

1 This matter came on for hearing before the
2 New Mexico Oil Conservation Division, William V. Jones,
3 Chief Examiner, Phillip Goetze and Leonard Lowe,
4 Technical Examiners, and David K. Brooks, Legal
5 Examiner, on Thursday, April 5th, 2018, at the New
6 Mexico Energy, Minerals and Natural Resources
7 Department, Wendell Chino Building, 1220 South St.
8 Francis Drive, Porter Hall, Room 102, Santa Fe, New
9 Mexico.

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APPEARANCES

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1 (8:44 a.m.)

2 EXAMINER JONES: Next on the docket is the
3 Hilcorp cases. Are we ready for those?

4 MR. RANKIN: I am.

5 EXAMINER JONES: Well, you're the important
6 one here so --

7 Let's call Cases 16053, 16054 --

8 Is it okay if we combine them?

9 MR. RANKIN: Please do.

10 EXAMINER JONES: -- 16055, 16056, which are
11 all titled --

12 MR. RANKIN: There are differences in the
13 titles.

14 EXAMINER JONES: There are differences in
15 the titles. Okay. The first two are titled:
16 Application of Hilcorp Energy Company for an exception
17 to the well density requirements of the special rules
18 and regulations of the Blanco-Mesaverde Gas Pool, San
19 Juan County, New Mexico. That is for Case Number 16053
20 only. Correction to what I just said.

21 And 16054 is application of Hilcorp for an
22 exception to the Basin-Fruitland Coal Gas Pool in San
23 Juan County, New Mexico.

24 Case 16055 is the application of Hilcorp
25 for a well density exception for the Blanco-Mesaverde in

1 Rio Arriba County, New Mexico.

2 Case 16056 is application of Hilcorp Energy
3 Company for an exception to the well density
4 requirements of the special rules and regulations of the
5 Blanco-Mesaverde Gas Pool, Rio Arriba, New Mexico.

6 Call for appearances.

7 MR. RANKIN: Mr. Examiner, Adam Rankin,
8 with the Santa Fe office of Holland & Hart. I have
9 three witnesses for the presentation today for our
10 consolidated cases.

11 EXAMINER JONES: Any other appearances in
12 this case?

13 We've got royalty in the room here.

14 Will the witnesses please stand and the
15 court reporter swear the witnesses?

16 (Mr. Creekmore, Mr. Sparks and Ms. Sivadon
17 sworn.)

18 MR. RANKIN: Thank you, Mr. Examiner. Call
19 my first witness, Mr. Chuck Creekmore.

20 EXAMINER JONES: I believe we know him.

21 CHARLES CREEKMORE,
22 after having been first duly sworn under oath, was
23 questioned and testified as follows:

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DIRECT EXAMINATION

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BY MR. RANKIN:

Q. Mr. Creekmore, will you please state your full name for the record?

A. Charles Creekmore.

Q. By whom are you employed?

A. Hilcorp Energy Corporation.

Q. And what is your position with Hilcorp?

A. I'm a landman.

Q. And do you have responsibilities that include the San Juan Basin in northwest New Mexico?

A. Yes.

Q. And have you previously testified before the Division and had your credentials as an expert in petroleum land matters accepted as matter of record?

A. Yes, I have.

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

A. Yes, I am.

Q. Are you also familiar with the special pool rules that apply to each of these four cases?

A. Yes.

Q. And with the density restrictions that you're seeking relief from?

A. Well, the Blanco-Mesaverde is limited to four

1 wells per half section and two wells per quarter
2 section, and the Fruitland Coal is limited to a 320-acre
3 spacing unit, one well per quarter section.

4 MR. RANKIN: With that, Mr. Examiner, I
5 would tender Mr. Creekmore as an expert in petroleum
6 land matters.

7 EXAMINER JONES: He is so qualified.

8 Q. (BY MR. RANKIN) Mr. Creekmore, just to review,
9 you mentioned two special pool rules. Are those the two
10 pool rules at issue in these cases?

11 A. Yes.

12 Q. In Case Numbers 16053 and 16055 and 16056,
13 you're seeking relief from the well density requirements
14 of the Blanco-Mesaverde Gas Pool?

15 A. That is correct.

16 Q. And in Case Number 16054, you're seeking relief
17 from the Basin-Fruitland Gas Pool; is that right?

18 A. Yes.

19 Q. In each case, you're seeking to increase the
20 well density?

21 A. Yes.

22 Q. You recited these restrictions previously, but
23 will you just reiterate for the Examiners what the pool
24 rules are for each of these two pools?

25 A. The pool rules for the Blanco-Mesaverde, as I

1 stated, are four wells per half section or 320 acres,
2 one well per -- or two wells per quarter section. And
3 then for the Basin-Fruitland Coal, it is two wells per
4 half section, 320 acres, one well per quarter section.

5 Q. Now, in Case Numbers 16053, 55 and 56, under
6 the Blanco-Mesaverde Gas Pool, you're seeking what
7 exceptions?

8 A. We're going to have three wells per quarter
9 section and five wells in the half section -- or --
10 yeah, the half section.

11 Q. And Case Number 16056, you're asking the
12 Division for what relief? That's the Fruitland case.

13 A. The Fruitland case, we're asking for two wells
14 in the quarter section and three wells in the half
15 section.

16 Q. And both special pool rules, do they provide
17 exceptions can only be granted pursuant to a hearing?

18 A. Yes, they do.

19 Q. And, in general, are these consolidated cases
20 and these well density requests -- exception requests
21 part of Hilcorp's strategy to identify existing location
22 facilities to recomplete in other zones in order to
23 target the reserves that have not been developed and
24 might be left in the ground?

25 A. That is correct.

1 Q. And with respect to both these pools, is there
2 a preapproval for downhole commingling in the zones that
3 are already completed?

