STATE OF NEW MEXICO

ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

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

CASE NOS: 20891 - 20893

APPLICATION OF HILCORP ENERGY COMPANY
FOR DOWNHOLE COMMINGLING IN ITS
GRAMBLING C 3B WELL, SAN JUAN COUNTY,
NEW MEXICO

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

November 14, 2019

SANTA FE, NEW MEXICO

This matter came on for hearing before the New Mexico Oil Conservation Division, Examiners LEONARD LOWE, PHILLIP GOETZE, DEAN McCLURE, DYLAN COSS, and LEGAL EXAMINER ERIC AMES, on Thursday, November 14, 2019, at the New Mexico Energy, Minerals, and Natural Resources Department, Wendell Chino Building, 1220 South St. Francis Drive, Porter Hall, Room 102, Santa Fe, New Mexico.

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I N D E X

EXHIBIT INDEX

HEARING EXAMINER LOWE: Now we are going to call Case Number 20891, 20892 and 20893, Hilcorp for downhole commingling. Call for appearances.

MR. RANKIN: Mr. Examiner, Adam Rankin of Holland & Hart in Santa Fe on behalf of Hilcorp Energy Company. We have two witnesses today. We ask that those cases be consolidated purposes of hearing.

HEARING EXAMINER LOWE: May the witnesses please stand and be sworn in by the court reporter.

(Oath administered.)

HEARING EXAMINER LOWE: You may proceed.

MR. RANKIN: Thank you, Mr. Examiner. I would like to call our first witness, Mr. Rob Carlson.

ROBERT THOMAS CARLSON

(Sworn, testified as follows:)

DIRECT EXAMINATION

BY MR. RANKIN:

Q. Mr. Carlson, good afternoon. Please state your full name for the record.

A. Good afternoon. Robert Thomas Carlson.

Q. By whom are you employed?

A. Hilcorp Energy Company.

Q. What is your job with Hilcorp?

A. I'm a landman.

Q. Have you previously testified before the Oil

Conservation Division?

A. I have.

Q. Have your credentials as a petroleum landman been accepted and made a matter of record?

A. Yes.

Q. Are you familiar with the applications that were filed in each of these three cases?

A. I am.

MR. RANKIN: Mr. Examiner, at this time I would retender Mr. Carlson as an expert in petroleum land management.

HEARING EXAMINER LOWE: He is so qualified.

BY MR. RANKIN:

Q. Mr. Carlson, will you please, just at a high level, review for the Examiners what it is that Hilcorp is requesting from the Division in each of these three cases?

A. Yes. In Case 20891 and 20892, Hilcorp is seeking authorization to downhole commingle production from the existing production in place for the Basin Dakota formation and the -- I'm sorry -- Basin Dakota Gas Pool and Blanco Mesaverde Gas Pool with new production from the Basin Fruitland Coal Gas Pool.

In Case 20893 Hilcorp is seeking the same authorization to downhole commingle for existing production from the Basin Dakota Gas Pool with the Basin Fruitland Coal

Gas Pool.

Q. And that downhole commingle you are seeking is as to one well in each of those cases?

A. That is correct.

Q. Now, let's go ahead and get the Examiners oriented in each of these cases one at a time. In Case Number 20891, which is the first case in your exhibit packet before you, will you just refer to what's been marked as Exhibit Number 1 in that case and just orient the Examiners as to the location of the well?

A. Yes. So Exhibit 1 is a map reflecting the location of the well in San Juan Basin. The small map insert in the top left corner shows the general proximity to Farmington, Bloomfield, Aztec tri-city area. And then the actual wellbore itself is denoted by a yellow star. The spacing unit that's related to the case for formations involved are bordered in red.

Q. Now, Mr. Carlson, you prepared a similar exhibit in each of the other two cases reflecting the location of those wells for each of those individual cases?

A. That's correct.

Q. Just quickly refer to what's been marked behind the Case 20892 as Exhibit Number 1, and just review for the Examiners the location of that well. It's in the same general area; is that correct?

A. It is in the same general area, just outside of the Aztec city limits.

Q. And that's the Lambe 3M well?

A. That is correct.

Q. In the last case, which is Case Number 20893, which briefly involves the Sheets 4E Well, Exhibit Number 1 identifies the general location of that well; is that correct?

A. That's correct.

Q. It's also in the same general area east of Aztec?

A. Yes.

Q. Now, let's talk a little bit about what -- why is it that Hilcorp has these three cases now before the Hearing Examiner as opposed to administratively? Why is it that we are seeking these approvals here instead of through the administrative process.

A. We originally filed C-107As seeking administrative approval. Upon receipt, the Division instructed me to have the matter set for hearing.

