drilling horizontal wells in a number of circumstances?

A. For the most part, yes, due to surface topography and due to archaeology in the area.

Q. Okay. Do you conclude that with respect to the horizontal well designs the added flexibility and well locations will result in the recovery of incremental reserves?

A. Yes, it will.

Q. And it's just not acceleration of reserves?

A. It's not acceleration.

Q. Now, where you attempted to quantify your expected incremental gains, you've shown us the average. Is there a one-to-one correlation between the well length in your incremental recoveries?

A. No, it's not. And as you see on Exhibit 9, just because you get on, say, case two, an average of 54 percent increase in lateral length doesn't mean you're going to increase reserves by 54 percent. So there's no one-to-one correlation there.

Q. Okay. If Energen's exception application is granted, what effect will this have on project economics?

A. Going forward, obviously, it would add current value. It would also add reserves to the area, but it also would eliminate, you know, wasteful drilling of future wells. Also, on top of reducing the amount of additional surface disturbance, as well, going forward, the economics it would gain from the incremental reserves would be in addition to what our existing horizontal wells would be already, so it's just additional on top.

Q. Let's refer to Exhibit 14. Can you explain this to the Hearing Examiner?

A. Exhibit 14 is economics for our case three, which is primarily the worst case we have in the area. It's the economics for the incremental length and reserves for that case. Case three -- you can go back to Exhibit 9, which shows -- it would be Exhibit 11 as far as the drilling would go. It's basically this 160-acre drill block where we only gain additional length on the end of the lateral itself.

But with -- showing a 650 feet of incremental length,

the incremental reserves would be .18 BCF. The capital associated with that is basically one day worth of drilling to us with additional liner costs and some additional casing, so rough estimate there is roughly $110,000 for the capital. I ran it at effective price of 2.33, and that was based on 2009 gas data from El Paso/San Juan Midpoint as of Monday, March 17.

The rate of return here is 20 percent on those incremental lateral lengths and reserves, which are standard. Energen policy right now is anything greater than a 10 percent rate of return is a viable project. And showing that the net present pay discounted at 10 percent, which are generally used under federal guidelines, it's roughly worth about $16,000 for that additional length in reserves. And the discounted payout is approximately three years.

Q. Now, without the setback location exception that Energen's requesting for the production area, will it become necessary to drill otherwise unnecessary additional wells to recover the same reserves?

A. What was that?

Q. Well, if the application is not granted, will it become necessary to drill additional wells --

A. Yes.

Q. -- to recover the same or reduced reserves?

A. Yes. Under the current setbacks, our recovery factors are fairly low, just above 50, and that would require

additional drilling and additional 80-acre infill drilling down the road.

Q. Now, is there a risk that the less advantageous economics resulting from the short well length development will result in the premature abandonment of coal bed methane reserves?

A. Yes.

Q. And will waste result?

A. Waste, capital, and various other issues, surface disturbances, and et cetera.

Q. Now, does the flexibility on well locations result in any advantages in designing your drilling profile for these wells?

A. Yes, it does.

Q. Explain how that works.

A. Basically, the proposed setbacks would decrease our risk from a geologic standpoint, as well as a mechanical standpoint. I'll go back to this exhibit, for instance. Exhibit 11 would be a good example.

When we're drilling this curve, we have certain situations where we are drilling from one existing well. It could be in another offset section, you know, say, given a general 2000-foot infill to get to the legal window. That amount of time, you're in drilling that without casing.

So especially in a directional status, you're exposed

to certain shales and so forth for an extended amount of time, and shales cause problems with sticking the drill bit as well as sticking some of our geologic tools, logging tools, as well.

So what happens is, if we get stuck, we generally have to turn around and set casing, come back, and then sidetrack out, spend additional capital, and it also extends our time in the area inside the forest. The geologic risk that's decreased is basically due to increasing the length of the lateral.

You know, we always have problems with faulting, other dip changes, and so forth within the reservoir that cause you to get out of zone. And every time you get out of zone, it generally takes -- you know, eats up a couple hundred feet to get back in zone, so that's a couple hundred feet of non-producing interval.

So you decrease your overall exposed interval inside the coal, which decreases the amount of reserves you can effectively drain.

Q. Under Energen's proposal, in any case, would you have a well location closer than 660 feet to the outer boundary of the producing area?

A. No.

Q. And in any case, for a horizontal well bore penetrating the Fruitland Coal formation, would you penetrate the coal at a point closer than ten feet to the spacing unit

boundary?

A. No.

Q. What's the prevailing development pattern in the production area?

A. If you refer back to Exhibit 2, we show our prevailing development pattern, as I touched on earlier, is mainly drilling the laterals in a east/west direction since we've taken over the unit. But this is sometimes affected by the spacing unit size, especially with the stand-ups as we show on Exhibit 10.

Drilling a short lateral, we've learned from our experience, drilling a 1300-foot lateral just adds to the problem down the road that we'll eventually have to drill additional wells to properly recover the reserves in that 320-spacing unit.