4 A. Yes.

5 Q. So for both -- I think they're all Dakota wells
6 that you're seeking authority to recomplete in the
7 Mesaverde?

8 A. Yes.

9 Q. And they have preapproval for that?

10 A. Yes, they do.

11 Q. And then on Case Number 16056, you have an
12 existing Pictured Cliffs completion?

13 A. Yes, we do.

14 Q. And you're seeking authority to complete a
15 Fruitland Coal completion?

16 A. Yes.

17 Q. And there is preapproval for that as
18 commingling as well?

19 A. Yes. There is preapproval.

20 Q. The only restrictions that you're seeking
21 exemption from here are the well density requirements
22 for both these two pools?

23 A. Yes.

24 Q. Now, has the company brought in a reservoir
25 engineer to discuss the draining issues with respect to

1 your request?

2 A. Yes, we have.

3 Q. And since Hilcorp has not previously presented
4 geology on the Fruitland Coal Formation, have you also
5 brought a geologist to discuss that issue?

6 A. Yes, we have.

7 Q. Okay. Now, will you just review for the
8 Examiners that may be familiar with it at this point how
9 the exhibits are laid out in your exhibit notebook?

10 A. Well, all four exhibits are laid out in a
11 similar pattern numerically, and the land portion is the
12 first few exhibits on notice and description of the
13 area. And then, with the exception of the Fruitland
14 Coal, they're all in the same pattern, same numerical
15 pattern, so they're similar in all cases.

16 Q. Okay. So all the exhibits correspond with each
17 other for each case except for Case Number 16054, which
18 deals with the Fruitland Coal?

19 A. It's similar, but it's not the same. Yes.

20 Q. And in addition, the difference there is that
21 you have some geology testimony and exhibits to present?

22 A. That is correct.

23 Q. Now, let's talk a little bit about the notice.
24 I think the Division -- the Examiners are familiar here.
25 But what is the -- what was Hilcorp's procedure in terms

1 of identifying the affected parties who require notice
2 for each of these cases?

3 A. Well, we noticed all the offsetting operators.
4 And if we're the operator, we noticed also the other
5 nonoperators. And in the -- we also noticed the
6 nonoperators in the drill block area that we're talking
7 about today.

8 Q. So we'll talk about each case in more detail
9 when we get to it. But that was the general approach --

10 A. Yes.

11 Q. -- was to identify all the operators in the
12 offsetting acreage?

13 A. Yes.

14 Q. Now, just to review, has Hilcorp reviewed your
15 plans for these infill higher-density proposals with the
16 State Land Office and with the BLM?

17 A. Yes.

18 Q. And what was their general reception to your
19 proposals?

20 A. They're favorable, favorable reaction and
21 approved it.

22 Q. Now, let's go ahead and look at the first case
23 in the exhibit notebook, Case Number 16053.

24 Mr. Creekmore, this case involves your requests to
25 utilize the Helms Federal 1F well --

1 A. Yes.

2 Q. -- to come up to the -- from the Dakota into
3 the Mesaverde Formation; is that correct?

4 A. Yes.

5 Q. Okay. Let's review what's been marked as
6 Exhibit Number 1 in that exhibit packet. Will you
7 review for the Examiners what that shows?

8 A. This is the same exhibit in all of the packets,
9 and it just gives you a general view of all the cases
10 that we are here today on. All four of them are shown
11 in green, and this just gives you a feel for where we
12 are in the San Juan Basin.

13 Q. So each of the green outlines represents one of
14 the spacing units in which you're seeking an exception
15 to the well density requirements?

16 A. Yes.

17 Q. And two of them are wholly within federal
18 units, and two of them are outside of the federal units?

19 A. That's correct.

20 Q. And this case, 16053, the Helms Federal 1F,
21 that's one of the cases outside the federal unit; is
22 that right?

23 A. Yes.

24 Q. Let's take a look at the spacing unit at issue.
25 Has that been identified -- rather, is that included in

1 **Exhibit Number 2 here?**

2 A. Yes, it does.

3 **Q. Will you just review for the Examiners what**
4 **this shows?**

5 A. Well, it shows the four existing wells and the
6 spacing unit, and then the additional well that we
7 asking permission to recomplete today is the Helms
8 Federal 1F.

9 **Q. And what are the red lines surrounding your**
10 **spacing unit?**

11 A. The red lines are the outlines of all the
12 offset operators. I think I misstated. We only
13 notified the nonoperators in -- in the spacing unit.
14 Outside the spacing unit, we just notified the operators
15 on the outside area.

16 **Q. Right.**

17 **So in this case, the offsetting operator is**
18 **BP; is that correct?**

19 A. That's correct.

20 **Q. And Exhibit Number 3 is a list of the affected**
21 **parties who received notice?**

22 A. BP was an offsetting operator, and then the
23 next page are the parties that were within the spacing
24 unit.

25 **Q. Okay. And after that list of parties, is there**

1 a copy of the letter that went out to all those affected
2 units?

3 A. Yes. Yes. And this is a combined group --
4 these aren't just the non-ops here. We sent a packet --
5 if they were numerous -- if the non-ops were in
6 numerous -- more than one, we just sent one packet to
7 each company on all four cases. That's why there are so
8 many here. These aren't necessarily the nonoperators in
9 this spacing unit but all four cases. We sent just one
10 packet to each company.

11 Q. So that's the purpose of that initial list? It
12 just shows the parties who were affected in this one
13 case?

14 A. That's correct.

15 Q. And in this one case, it was just BP; is that
16 correct?

17 A. Yes.

18 Q. And the next list is a copy of the postal
19 tracking -- postal service tracking information --

20 A. Yes.

21 Q. -- for each of the parties?

22 A. Yes, that's correct.

23 Q. And following that, a letter was sent giving
24 notice of this hearing and the application?

25 A. Correct.

1 Q. And the last page of the exhibit, is that a
2 copy of the email from BP's senior landman indicating he
3 had no objection to this case?