Q. So here we are. Do you have a general idea what issues in particular the Division had that required -- where they required us to go to hearing?

A. I wasn't made aware in detail what the specific concerns were, but I was aware there was a generalized concern with commingling production from a deeper Basin

Dakota formation with a shallower Fruitland Gas Pool formation.

Q. We have a witness today, an engineering witness who will testify as to these issues and review all the concerns with commingling within a wellbore between those different zones.

A. That's correct.

Q. So now, but as to each of those cases behind Exhibit Number 2, in each of the -- in the exhibit packet in front of you, the C-107A that was filed with the Division for each well downhole commingled is included as Exhibit Number 2; is that correct?

A. That's correct.

Q. That's a true and correct copy of the application filed with the Division?

A. Yes.

Q. Now, with respect to notice, what is your understanding for what the Division rules require for provision of notice in downhole commingle cases?

A. If the ownership is not identical in nature across the pools to be commingled, notice must be sent to all interest owners across the pool, certified mail with return receipt requested.

Q. Now, in any of these three cases, is there ownership that's not uniform?

A. In case 20892, the ownership is not identical as to the percentages.

Q. So the other two cases didn't require notification to any interested parties because the ownership was identical, and only in Case Number 20892 was notice required?

A. That is correct.

Q. And that involves the, the Lambe 3M well; is that right?

A. Correct.

Q. So, Mr. Carlson, just because that's the one that required notice, let's use that one as our initial case and walk through the notice in that case. Since that's the only case that required notice, let's just talk about it.

And in that case, looking at Exhibit Number -- get to the right page -- Exhibit Number 3, is that a list of all the interest owners across the pools that were entitled to notice for this downhole commingle case?

A. That is correct.

Q. How did you come about identifying all of those interest owners entitled to notice in this case?

A. Looking at our current paydecks for wells that are currently infills within the spacing units.

Q. Did that paydeck include the working interest owners, overrides, and every other owner that would be

entitled to notice under the Division rules?

A. That is correct.

Q. Okay. And is Exhibit 4 in that case, is that a copy of an affidavit prepared by me and my office reflecting that we provided notice of this case, an application with the interest owners you identified to us in that list?

A. Yes.

Q. And following that affidavit, is there a copy of the letter we sent out that giving notice of the application of today's hearing?

A. Yes.

Q. The following pages are a copy of the US Postal Service tracking information sheet identifying the status of each of those notices sent out by certified mail, return receipt requested?

A. Yes.

Q. In some cases some of those packages are still in transit. Is it your understanding that the addresses that are identified here are true and correct valid addresses?

A. Yes.

Q. And you know that because, again, those addresses are based on the paydeck, and those are updated so that your owners can get paid on a monthly basis?

A. That is correct.

Q. Now, Mr. Carlson, is it your opinion that

approving these three applications is in the best interest of -- it would not impair correlative rights?

A. It would not.

Q. Have you taken your best effort to identify all interest owners in the one case that requires notice?

A. Yes, I have.

MR. RANKIN: With that, Mr. Examiner, I would move the admission of Exhibits 1 and 2 in Cases 20891 and 20893, and Exhibits 1, 2, 3 and 4 in Case Number 20892.

HEARING EXAMINER LOWE: Exhibits 1 and 2 for Case Number 20891 and 20893 are accepted for the case.

(Exhibits 1 and 2 admitted in 20891 and 20893.)

HEARING EXAMINER LOWE: And Case Number -- Exhibits 1, 2, 3 and 4 for Case Number 20832 are accepted.

(Exhibits 1 through 4 admitted in 20832.)

MR. RANKIN: Thank you very much, Mr. Examiner. I have no further questions and pass the witness.

HEARING EXAMINER LOWE: Mr. McClure?

EXAMINER McCLURE: On your original 107A, you have your current production listed as 1000 BTU. However, in the later parts of this and in additional past documents submitted to the Division, it's significantly higher than that. Is that just a typo on your part, or what's the story of that?

THE WITNESS: I wouldn't want to speculate as to

differences in those values. I would like to defer that to my engineer.

EXAMINER McCLURE: Okay. I guess I thought that maybe -- most of my questions should be directed at your engineer then. If that's the case, I have no further questions for this witness. Thank you.

EXAMINER COSS: I do not have any questions.

MR. AMES: No.

HEARING EXAMINER LOWE: When you indicated that the OCD instructed you to take this to hearing, was that given by District 3?

THE WITNESS: It was given by Mike McMillain.

HEARING EXAMINER LOWE: Michael McMillain.

THE WITNESS: Shortly before he left his position.