So we're trying to increase our recovery here by drilling these additional lateral lengths.

Q. And that will allow you to remain consistent with the existing patterns as much as possible?

A. Exactly. As much as possible.

Q. Now, as you propose to observe the standard setback location 660 feet around the production area perimeter, is there any increased likelihood of interference across the production area?

A. No, there's not.

Q. And are there currently any surface locations within the production area which Energen is restricted from using due to surface issues?

A. Yes, it is.

Q. Will the flexibility under the application allow you to resolve those access issues?

A. Yes, it will.

Q. Will Energen be allowed to utilize existing well pads for new wells that it would not otherwise be able to use?

A. Yes.

Q. In your opinion, as a petroleum engineer, will granting Energen's application be in the interest of conservation, result in the protection of correlative rights, and prevent waste?

A. Yes, it will.

Q. And were Exhibits 9 through 14 prepared by you?

A. Yes, they were.

MR. HILL: That concludes our direct of this witness, Mr. Examiner, and we move the admission of Exhibits 9 through 14.

MR. EZEANYIM: Exhibits 9 through 14 will be admitted.

[Applicant's Exhibits 9 through 14 admitted into evidence.]

MR. BROOKS: I have no questions of this witness.

MR. EZEANYIM: Terry?

EXAMINATION

BY MR. WARNELL:

Q. Yeah. I may have a question or two, Mr. Ward.

I see on Exhibit 2 some north/south laterals and horizontal there?

A. Right.

Q. Those probably weren't yours?

A. No. All those horizontal wells were drilled by us, primarily because of the constraints of the spacing units. You know, there's a mix of lay-down spacing units versus stand-ups. We primarily -- because of that, we try to get as longer lengths as much as possible.

We prefer to drill east/west, but given circumstances with existing drill blocks, we go for the longer laterals if at all possible. And so those current spacing units, we were forced to drill north/south.

Q. Do you see a big difference in your production on those wells, the north/south versus the east/west?

A. It's a little early to tell yet. Most of the wells have only been producing for -- the first couple ones we drilled were three years ago.

Q. And then as I look down there, like in Section 26, I believe it is --

A. In 32/5?

Q. Yeah. There's a north/south lateral there, 26A-10.

A. Okay.

Q. Where is the surface on that horizontal?

A. That -- let me go to the Topo; it's a little easier to see.

That surface location is from an existing well pad in the NE/4 of Section 26.

Q. Oh, I see it there.

A. And we roughly had to drill about 1800 feet to get to the legal window --

Q. Okay.

A. -- to stay out of the current producing 160.

Q. And then on your horizontal wells, are those single laterals, or do you --

A. Single laterals.

Q. Have you ever drilled more than --

A. You can see single lateral, you know, being -- when I say "single lateral," one lateral in that existing coal package. We did try a small pilot a year ago where we were trying to drill multiple laterals in the same seam going in different directions within the 160.

Q. Okay.

A. We had little success doing that because of the instability of the coal there. It's very unstable.

Q. And have you drilled any up in Colorado?

A. Yes, we have.

Q. What's their spacing up there?

A. Currently, we went to hearing a couple of years ago, and we were able to get 80-acre approval there.

Q. So there's 80-acre approval at the base of the Fruitland Coal? And what's your setback?

A. 660.

Q. 660? Okay. Thank you.

MR. WARNELL: I have no further questions.

EXAMINATION

BY MR. EZEANYIM:

Q. Mr. Ward, in this Exhibit 9, how can you be convinced of how you come with the numbers, you know, if they are permitted?

Here, I can see that this incremental length is directly proportional to your incremental recovery. Even though normally it wouldn't, but it does suggest that.

So that's why I'm -- what are the parameters you put into your COMET? Is that the COMET program? What program is that?

A. COMET is our reservoir -- similarly developed by Advanced Resources Incorporated out of Colorado. It's a general fractured reservoir simulator used in the industry. The parameters I can disclose at a later time. A lot of that

information is proprietary. I would not want to publically show any of that information due to the nature of the competitiveness in the San Juan Basin.

Q. We can make it confidential here, because this is it. This is your case here, as far as I'm concerned.

A. Right.

Q. You did say, okay, if this happens, then you're preventing waste?

A. Right.

Q. But my problem is, are the numbers correct? That's the point I'm trying to make.

A. Well, --

Q. It's up to you to do that. Now, if you want us to keep it confidential, I'll be glad to do that. Nobody has to see it except me.

A. Okay.

Q. So what I really would need to see is how you come up with these numbers.

A. Yeah.

Q. Whether you get it from COMET or something, you know.

A. Well, most of the data that goes into the COMET is based on our thickness in the area, gas contents from isotherms. We have had them analyzed from cores and cuttings in the area. Permeability has been calculated in the well

testing in the area, also with a JRI project back in the early '90s. Also allow the initial reservoir pressure was indicated in those studies as well.