4 A. That is correct.

5 Q. Is it not in your packet?

6 A. It's not in this one.

7 Q. Oh.

8 MR. RANKIN: Mr. Examiner, is it in your
9 packet?

10 EXAMINER JONES: Say again.

11 MR. RANKIN: Is there an email from
12 Mr. Craig Ferguson, last page of Exhibit Number 3?

13 EXAMINER JONES: Yes, there is.

14 MR. RANKIN: Okay. It's indicating he did
15 not object to the case; is that right?

16 EXAMINER JONES: It indicates -- I will
17 let --

18 THE WITNESS: That's okay. I see that I --
19 it just wasn't in this --

20 EXAMINER JONES: It says, "No objections."

21 (Laughter.)

22 MR. RANKIN: I like that.

23 EXAMINER BROOKS: Man of few words.

24 THE WITNESS: Well, BP's been very
25 difficult to get in contact with. Their home office in

1 Houston was -- their headquarters was a victim of
2 Hurricane Harvey, and now they're in the process of
3 moving to Colorado, to Denver. So we've had difficulty
4 getting mail to them.

5 Q. (BY MR. RANKIN) Well, Mr. Ferguson responded by
6 email, and he didn't object?

7 A. He did respond.

8 Q. In fact, not just to this case, but to the
9 other cases, Cases 16054 and 16055; is that correct?

10 A. That is correct.

11 Q. Now, with that, Mr. Creekmore, I think we've
12 covered the notice issues for that case.

13 Let's move on to the next case in the
14 docket, which is Case Number 16054, and this case
15 involves the Koch State Com 1A well; is that correct?

16 A. Yes.

17 Q. And this is the case in which Hilcorp is
18 seeking a well density exception to the Basin-Fruitland
19 Gas Pool rules?

20 A. Yes, Fruitland Coal.

21 Q. And let's turn to Exhibit Number 2 in the
22 exhibit packet. This is a map showing what,
23 Mr. Creekmore?

24 A. This is showing, basically, Hilcorp's ownership
25 in the Fruitland Coal in the Basin.

1 EXAMINER BROOKS: Are we on 16054 now?

2 MR. RANKIN: That's correct.

3 THE WITNESS: Yes, sir.

4 Q. (BY MR. RANKIN) And so this is essentially a
5 representation of Hilcorp's working interest across the
6 Basin in the Fruitland, right?

7 A. Yes.

8 Q. And what does the red star represent?

9 A. That's the location of the well that we're here
10 today on.

11 Q. But previously Hilcorp had been looking for
12 Dakota completions, which makes sense for a recompletion
13 or -- completion in the Mesaverde Formation. So is
14 Hilcorp now looking for other zones where simultaneous
15 completions make sense?

16 A. Yes, we are.

17 Q. Including the Fruitland now?

18 A. Yes.

19 Q. So let's turn to Exhibit Number 3. Does this
20 show the spacing unit at issue here?

21 A. Yes, it does.

22 Q. And as with the previous exhibit in the prior
23 case, does the red outline indicate the notice area?

24 A. Yes.

25 Q. And you've identified on your next exhibit all

1 the parties, offsetting operators and working interest
2 owners. And Hilcorp itself is an offset?

3 A. Right.

4 Q. Who is required to get notice?

5 A. Right. That is correct.

6 Q. And following that page is a copy of the
7 tracking information that indicates that each of those
8 parties did actually receive notice?

9 A. Yes.

10 Q. As well as a copy of the letter that was sent
11 to those parties as working interest owners and as
12 offset operators?

13 A. That is correct.

14 Q. And, again, the last page is a copy of the
15 email from Mr. Ferguson indicating that BP had no
16 objection; is that correct?

17 A. I have it in this one.

18 Q. Good.

19 And just as a belt-and-suspenders approach,
20 is Exhibit Number 5 a copy of the Affidavit of
21 Publication indicating --

22 A. Yes.

23 Q. -- that all the parties who required notice
24 were named in the Notice of Publication?

25 A. Yes, it is.

1 Q. All right. Mr. Creekmore, let's move on to the
2 next case of notice, which is Case Number 16055. Does
3 this case involve your request to exceed the well
4 density requirements by additional completion in the San
5 Juan 28-6 Unit 127 well?

6 A. Yes.

7 Q. And is Exhibit Number 2 -- will you just review
8 for the Examiners what that shows in that case?

9 A. Again, that's a plat that shows the additional
10 well that we've targeted to recomplete. And then the
11 red outline is the offset owners in this case because
12 it's in a unit and we're the operator, and we gave
13 notice to all the nonoperators.

14 Q. Okay. And in this case, because you're wholly
15 within the boundaries of a unit PA, participating area,
16 is the ownership common between the spacing unit and the
17 offsets?

18 A. It's all undivided ownership. It's in a
19 participating area in a federal unit, and it's all
20 undivided ownership.

21 Q. So in this case, the owners in the spacing unit
22 will be benefiting -- the owners who are outside the
23 spacing unit are the same owners as inside the spacing
24 unit, and they'll all be benefiting from this proposed
25 recompletion?

1 A. Yes.

2 Q. Andis Exhibit 3, as with the prior cases, a
3 list of those parties as requiring notice?

4 A. Yes.

5 Q. And the following pages, are those copies of
6 the tracking information indicating that each of those
7 parties actually did receive notice?

8 A. That is correct.

9 Q. And the following pages behind that, is that a
10 copy of the letter that went out to those working
11 interest owners?

12 A. Yes.

13 Q. And then, again, a copy of the email from
14 Mr. Ferguson indicating that he did not object to the
15 application?

16 A. That is correct.

17 Q. Finally, Mr. Creekmore, let's move to the last
18 case in your exhibit packet, which is Case Number 16056.
19 And, again, this involves -- you requested density
20 exceptions involving the San Juan 28-7 Unit 258 well; is
21 that correct?