HEARING EXAMINER LOWE: Have you conversed with District 3 about this in any manner some sort?

THE WITNESS: We have attempted to contact a number of Examiners trying to have the conversation. Michael McMillain indicated that it might be prudent to have prehearing discussions just to explore more in what we can provide the OCD on this matter, but numerous e-mails and calls were unreturned.

HEARING EXAMINER LOWE: Okay.

MR. AMES: Mr. Rankin, was the direction to set

this matter for hearing given in writing or --

MR. RANKIN: I believe it was by e-mail.

MR. AMES: And the e-mail didn't explain anything more about the reasoning behind it?

MR. RANKIN: I think there's a general understanding. I think our engineering witness can testify a little more about that, but again, there was some general ideas about providing some testimony on the pressures between the different zones and some issues about water, just understanding the nature of water in different zones. Those were two areas that we understood that he wanted to hear on this application.

MR. AMES: Is your next witness prepared to answer questions or address those issues?

MR. RANKIN: I think to the extent he can.

I think to the extent he has information on that, he can tell you.

HEARING EXAMINER LOWE: Okay. That's it.

MR. RANKIN: If you have no further questions, I ask Mr. Carlson, if he can be excused and we would like to call our second witness.

HEARING EXAMINER LOWE: You may be excused.

MR. RANKIN: Thank you very much.

JOHN FOSTER BROWN

(Sworn, testified as follows:)

DIRECT EXAMINATION

BY MR. RANKIN:

Q. Mr. Brown, state your name for the record.

A. John Foster Brown.

Q. By whom are you employed?

A. Hilcorp Energy.

Q. In what capacity?

A. Reservoir engineer.

Q. Have you previously had the opportunity to testify before the Division?

A. I have not.

Q. Will you briefly give your educational background and work experience as a reservoir engineer?

A. I have a bachelor's degree in petroleum engineering. I have worked with Hilcorp Energy since 2012 in a variety of roles. I worked operations in Louisiana, been a reservoir engineer in South Texas and have been a reservoir engineer for the San Juan Basin the last two years.

Q. And you are familiar with the three applications that were filed in this case?

A. Yes.

Q. And have you conducted an engineering study

analysis to support the applications in each of these cases?

A. Yes.

MR. RANKIN: Mr. Examiner, at this time I would tender Mr. Brown as an expert reservoir engineer.

HEARING EXAMINER LOWE: He is so qualified.

BY MR. RANKIN:

Q. Now, I think the topic is your, Mr. Brown, is do you have a general understanding of what the basis is for the Division's request that these three cases come to hearing today?

A. Yes. Michael McMillain had a concern about commingling the Dakota with the Fruitland Coal. I believe that his primary concern was water compatibility and the different original pressure gradience of the two formations.

Q. And you are prepared to discuss those issues today as well as the other elements for approval for downhole commingling under Division rules?

A. Yes.

Q. You prepared a slide analysis that supports your conclusion that the application should be approved?

A. Yes.

Q. Now, let's take a look at your exhibit. We will start with -- I think we will start, if it's okay with you, Mr. Brown, we will start with the second case of the packet, 20892.

Now, just before I jump into that, you have prepared exhibits for each of these cases, and these exhibits are largely the same. In other words, that they identify the same issues, and exhibits correspond with each other, just slightly different in terms of your -- with the information on the exhibits, but your analysis and conclusions are the same as to each exhibit in each case; is that correct?

A. Yes.

Q. So we will touch on this one case, and I will ask you to confirm that your conclusions and analysis are the same in the other cases. And if the Hearing Examiners have questions, we can visit those cases individually. Does that sound good?

A. Yes.

Q. All right. Let's turn to the first exhibit in Case 20892, which I believe is marked as Exhibit Number 5.

A. 6.

Q. Is that right? I think it's -- oh, you're right. I'm in the wrong case.

Let's look at Page 6. Review for the Examiners what Exhibit 6 shows.

A. This is an outline of the San Juan Basin. The overpressured envelope of the Fruitland Coal is highlighted inside the red circle. This is an area that generally has

higher original pressure gradience, higher water rates, lower BTU content, and higher CO2 concentrations.

The three wells that we presented at hearing today are highlighted with the yellow stars. They are located in the underpressured envelope of the Fruitland Coal. This is an area that has lower original pressure gradience, lower water rates, higher BTU content and lower CO2.

Additionally, the blue dots are existing Fruitland Coal-Dakota commingles offsetting the Fruitland Coal Dakota commingles.

Q. In each case those existing Fruitland Coal and Dakota commingles throughout the wells at issue communicate in these cases is outside of that overpressured envelope; is that correct?