So all the current data we have right now at this point is what's put into the model, you know. Coal bed methane, reservoir simulations can be quite variable. But given our certain circumstances and situations with the available data that we have now, this is the best and acceptable model inside our company.

Q. Well, what I'm saying is I've seen a lot of these cases before. I'm not saying your data is wrong. Don't get me wrong.

A. Right.

Q. But what happens is someone comes in here and is projecting something with some kind of program, and later we find out that it's not true. And they also agreed it wasn't true. But I need to find out what they were going to do for me to issue that.

But when it was denied, and we were talking about it, they came back and said, "Well, that wasn't true before."

So that's why I, you know -- for me, if you can prove these numbers, then that would be very, very important to me.

A. I agree.

MR. HALL: Mr. Examiner, what we can do is supplement the record with that data, if the company agrees. It'll have

to be accompanied with requests that those data be kept confidential.

Q. (By Mr. Ezeanyim): Oh, yes. I can keep it confidential. I'm not operating there. I can't divulge the information to anybody. But once I make a decision, that's it; it never goes to the public domain. It just for us to make that decision.

A. All right.

Q. Nobody else -- no one will ever see. I mean, that's how -- of course, you know how we do that.

A. You know, the models, obviously, change as the more drilling we do and also the more production we gain on horizontal wells. That's a fairly comprehensive study just on horizontal well production as well.

I will say that a lot of our early time data was based on history matching from gas production, as well as the pressure profiles from bottom-hole gauges. So we're fairly confident about what we have. But as we drill, the data we gained from the additional horizontal laterals, you know, changes the geology. Some reservoir changes come up.

Q. See, you are right. I would like that. If drill incrementals come up -- I mean, we don't want to leave it there. We want to get it out.

A. Exactly.

Q. So my point is, if that is true. You see where

I'm coming from?

A. Yes.

Q. Okay.

MR. BROOKS: Okay. On the issue that came up earlier, I think Mr. Hall is correct about who has to be notified. So I don't think it will be necessary to -- I don't think the notice to the royalty owners is jurisdictional, and therefore, it will not be necessary to continue the case for that purpose.

MR. EZEANYIM: Okay. Very good. Okay.

Q. (By Mr. Ezeanyim): Mr. Ward, please try to -- give me just a sample calculation to demonstrate one of these. You don't have to do all of them.

A. All right.

Q. That's really all I want. And you need your data to be complete.

A. The main thing to deal with upfront would be the original gas in place.

Q. Yeah.

A. That data is essentially based on the initial reservoir pressures before the first production in your PSTAR.

Then using that data in addition with the thickness of the well based on density logs from each well at a 2.0 cutoff, and then from core data and cuttings, we do a correlation between ash versus the reciprocal of density to get

our correlation to calculate what the density of pure coal is versus of what pure ash is, plug that in, and we calculate what our total ash percentage is, you know, per well in the area.

Then we take that in addition to our isotherm where we calculate from extended Langmuir isotherms what our gas content is based on the composition components of the gas.

MR. EZEANYIM: Okay. That's good. Anything further?

MR. HALL: That's all we have, Mr. Examiner. We'll supplement the record with material and the data you requested.

MR. EZEANYIM: I would really appreciate that.

THE WITNESS: And would that be fine the first part of next week?

MR. EZEANYIM: Oh, yeah. That will be fine.

THE WITNESS: Okay.

MR. EZEANYIM: At this point, Case No. 14287 will be taken under advisement.

Let's take a five-minute break and then come back.

* * *

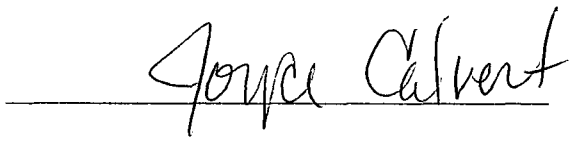
I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 14287 heard by me on 3/19/09, Examiner Conservation Division

REPORTER'S CERTIFICATE

I, JOYCE D. CALVERT, Provisional Court Reporter for the State of New Mexico, do hereby certify that I reported the foregoing proceedings in stenographic shorthand and that the foregoing pages are a true and correct transcript of those proceedings and was reduced to printed form under my direct supervision.

I FURTHER CERTIFY that I am neither employed by nor related to any of the parties or attorneys in this case and that I have no interest in the final disposition of this proceeding.

DATED this 19th day of March, 2009.



JOYCE D. CALVERT
New Mexico P-03
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STATE OF NEW MEXICO)
)
COUNTY OF BERNALILLO)

I, JOYCE D. CALVERT, a New Mexico Provisional Reporter, working under the direction and direct supervision of Paul Baca, New Mexico CCR License Number 112, hereby certify that I reported the attached proceedings; that pages numbered 1-56 inclusive, are a true and correct transcript of my stenographic notes. On the date I reported these proceedings, I was the holder of Provisional License Number P-03.

Dated at Albuquerque, New Mexico, 19th day of March, 2009.

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