22 A. Yes.

23 Q. Would you just review for the Examiners what
24 Exhibit Number 2 shows?

25 A. Exhibit Number 2 is, again, the targeted

1 spacing unit, the existing wells and the additional well
2 that we're asking for a density exception and to
3 recomplete. And then the outer boundaries is the offset
4 owners. But, again, you're in a federal unit,
5 participating area so same owners within and without.

6 Q. Again, as a consequence, the owners are in a
7 spacing unit benefiting from the production as equally
8 with those outside the spacing unit?

9 A. Yes.

10 Q. And Exhibit 3, is that a copy of the list of
11 suspected parties that were identified as requiring
12 notice?

13 A. Yes.

14 Q. And the following pages is the same tracking
15 sheet indicated with information showing that they each
16 received notice?

17 A. Yes, it is.

18 Q. And following that tracking page, is there a
19 letter that went out to all the working interest owners
20 within the PA, basically?

21 A. Yes.

22 Q. And then in this case, Mr. Creekmore, you've
23 also included in here an email from Holly Bishop; is
24 that correct?

25 A. Yes.

1 **Q. Who is she?**

2 A. It's an email from Holly Bishop who owns
3 independently, and she also represents Mary Jeanne Banks
4 who is, as I understand it, elderly, and she takes care
5 of both of them. And she acknowledged that they
6 received notice.

7 **Q. Right.**

8 **And on your tracking list, it actually**
9 **indicates that Holly Bishop is the person you identify**
10 **as the affected party; is that right?**

11 A. Yes.

12 **Q. And it shows that for her, in any event, it was**
13 **delivered by the U.S. Postal Service?**

14 A. Yes. She did acknowledge that.

15 **Q. With that, Mr. Creekmore, did you prepare**
16 **Exhibits 1 through -- let me get my exhibits correct --**
17 **1 through 3 in Case Numbers 16053, 055 and 056?**

18 A. Yes.

19 **Q. And then 1 through 4 in Case Number 16054?**

20 A. Yes, I did.

21 MR. RANKIN: Mr. Examiner, I'd move into
22 admission those exhibits. I can repeat them again for
23 you if you'd like.

24 EXAMINER JONES: Exhibits 1 through 3 --

25 MR. RANKIN: In 16053, 16055 and 16056.

1 EXAMINER JONES: -- in 16053 and 16055 and
2 16056 -- these are the Mesaverde cases?

3 MR. RANKIN: Right.

4 EXAMINER JONES: -- and Exhibits 1 through
5 4 in Case Number 16054 are admitted.

6 (Hilcorp Energy Company Exhibit Numbers 1
7 through 3 in Cases 16053, 16055 and 16056
8 and Exhibit Numbers 1 through 4 in Case
9 16054 are offered and admitted into
10 evidence.)

11 EXAMINER JONES: You guys want to go first?
12 Phil?

13 CROSS-EXAMINATION

14 BY EXAMINER GOETZE:

15 Q. Good morning, sir.

16 A. Good morning.

17 Q. Welcome back.

18 Just a quick question. Are you familiar
19 with the disruption of the Koch State Com 1A well? This
20 well apparently has a downhole commingling order
21 associated with it, and it shows completion currently
22 with both the Blanco-Mesaverde and the Blanco-Pictured
23 Cliffs; is that correct?

24 A. Yes, that is correct. I think the APD showed
25 the Aztec; Pictured Cliffs but later changed it to the

1 Blanco-Pictured Cliffs. That's --

2 Q. So are you going to have a third zone and not
3 do anything with regards to the -- because you actually
4 have the combinations of Blanco-Pictured Cliffs and
5 Basin-Fruitland and Blanco-Pictured Cliffs and
6 Blanco-Mesaverde but not Blanco-Mesaverde to
7 Basin-Fruitland. Are you going to provide us testimony
8 to help us clear up that situation?

9 MR. RANKIN: In terms of the comparability
10 of those zones for commingling?

11 EXAMINER GOETZE: Yes.

12 MR. RANKIN: If the Division would like to
13 have additional information on that, we can provide it
14 supplementally.

15 EXAMINER GOETZE: Okay. This would be
16 typical of any type of application of downhole
17 commingling, to provide some information to make sure
18 we're not fracturing. So at this point, I'd bring it to
19 your attention that in pooling, that you're combining
20 together. And in doing so, I think you probably need to
21 supplement with some sort of simple documentation
22 showing we've got these pressures and we know what they
23 are and they won't cause a problem.

24 Other than that, thank you very much.

25 EXAMINER JONES: Mr. Brooks?

1 EXAMINER BROOKS: Good morning. I wish to
2 join in welcoming you back.

3 THE WITNESS: Oh, thank you.

4 EXAMINER BROOKS: But I don't have any
5 questions.

6 EXAMINER JONES: Mr. Lowe?

7 CROSS-EXAMINATION

8 BY EXAMINER LOWE:

9 Q. Just one question for clarification on my end.
10 Was it for Case 16056 that you indicated BP is the
11 offset operator? I was trying -- I don't have the
12 exhibits. I want to clarify that on my side.

13 MR. RANKIN: Mr. Lowe, that's the one case
14 in which they're not an offset operator.

15 EXAMINER LOWE: They're not.

16 MR. RANKIN: In the other cases, they are.

17 EXAMINER LOWE: Okay. That's all I've got.
18 Thank you.

19 CROSS-EXAMINATION

20 BY EXAMINER JONES:

21 Q. So even if you do -- you're obviously going to
22 apply for downhole commingling, but we would like you to
23 supplement about the pressures in the formations or
24 estimated pressures in the formations.