A. Yes.

Q. And in light of that, you expect some of those conditions to develop to be similar to the three wells that you are seeking commingling for in these cases?

A. Yes.

Q. Now, let's turn to your Exhibit Number 7 and tell me a little bit more about some of those sample or representative sample of one of those existing commingles between the Fruitland and the Dakota?

A. This slide is an example of an existing Basin

Dakota, Basin Fruitland Coal commingle, operated by Hilcorp Energy. The well is the Cain Federal Number 3. It was initially completed as a dual completion with the Fruitland Coal flowing up the casing tubing anulus, and the Basin Dakota flowing up the tubing. The two formations were isolated by a packer. From 2005 through March of 2015 the well flowed during this configuration.

In March of 2015 Intervest received approval to commingle the Basin Dakota and Basin Fruitland Coal through administrative order downhole commingle 4722. They pulled the tubing and packer, and configured the wellbore optimally for production and increased gas rate from approximately 15 MCF a day to 110 MCF a day by commingling these two formations.

Q. The point here being that prior to the commingling with the wellbore, they were produced separately from the same wellbore, and then subsequently the -- the zones were downhole commingled and the production, you saw positive production response?

A. Correct.

Q. So this application was approved administratively by the Division; is that right?

A. Yes.

Q. And based on your understanding of the conditions of this well that was approved previously, you expect the

same conditions are existing in these three wells that are subject of these applications?

A. Yes.

Q. All right. And you expect a similar response in your -- as a result of the downhole commingling in the three cases?

A. Yes.

Q. Okay. Now tell me a little bit about Exhibit 8, the -- your analysis on the gas between the different zones that you are seeking to commingle?

A. We included this slide because there was concern from Michael McMillain about the different gas types between the Basin Fruitland Coal and Basin Dakota. I believe he was referencing the overpressure envelope where you have high CO2 concentrations and was concerned about having to send high CO2 gas to a treating plant, and no longer processing NGLs.

The produced gas from Lambe 3M Mesaverde Dakota currently flows to Enterprise Chaco Plant. NGLs are processed. After we commingle this well, it will still flow to the same plant and NGLs will continue to be processed.

Additionally the gas from the current Blanco Mesaverde, Basin Dakota formation has similar characteristics to the Basin Fruitland Coal that will be added. The Lambe 3M is our subject well. It has a BTU

content of 1148 BTUs and CO2 content 1.76 percent. The Lambe 7 a representative of Basin Fruitland Coal offset, has a BTU content of 1122 BTU and .92 percent CO2.

This slide is intended to show that the commingling of these three formations will not reduce the value of the gas stream to the royalty owners in either of the commingled formations.

Q. Nor is there, in your opinion, is there any issue with the compatibility between the gas?

A. No.

Q. Is there any issue or or challenge in the gas gathering of gas from Fruitland Coal based on the CO2 content?

A. No.

Q. In fact, it looks like the representative well here is in fact lower CO2 content than the Blanco Mesaverde Dakota combination; is that correct?

A. Correct.

Q. Now, how about allocation? With the addition of this additional zone in each of these cases, do you have a proposal for how you are going to allocate production between the different zones?

A. Yes.

Q. And is that reflected in in Slide Number 6?

A. Yes.

Q. Will you review for the Examiners what your proposal is?

A. We propose allocating production for the Basin Fruitland Coal using the subtraction method. All gas production above the current Mesaverde forecast and current Blanc -- or Dakota forecast will be attributed to the Basin Fruitland Coal.

Q. So what you are showing on this exhibit is you forecast for each of the existing completions -- production for existing completions in each well?

A. Yes.

Q. What you are suggesting is that you will determine what the additional production is and attribute that to the Basin Fruitland Coal zone?

A. Correct.

Q. Okay. Now the same allocation methodology is proposed for each of the other two cases?

A. Yes.

Q. So that any additional volumes above what your forecast is will be attributed to the Basin Fruitland Coal?

A. Yes.

Q. How about liquids?

A. The Basin Fruitland Coal does not produce condensate in this area, so all condensate will be allocated to the existing formations using the existing allocation

method.

Q. So currently, all the liquids, condensate that's currently being allocated, that allocation will not change because there are none that will be produced from the Fruitland Coal?

A. Yes.

Q. Very good. And that's true for all three cases?

A. That's correct.

Q. And you got a slide showing the same analysis but with different wells in each case?

A. Yes.

Q. Okay. And so in every case you are just using that forecast to determine what your subtraction method will be; correct?

A. Correct.

Q. Okay. Now, Mr. McMillain had concerns about water and fluids within each of the zones you are proposing to commingle. Do you have an analysis slide that addresses that issue?