25 A. (Indicating.)

1 **Q. The downhole commingle would come up here.**

2 **It's not a district --**

3 EXAMINER GOETZE: Well, when we put three
4 together -- it's been typical, when you're combining
5 three and they haven't been combined in the order
6 itself, the pooling order, that we request that it come
7 to Santa Fe for approval. And, again, this is one of
8 these things -- if you're looking at a future of
9 continuing with this type of operation, you need to lay
10 a foundation now so we -- make it more simple in the
11 process. Okay?

12 THE WITNESS: Thank you.

13 **Q. (BY EXAMINER JONES) And these are stand-up**
14 **units or an offsetting unit in almost all cases; is that**
15 **correct? I mean as far as the notice goes, you've got**
16 **this big rectangle -- stand-up rectangle. So there is**
17 **no lay-down units that are --**

18 A. Just a second. One of them is a lay-down.

19 MR. RANKIN: I believe it's -- the lay-down
20 is Case 16054.

21 EXAMINER JONES: Okay. That's the --

22 MR. RANKIN: Yeah.

23 EXAMINER JONES: I guess I should be more
24 specific.

25 **Q. (BY EXAMINER JONES) In the first case, 16053,**

1 in those, you noticed the people around you, but you
2 assume they're going to be-- they're stand-up units, but
3 are they all, in fact, stand-up units for the
4 surrounding --

5 A. Yeah. Within the red outline, the one lay-down
6 we noticed everybody that's adjoining the -- the drill
7 block and spacing unit. And then inside, since we were
8 the operator, we noticed the people inside the actual
9 drill block.

10 Q. Well, you would be noticing them anyway for
11 your AFE?

12 A. Right. We send them an APD and a ballot, so --

13 Q. Yeah. But you give them a chance on this case
14 to actually show up.

15 Are all of these four cases intended
16 actions? You're not -- you're not coming, asking for
17 relief on something that's already been done and you
18 just found out about it; is that correct?

19 A. I'm not sure I understand your question.

20 Q. Well, what happened a few -- about ten years
21 ago, there was a big search of all the basin units and
22 well densities to see if there were some exceptions that
23 were already out there that hadn't been asked for yet,
24 and they came to hearing to ask for those. And these
25 are all future recompletions you intend to do within the

1 **next month or so; is that correct?**

2 A. Uh-huh. They're scheduled within the next two
3 or three months. The first cases that we came with in
4 January, many of those wells have been recompleted.
5 We're in the process right now with those. So this is
6 an ongoing program.

7 Q. The people -- now that you've started this, do
8 you notice any reaction from the people that you're
9 noticing or other oil companies that are going to start
10 doing the same thing themselves? Is this setting up a
11 firestorm here?

12 A. Well, there is an interest from other companies
13 to see the results of this, and we feel like -- we're
14 very optimistic about it thus far, and other companies
15 are interested to see the results. And I'm not sure --
16 they plan on drilling these -- or they plan on doing
17 anything additional. Several companies have asked to
18 see the results, of course.

19 Q. Is it true that the workovers may be
20 economical, but the drilling of new wells is still not
21 economical?

22 A. Right. This makes many of these projects
23 economical by using an existing wellbore.

24 Q. Okay. Thanks very much.

25 EXAMINER JONES: I guess the notice is

1 fine. Mr. Brooks isn't saying --

2 MR. RANKIN: Trying to make sure there were
3 no issues.

4 EXAMINER BROOKS: I didn't perceive any.

5 MR. RANKIN: Yeah.

6 With that, Mr. Examiner, I'd like to
7 dismiss Mr. Creekmore and call our second witness,
8 Mr. Andrew Sparks. Mr. Sparks will be testifying really
9 for Case Number 16054, and he will be giving geologic
10 testimony respecting the Fruitland Coal Formation.

11 ANDREW SPARKS,
12 after having been previously sworn under oath, was
13 questioned and testified as follows:

14 DIRECT EXAMINATION

15 BY MR. RANKIN:

16 Q. Mr. Sparks, please state your name for the
17 record.

18 A. Andrew Sparks.

19 Q. And by whom are you employed?

20 A. Hilcorp Energy Company.

21 Q. What is your job with Hilcorp?

22 A. I'm a geologist based in Houston, Texas.

23 Q. Have you previously testified before the
24 Division?

25 A. I have not.

1 Q. Will you review for the Examiners your
2 education and work experience?

3 A. Yes. I got my bachelor's from Franklin &
4 Marshall College in 2008, my Master's in Geology from
5 the University of Kansas in 2011. I went to work for a
6 large global operator in California immediately
7 following that. I received my MBA from Duke University
8 in 2017, and I joined Hilcorp in July of 2017.

9 Q. What area of responsibilities does your work
10 involve?

11 A. The San Juan Basin.

12 Q. And have you -- are you familiar with the
13 application that was filed in Case 16054?

14 A. Yes, I am.

15 Q. And did you conduct a geologic study of the
16 lands that are at issue in that case?

17 A. Yes.

18 Q. Mr. Sparks, will you -- in this case -- let me
19 just step back a moment.

20 Hilcorp previously provided some geologic
21 testimony respecting the Mesaverde because all of the
22 previous cases dealt with the Mesaverde and additional
23 completions and well density issues in the Mesaverde,
24 correct?

25 A. Correct.

1 Q. And so far has not provided on the geology or
2 background of the Fruitland Coal?

3 A. That's right.

4 Q. Will you review and orient the Examiner,
5 please, of the geology for the Fruitland Coal --

6 A. Yes.

7 Q. -- starting with Exhibit Number 6 in Case
8 Number 16054?

9 A. Right. So the first slide in Exhibit 6 is a
10 schematic cross section of the San Juan Basin, which is
11 a basin-centered gas system which has several stacked
12 pay zones. Typically, what we have been coming to the
13 Division for previously has been taking Dakota wells and
14 producing out of the Mesaverde. This, the Dakota, would
15 be the deepest zone here that you can see. And then the
16 subject of this case is the Fruitland Coal, which is the
17 shallowest pay zone. So that is our, kind of, schematic
18 of the Basin, which all of these zones produce some form
19 of gas, oil and water.

20 The next slide in Exhibit 6 is a schematic
21 of the environment of deposition of coal and swamp
22 formation. What you can see in the top figure is -- the
23 swampy area is in the dark green as you are on the
24 shelf. And as you move off the shelf, you go deeper
25 into the Basin, into the ocean. Swamps tend to be

1 restricted in terms of water movement. They are full of
2 organic matter, which is typically plant material that
3 gets buried as sea level rises, which you are seeing in
4 the lower schematic.

5 Just as a modern day analog, the next page
6 of Exhibit 6 is an image from the Okefenokee Swamp that
7 borders Florida and Georgia just for you to give a
8 visual of what that, kind of, swampy environment
9 actually looks like. You do get hundreds of feet of
10 buried organic material that turns into coal through
11 time when it's subjected to heat and pressure. The coal
12 generally has 50 to 70 percent of organic matter.

13 And then if you go on to the next slide in
14 the exhibit, you will look at our type log for the
15 Fruitland. What we are looking at on the left is a well
16 log, wireline. The left is the gamma ray as you go from
17 zero, which is more sandy, to 200, which is more shaley.
18 And then you have the resistivity values from zero to
19 250 in red. And then lastly, probably the most
20 important wireline pass that you could make is the bulk
21 density. And that is from, basically, one to three.
22 The reason bulk density is so important is because you
23 cannot differentiate sand and shale from coal just based
24 on the gamma ray, so the coal is identified by lower
25 bulk density values. As you can see, the shading in

1 green signifies coal seams. That is unique to the
2 Fruitland Formation. So the Fruitland Formation lies
3 above the Pictured Cliffs but under the Kirtland Shale
4 Formation.

5 The next page is taking on a virtual field
6 trip to the San Juan Mine for you to get a visual again
7 of what these coal seams look like. They protrude from
8 the outcrop. They tend to be very laterally extensive
9 and easily traced long areas. However, you do get
10 channel erosion and truncation of the coal seams. So
11 you do have some variability in the coal.

12 **Q. This image depicts where one of those lateral**
13 **extensive coal seams is truncated by a cross channel?**

14 A. That's right. You do see the -- through the
15 channel, the riverbed kind of cuts through the coal seam
16 and erodes it away.

17 And so at a very molecular level, the
18 production of coalbed methane is quite different from
19 your typical tight gas or conventional systems. The
20 first thing that happens is the coals in these matrix
21 blocks, which are those black blocks you see in the
22 image, is they contain micropores that are full of
23 methane. At which point, when the peat and the moss
24 dry, it creates a fracture system known as cleats, and
25 then the methane, therefore, is trapped by the water

1 that fills those -- those cleats.

2 So in order to produce coal by methane, the
3 first thing you must do with a well is produce the
4 water. When you produce the water, you allow the
5 methane to escape the micropores and reach your
6 wellbore. So basically dewater the well, dewater the
7 formation and then produce the gas.

8 Q. So with that overview, Mr. Sparks, have you
9 evaluated the -- whether or not the Fruitland Coal
10 Formation is available in the target zone here for the
11 Koch State Com 1A well?

12 A. Yes.

13 Q. And is Exhibit 7 a cross section that evaluates
14 the viability of production in that area?

15 A. That's right.

16 Q. Will you review for the Examiners what that
17 shows in Exhibit 7?

18 A. Yes. On the top of Exhibit 7 is an areal image
19 of the wells in the vicinity. You're in Township 29,
20 Range 9, Sections 36 and 31, going from north to south
21 from A to A prime. The well -- the subject well is the
22 middle well in that cross section in the southern half
23 of Section 36. And what you can see is you're looking
24 at a cross section below. With that is gamma ray, from
25 zero to 200, track, a resistivity track, and then that

1 bulk density track, which is so crucial to identifying
2 the coal seams.

3 And what you're seeing in the middle well,
4 which is the well in subject, the Fruitland Formation is
5 depicted by the red line, and you can see -- the third
6 track, the RHOB, that goes from one to three, you see
7 the lower density intervals shaded in gray on that third
8 track, and that is the target interval. And you can see
9 the two offset wells have already been produced from the
10 Fruitland Coal Formation, which is depicted by those
11 green rectangles and circles.

12 **Q. So those wells are targeting the same -- those**
13 **offsetting wells are targeting the same zone that you're**
14 **looking to complete here in the Koch State Com 1A well?**

15 A. That's correct.

16 **Q. And those have been successfully producing?**

17 A. Yes.

18 **Q. In your opinion, Mr. Sparks, will the**
19 **recompletion of this well in the Fruitland Coal result**
20 **in accounting [sic] production?**

21 A. Yes.

22 **Q. With that, Mr. Sparks, have you -- did you**
23 **prepare or receive the preparation of Exhibits 6 and 7**
24 **for this case?**

25 A. Yes.

1 MR. RANKIN: Mr. Examiner, I would move
2 into admission Exhibits 6 and 7.

3 EXAMINER JONES: Exhibits 6 and 7 are
4 admitted.

5 (Hilcorp Energy Company Exhibit Numbers 6
6 and 7 are offered and admitted into
7 evidence.)

8 MR. RANKIN: Mr. Examiner, did I tender
9 Mr. Sparks as an expert in this case?

10 EXAMINER JONES: No (laughter).

11 MR. RANKIN: May I ask leave to tender
12 Mr. Sparks as an expert in petroleum geology?

13 EXAMINER JONES: He's probably an expert in
14 basketball also between Kansas and Duke.

15 THE WITNESS: Yes.

16 EXAMINER JONES: He is so qualified.

17 MR. RANKIN: Thank you, Mr. Examiner.

18 EXAMINER BROOKS: In geology, not in
19 basketball.

20 (Laughter.)