A. Yes.

Q. That's marked as Exhibit 10?

A. Correct.

Q. Will you review for the Examiners the water situation in each of these zones?

A. Yes. Exhibit 10 is a slide created to address

his concerns about potential water production from the Fruitland Coal inhibiting production from the deeper zones. The Basin Fruitland coal is dewatered in the Lambe 3M area. Offset producers average .2 barrels water per day. This chart shows offset Fruitland Coal only producers and their corresponding daily water rates, as well as their distance away from the Lambe 3M. The average for these five wells is .2 barrels of water per day. It's a relatively insignificant amount of water production.

Any incremental water that is produced in the wellbore from adding Fruitland Coal can easily and effectively be lifted using the current artificial lifting configuration on these wellbores, which is plunger lift.

Q. In your opinion, there is no risk or concern about flooding out or drowning out production in deeper Dakota zone?

A. No.

Q. In fact, the Basin Dakota is currently producing water itself; is that right?

A. Yes.

Q. So does incremental, any incremental additional water that would be added to the wellbore here is not going to injure or impair your ability to produce from the deeper zones?

A. No.

Q. Okay. As to the water issue, you didn't just evaluate the volumes and impact of the volumes, but you also evaluate the compatibility, the chemistry between the different fluids?

A. Yes.

Q. Is that addressed in your next Exhibit 11?

A. Yes, it is.

Q. Will you review what you determined on compatibility?

A. This slide is a summary of analysis we did using water samples. We obtained representative water samples from an underpressured envelope Fruitland Coal well, as well as representative water samples from a Basin Mesaverde, Basin Dakota commingle and a Basin Dakota stand-alone well.

We tested the combination of these water samples to test for scaling tendencies. We found that the saturation index for the water samples predicted a very small likelihood of scale precipitation. Any scale that can be precipitated can effectively be treated using scale inhibitor.

The saturation indices that we calculated for these wells is well below the saturation indices of wells that we treat with scale inhibitor so we think these wells will not even need scale inhibitor treatment.

Q. Mr. Brown, I mean, flipping back to Exhibit 6 in

your packet where you indicate, show where the previously approved downhole commingle between the Fruitland Coal and the Basin Dakota, does Hilcorp operate those wells?

A. We operate the Cain Federal Number 3, which is the well we touched on in Exhibit Number 7. I'm not sure about the others blue dots on that.

Q. Are you aware of any issues about fluid compatibility in this well at this time?

A. No.

Q. Let's see. Now, one of the other issues, as you understood from Mr. McMillain, was concern about the pressure differential between the Basin Dakota, which is the deeper zone, and the Fruitland Coal which is in a shallower zone.

Will you explain what the basis for that concern was, and then explain whether or not your analysis reflects that there is any validity to that concern in these cases?

A. I believe Mr. McMillain's concern was that the, either the shut-in pressure or the flow-in pressure from the deeper Basin Dakota formation could exceed the Fruitland Coal's fracture parting pressure. We do not -- that is not a problem in these wells.

The Fruitland Coal has a fracture parting pressure of 1377 PSI calculated using .65 PSI fracture gradient. The shut-in pressures, which is the maximum,

would be the maximum observable surface pressure from the deeper zones is well under that fracture parting pressure.

This chart down here is an exhibit of a 98 day shut-in on this Lambe 3M of the commingled Mesaverde Dakota formation. Over that 98 day shut-in period, casing pressure built to 183 PSI. This is representative at the time of the maximum pressure that we could anticipate seeing on the Fruitland Coal formation.

This test was in 2014, so there has only been further depletion of the Basin Mesaverde and Basin Dakota formation since then.

Q. So in another five years you expect the shut-in pressure to, to be even less over some period of time?

A. Correct.

Q. Explain, if you would, Mr. Brown, how, if this well were shut in for a longer time, is it your opinion there would still be no risk to the pressures building to the parting pressure for the Fruitland Coal?

I mean, in other words, you know, is it your opinion that if this well was shut in for a longer period of time, there be no risk due to the fracture parting pressure for the Fruitland Coal?

A. Correct.

Q. Why is that?

A. The Basin Dakota and Blanco Mesaverde are low

permeability formations that do not flow without fracturing. This 98 day shut-in, or excuse me, at the end of this 98 days, reservoir pressure is building very slowly, we do not expect any further significant pressure build after the fractured near wellbore area builds up in these wells.