21 EXAMINER JONES: Who knows?

22 EXAMINER BROOKS: Next hearing, maybe.

23 THE WITNESS: Yes.

24 MR. RANKIN: Thank you.

25 With that, Mr. Examiner, I would move those

1 two exhibits into evidence. I have no further questions
2 for the witness.

3 EXAMINER JONES: Mr. Goetze?

4 CROSS-EXAMINATION

5 BY EXAMINER GOETZE:

6 Q. Good morning.

7 A. Good morning.

8 Q. On other experiences with the Fruitland Coal,
9 what type of completion do you look at?

10 A. So that is kind of still being discussed in
11 terms of if we will produce each individual coal seam as
12 a separate stage or the entire coal unit as one stage.
13 We're still in discussions and analysis on that.

14 Q. And do you select your wells based upon its
15 history and location, as well as cement completion?

16 A. All of those factors go into our analysis, yes,
17 along with remaining reserves and obviously economic
18 potential. But those all factor into it.

19 Q. And with your prior experiences with the
20 Fruitland Coal, is there much water production
21 associated with the coal seam?

22 A. Yes. I don't know exactly, you know, the
23 quantity of water, but there absolutely will be water
24 production in these wells, because in order to produce
25 the coalbed methane, you must remove the water first,

1 which allows it to flow.

2 Q. Is this going to be completed as one open
3 interval, or are you going to need to stage these or
4 isolate zones at the -- at the well, or it is just going
5 to be a singular production?

6 A. I don't think that has been finalized yet. I
7 believe we're still working on it, so I can't answer
8 that right at this time.

9 Q. Thank you. That's all the questions I have.

10 A. Sure.

11 EXAMINER JONES: Mr. Lowe?

12 CROSS-EXAMINATION

13 BY EXAMINER LOWE:

14 Q. I don't know if you can answer this. But the
15 water that produces first, approximately how much,
16 average, produced water?

17 A. I don't -- I don't have a number to give you.
18 I would prefer not to give you a number than give you a
19 wrong number.

20 Q. That's fine. That's all the questions I've
21 got.

22 EXAMINER JONES: Mr. Brooks?

23 EXAMINER BROOKS: No questions.

24

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CROSS-EXAMINATION

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BY EXAMINER JONES:

Q. This area of the Fruitland, is it a high-productivity area or --

A. Yes.

Q. -- is it in the low-productivity area?

MR. RANKIN: I believe, Mr. Examiner, if you look at the lands in the pool rule, it calls for low.

EXAMINER JONES: So with notice requirements for low-productivity area, increased density applies to this formation?

MR. RANKIN: That's my understanding.

Q. (BY EXAMINER JONES) So what what -- so you're looking at -- what's the current thinking on the Fruitland as far as the density? What is pay and what's not pay? Are you going into the shales a little bit now?

A. We are targeting just the coal seams.

Q. Okay.

A. So, again, we're looking at, in order to complete these, do you complete them as one stage all together, or do you go in and do you complete each, individual coal seam separately? But we are targeting just the coal seams.

1 EXAMINER JONES: Okay. You're going to
2 have an engineering witness?

3 MR. RANKIN: We will.

4 THE WITNESS: Yes.

5 Q. (BY EXAMINER JONES) Okay. So your gas analysis
6 on the surrounding wells, is it -- can you talk about
7 that any, on the Fruitland wells?

8 A. In terms of the composition?

9 Q. Yeah.

10 A. I cannot. I would definitely not be the person
11 to ask on that.

12 Q. Okay. Okay. Are you hopeful -- you think
13 you're going to encounter some coals that haven't
14 already been targeted, or are you just looking to draw
15 the pressure down a little more here?

16 A. We are targeting areas that have not been
17 adequately drained or produced. So we're looking for
18 low-recovery efficiency areas. I think because the coal
19 seams are so laterally extensive, we're probably not
20 going to find any new coal seams that have not been
21 targeted. But, you know, we are targeting areas that
22 have, in our opinion, been underproduced.

23 Q. So the surrounding wells are shooting -- they
24 have -- the basal coal and the Upper Fruitland Coal is
25 already completed?

1 A. That's right. Most of these coal seams have
2 been completed elsewhere. Yes.

3 **Q. Okay. Thanks.**

4 MR. RANKIN: No further questions for
5 Mr. Sparks.

6 I'd call our last witness, Ms. Michelle
7 Sivadon.

8 MICHELLE M. SIVADON,
9 after having been previously sworn under oath, was
10 questioned and testified as follows:

11 DIRECT EXAMINATION

12 BY MR. RANKIN:

13 **Q. Ms. Sivadon, will you please state your name**
14 **for the record?**

15 A. Yes, sir. Michelle Marie Sivadon.

16 **Q. And by whom are you employed?**

17 A. Hilcorp Energy Company.

18 **Q. In what capacity?**

19 A. I am a senior reservoir engineer working the
20 San Juan Basin.

21 **Q. Have you previously testified before the**
22 **Division?**

23 A. Yes, sir.

24 **Q. And have you had your qualifications as an**
25 **expert in petroleum engineering accepted as a matter of**

1 record?

2 A. Yes, I have.

3 Q. And have you conducted a study of the reservoir
4 at issue in these four cases?

5 A. Yes, sir.

6 Q. And you are familiar with these four
7 applications, correct?

8 A. Yes, sir.

9 MR. RANKIN: Mr. Examiner, I would
10 tender -- retender Ms. Sivadon as an expert in reservoir
11 engineering.

12 EXAMINER JONES: So qualified.

13 Q. (BY MR. RANKIN) Ms. Sivadon, let's pick up
14 where Mr. Sparks left off, in Case Number 16054, and his
15 discussions of the Fruitland Coal Formation. Will you
16 review for the Examiners, starting with Exhibit Number
17 8, this Fruitland Coal reservoir and its production?