Q. So even if this well, or any of the wells that are subject to these cases were shut in for longer than 98 days, you wouldn't expect this to achieve that fracture, parting fracture that would cause injury to the --

A. No.

Q. And in your opinion, does looking at Exhibit Number 11 which is where you are referencing all of these numbers, what's the basis for that 0.65 PSI per foot value that you are using to determine the fracture parting pressure for the Fruitland Coal?

A. That was the assumed fracture parting pressure gradient I believe in the NMOCD online documents.

Q. So the rules kind of use that as a default. In your opinion, is that a very conservative default value?

A. Yes, it's conservative.

Q. So on to the next issue that may have been an issue with the Division is the difference between the, the reservoir drive mechanisms between the Fruitland Coal and the deeper Dakota and Basin Blanco Mesaverde; is that correct?

A. Correct.

Q. And what was the -- what was the concern about the drive mechanism between those two?

A. The concern was whether the drive mechanisms of the two formations were compatible. They are -- the drive mechanism for Fruitland Coal is gas desorption. As pressure is lowered, gas desorbs from the coal, flows into the wellbore.

The production drive mechanism for the Blanco Mesaverde and Basin Dakota is depletion drive. As pressure is lowered, gas expands and flows into the wellbore. These two drive mechanisms are compatible and will not result in the loss of reserves in either formation.

The Blanco Mesaverde and Picture Cliffs are two -- are both depletion drive reservoirs that are only commingled with the deeper Basin Dakota with no adverse reactions. So these two reservoir drive mechanisms are highly compatible.

Q. Now, Mr. Brown, you conducted the same analysis and came to the same conclusion with respect to the three cases that are before the Division today?

A. Yes.

Q. And you've got slides that address the similar issues that we just touched on in this case that contain your conclusions in each of the other cases that we haven't

yet discussed?

A. Yes.

Q. You have come to the same ultimate conclusion that the approval of these applications for downhole commingling will not injure or impair the recovery of reserves from any one of the zones you are proposing to commingle?

A. Yes.

Q. Now, just to recap, Mr. Brown, for any of the two cases, is it your opinion that the fluids are fully compatible between the zones you are proposing to commingle?

A. Yes.

Q. Now, on these three cases, is there any potential for future secondary recovery or tertiary recovery operations in these areas?

A. No.

Q. So these zones are never going to be candidates for tertiary or secondary recovery?

A. Not from what we know at this time.

Q. That's because of the nature of the reservoirs?

A. Right.

Q. Gas reservoirs and gas isn't secondary or tertiary recovery.

A. Right.

Q. So downhole commingling won't affect that as a

factor?

A. It won't.

Q. In your opinion, will there be a risk of permanent loss of gas or reserves due to cross flow between these formations as a result of downhole commingling?

A. No.

Q. In your opinion, fluids, two fluids intermingled here, there would be no harm or injury to any of the zones you are proposing to commingle if any fluids interact between the zones?

A. There will be no harm.

Q. In your opinion, will the value of remaining production be lessened or reduced in any way as a result of commingling?

A. No.

Q. And in your opinion, Mr. Brown, will any correlative rights of owners between the zones be impaired or impacted negatively as a result of the commingling?

A. No.

MR. RANKIN: At this time, Mr. Examiner, unless you have any questions, I'm sure you do, I would move the admission of Exhibits, in 208 -- in Case Number 20891, Exhibits -- and Case Number 20893 -- Exhibits 4 through 10 for the record; and, in Case Number 20892, Exhibits 6 through 13 for the record.

HEARING EXAMINER LOWE: Okay. Exhibits 4 through 10 for Case Number 20891 and 20893 are accepted. And Exhibits 6 through -- 6 through 13 for case Number 20892 are accepted.

(Exhibits 4-10 in 20891 and 20893 admitted.)

(Exhibits 6-13 in 20892 admitted.)

MR. RANKIN: No further questions, and pass the witness.

HEARING EXAMINER LOWE: Mr. McClure, any questions?

EXAMINER McCLURE: I do. Now, on The example well that you had provided where your gas production increased by -- I don't remember what it was, 40, 50 MCF a day, whatever it was, what do you attribute that increase to?

THE WITNESS: That is -- I would attribute it primarily to optimizing lift methods.

EXAMINER McCLURE: You don't think it's because you were dewatering your coal bed methane formation? Did your water production increase, I guess? Based between the two formations, did you see an increase after commingling of water production?

THE WITNESS: Not with the data that we have.

EXAMINER McCLURE: I'm with you. Back to my original question, of the four, your original 107As has BTU

ratings of 1000 for all formations. I believe across all three of these wells it was either all 1000 or very similar. I guess, what is the reason for the discrepancy on there? Was that just a typo? Because in these ones you are showing different values between the formations in the exhibits today.

THE WITNESS: That just a generalized estimate of field-wide BTU. We hadn't looked at specific well gas samples yet because that concern had not been raised.

EXAMINER McCLURE: Now, your current BTU ratings, they are from actual gas samples taken?

THE WITNESS: Those are from gas samples at the wellhead.

EXAMINER McCLURE: However, for all three of these wells, what you are proposing is all condensate is going to be coming from your current oil production -- or your current zones that you perforated into; is that correct?

THE WITNESS: Correct.

EXAMINER McCLURE: Yet your BTU rating is pretty much the same between that and the coal bed methane?

THE WITNESS: Yes.

EXAMINER McCLURE: And you don't think you are going to have condensate coming from the coal or is the BTU is the same?

THE WITNESS: We do not. We do not see condensate production from any of the offset Fruitland Coal wells.

EXAMINER McCLURE: Which makes sense. Typically I wouldn't expect the BTU to be quite that high, to be honest with you. And I actually would expect your other to be a little higher. I was going to say, for one of these wells, the original application sent in for the current downhole commingle -- and this was in 1998, of course, by Conoco, it looks like -- was over 1300 for both of those formations, BTU rating.

THE WITNESS: Uh-huh.

EXAMINER McCLURE: But I guess, do you have any reason, I guess, why there might be a discrepancy between now and then, other than the fact it's 20 years ago, I guess?

THE WITNESS: I do not.

EXAMINER McCLURE: Okay. Moving on, now you compared the water for scale, but as far -- I mean, you compared their compatibility for producing scale. Did you compare the total dissolved solids anywhere, and do you have those water analyses attached here anywhere that we could see?

THE WITNESS: We have the analysis. I do not know if we compared TDS on the samples.

EXAMINER McCLURE: Okay. I mean, because what is showing here would obviously be, if we are going to draw uninhibited water from your methane -- from your coal seam down your oil seam it could perhaps cause clay to swell. I don't know clean of a formation that is without looking at logs and such.

Do you know how clean your oil formations are right now in terms of mud and such that might swell on you?

THE WITNESS: I believe they are -- I've not studied those formations.

EXAMINER McCLURE: Now, I'm going to ask the question anyway, but I would assume the answer is you have not. You haven't seen any h2s production from any of these zones, have you?

THE WITNESS: So we have gas samples for the Lambe 3M and Grambling C 3B, they have zero percent h2s in the current zones and the offset Fruitland Coals. The Sheets 4E has .0002 percent h2s --

EXAMINER McCLURE: In the current zone?

THE WITNESS: -- in the current zone.

EXAMINER McCLURE: But have you none in the coals?

THE WITNESS: No.

EXAMINER McCLURE: Okay. I guess, if this were to be approved, you would have no problem with providing us

with a gas analysis of the completed well to confirm that there is no h2s present at these areas where you are perforating?

THE WITNESS: We would be happy to provide a gas analysis.

EXAMINER McCLURE: Okay. How far away is the current coal wells from these wells to be able to say for sure that the coal is dewatered in this area? I'm not sure if I have seen it on the maps anywhere.

THE WITNESS: It's on the charts. It has the distance from the -- let me find the exhibit number.

EXAMINER McCLURE: It shows the ones you are comparing, but I'm assuming there's production in the coal somewhere, right, around this area?

THE WITNESS: Let's look to one of those exhibits.

MR. RANKIN: Exhibit 10 in Case 20892.

THE WITNESS: These APIs listed are --

EXAMINER McCLURE: I'm sorry --

THE WITNESS: -- coal --

EXAMINER McCLURE: -- I do see here.

THE WITNESS: -- coal producers only. They're only coal wells.

EXAMINER McCLURE: It looks like the closest one here is about 2000 feet from it?

THE WITNESS: Correct.

EXAMINER McCLURE: So about half a mile or so.

Okay. I'm thinking what I would like to see is your total -- your current water analysis, or, if it's not here, can you e-mail that to me for both of your current production and your coal -- your assumed coal water?

If they don't match, I may need to see logs or have a statement in regards to reservoir preservation, which you've already offered, but I might need that in writing. If it's in testimony, I guess we don't need it.

THE WITNESS: We are unable to obtain water samples from some of the current producers because --

EXAMINER McCLURE: Because there is no water?

THE WITNESS: -- they produce such low water, we'll send a representative sample for all three formations, if that works for you.

EXAMINER McCLURE: You mean, one individually for each one, right? Not commingled?

THE WITNESS: Yes.

EXAMINER McCLURE: Yeah, because on this one I guess you're at like 2700 feet and making .1 barrels per day, it looks like. Okay. So I guess what I would like to see is which well you are taking it from, as well as the water sample.

THE WITNESS: Okay.

EXAMINER McCLURE: The gas analysis is interesting. Can you send me your gas analysis as well, what you have where you got these BTU from?

THE WITNESS: Yes.

EXAMINER McCLURE: Unless the actual analysis itself is actually provided here somewhere. I'm not sure.

The other question I had for you, in your original application that was submitted, it talks about your far field pressure. I'm assume -- within your Dakota formation, I believe it was referring to. Is that referring to the original pressure of the reservoir, or what is that referring to?

THE WITNESS: Those original pressures were based on -- or originally submitted pressures were based on a reservoir simulation. We have since done work. We have updated our estimates of pressure, and we believe that reservoir simulator-predicted pressures do not apply.

EXAMINER McCLURE: What I was actually referring to is there is a -- the near wellbore shut-in bottom hole pressure is much lower than the far field stabilized reservoir pressure calculated with the moving domain material balance.

That, you are just referring to several miles away, is that what we are referring to here?

THE WITNESS: Correct.

EXAMINER McCLURE: What are we referring to by this?

THE WITNESS: That language was developed with Michael McMillain. That was something that he liked included in the C107 we submitted. It was an estimate of kind of what pressure could potentially build up to if a well was shut in for 25 to 30 years.

EXAMINER McCLURE: What pressure did you come up with, because I don't see any numbers here for that.

THE WITNESS: I didn't do that work.

EXAMINER McCLURE: Okay, I'm with you. I think that's all my questions. Thank you.

EXAMINER COSS: The only question I had was, I'm looking at your map in your Exhibit 6 where you have a polygon drawn indicating an overpressured envelope, and I noticed that all three of the proposed wells, the gold stars are just outside of the overpressured envelope. And I was wondering if any of your analysis would be different were they to be inside the overpressured envelope, and if that was one of Mr. McMillain's concerns.

THE WITNESS: I can't comment on that.

EXAMINER COSS: Is there any kind of further information you can give me on the overpressured envelope, like why it occurs, and why it's localized in that area. And it's Dakota, not the Mesaverde?

THE WITNESS: This is in Fruitland Coal.

EXAMINER COSS: Fruitland Coal.

THE WITNESS: I can't comment on that, either.

EXAMINER COSS: Okay. Well, fine. I will pass the witness.

HEARING EXAMINER LOWE: No questions.

MR. AMES: No.

HEARING EXAMINER LOWE: Okay. You indicated and you -- that you are not concerned about the water between the two formations here. What evidence are you -- what do you have behind that statement to say that, you are not worried about it?

THE WITNESS: We have the water samples that we analyzed for potential scale precipitation, and then, additionally, the Fruitland Coal is commingled with Pictured Cliffs throughout the Basin. It's also commingled with the Mesaverde throughout the Basin with no negative consequences.

HEARING EXAMINER LOWE: That's all I have for questions for now.

MR. RANKIN: I have one follow-up question for clarification for the record.

REDIRECT EXAMINATION

BY MR. RANKIN:

Q. Mr. Brown, I think there was a comment made

during the questioning that the Fruitland Coal is a gas seam and then that the existing formations were oil formations.

I just want to be clear that, in these cases, all three zones that you are proposing to commingle are all gas zones; correct.

A. Correct.

Q. There is no oil formation or oil-producing zones in the areas where the wells are located?

A. No.

MR. RANKIN: I just wanted to make that point of clarification for the record. No further questions. With that, if the Division has no further questions, I ask that the cases be taken under advisement pending the addition of our supplement on water tests sampling and the gas analysis that Mr. McClure requested.

HEARING EXAMINER LOWE: You can probably submit that additional information to our OC online request by e-mail, and Mr. McClure will look there to receive that additional information that was requested.

And just, blatantly, on your subject title, indicate it's additional information and indicate the case numbers.

MR. RANKIN: Will do.

HEARING EXAMINER LOWE: We will keep an eye open on it. Okay. Case Number 20891, 20892, 20893 will be taken

under advisement.

(Cases 20891, 20892, 20893 taken under advisement.)

STATE OF NEW MEXICO)
)SS
COUNTY OF SANTA FE)

I, IRENE DELGADO, certify that I reported the proceedings in the above-transcribed pages, that pages numbered 1 through 40 are a true and correct transcript of my stenographic notes and were reduced to typewritten transcript through Computer-Aided Transcription, and that on the date I reported these proceedings I was a New Mexico Certified Court Reporter.

Dated at Santa Fe, New Mexico, this 14th day of November 2019.

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Irene Delgado, NMCCR 253
Expires: 12-31-19