18 A. Yes, sir. Exhibit Number 8 is to show and
19 explain that coalbed methane reservoirs do store and
20 produce gas differently than conventional reservoirs.
21 Much like Andrew Sparks just testified, you know,
22 conventional sandstones like the Mesaverde that we've
23 been in front of the Examiners before here previously,
24 you know, gas is stored in the pore space between the
25 sand grains and then it's produced via permeability or

1 the connectivity of those pore spaces, as well as the
2 function of Darcy's law, is what we ultimately recover
3 in those conventional sandstones.

4 In a coalbed methane, the gas is actually
5 absorbed within the clay matrix itself. So the way that
6 we produce that gas is we dewater the cleat system and,
7 therefore, desorbing the gas off of the clay matrix.

8 The graph here on the lower left shows the
9 function of gas storage relative to reservoir pressure,
10 which is demonstrated with the red line here. The green
11 horizontal line is the Langmuir volume. That's the
12 amount of gas that can store in coal at infinite
13 pressure, the pore pressure.

14 The vertical green line is the Langmuir
15 pressure, and that represents reservoir pressure at
16 which you can recover half of the gas content of that
17 particular coal or coal seam. The way these values are
18 derived are from core data, so it's very specific to
19 individual coal seams. Not all coal seams are going to
20 be the same.

21 The graph on the right represents recovery
22 factor as a function of reservoir pressure. The red
23 line is the linear relationship expected for a
24 conventional sandstone. The green line represents what
25 we expect for a coal, which is not a linear

1 relationship.

2 You can see, as we continue to drop
3 reservoir pressure, we incrementally get more recovery
4 factor than we would for a conventional sandstone. So
5 lower reservoir pressures are not a concern for coalbed
6 methane. It's actually a good thing because we're
7 actually able to absorb even more of the gas by
8 continuing to lower the reservoir pressures.

9 **Q. And these charts -- these sort of generalized**
10 **charts, are they specific to the Fruitland Coal**
11 **Formation, the wells we're talking about today?**

12 A. No. This is more general.

13 **Q. Generalized. Okay.**

14 A. Yes. This is general.

15 **Q. Now, moving on, Ms. Sivadon, before we step**
16 **into your analysis here, would you just review again for**
17 **the Examiners in general your analytical approach, how**
18 **you determine what zones and what wells are ideal**
19 **candidates for a recompletion in order to identify**
20 **unrecovered reserves?**

21 A. Sure. We've taken the same approach here that
22 we did for the Mesaverde, where we're taking a
23 volumetric approach, calculating what we believe to be
24 original gas in place, what's been recovered to date and
25 then what we forecast to recover via supply curve

1 analysis.

2 What's a little different with the coalbed
3 methane is that volumetric calculation is different than
4 it is for conventional sandstones. It's not a function
5 of porosity or permeability in this case. What it does
6 consist of is the area to be drained, the thickness of
7 the coal, the density of the coal, the current reservoir
8 pressure, as well as Langmuir volumes and pressures.

9 **Q. So the analytical approach is the same, but the**
10 **calculations to support are different than coal**
11 **versus --**

12 A. With regard to original gas in place, yes.

13 **Q. So will you review for the Examiners your**
14 **analysis here in the Fruitland Coal and how you**
15 **determine that there was -- that this well, the Koch**
16 **well, is an ideal candidate for recompletion in the**
17 **Fruitland?**

18 A. Yes, sir. Exhibit Number 9 is an original
19 gas-in-place map that we've done for the Fruitland Coal,
20 much like we had shown for the Mesaverde previously.
21 The red outline is what we call the overpressured coal.
22 The contours that you see to the bottom half of this map
23 are what we call the underpressure coal. Again, cooler
24 colors suggest lower volumes to original gas in place,
25 and the warmer colors suggest a higher gas in place.

1 The red star on this map towards the middle
2 of it indicates where the Koch well -- proposed well is,
3 showing that we are in an area of higher gas-in-place
4 volumes.

5 **Q. And then Exhibit Number 10?**

6 A. Yes, sir. Exhibit Number 10, again much like
7 we've shown for the Mesaverde previously, this is a
8 cumulative gas-production map for the Fruitland Coal,
9 same outlines as we saw on the gas-in-place map. We
10 have the red outline for the overpressured area, the
11 contoured area, for the underpressured coal. Again, a
12 red star showing where the Koch location is. You can
13 see we are in an area of where there's been higher
14 volumes of gas produced.

15 **Q. And your next Exhibit Number 11 is?**

16 A. Yes, sir. Number 11 is remaining gas in place.
17 This is done via subtraction method, taking what was
18 original gas in place, subtracting what was cumulatively
19 produced to date to suggest what's remaining gas in
20 place for the Fruitland Coal. Again, cooler colors are
21 lower values. Warmer colors are higher values to kind
22 of in the midrange -- bar [sic], suggesting that there
23 should be some additional remaining gas in place.

24 **Q. Now, did you also conduct a numerical analysis**
25 **as well?**

1 A. Yes, sir, we did.

2 Q. Okay. So your next exhibit starts to get into
3 that?

4 A. That is right.

5 Q. Will you review for the Examiners what the
6 bubble map shows with respect to the well you're
7 proposing here?

8 A. Yes, sir. The bubble map shown on the left
9 side of this exhibit shows the calculated drainage areas
10 for the Fruitland Coal completions in the nine sections
11 surrounding our proposed take point. The Fruitland Coal
12 completions are represented with the green triangles.
13 The gray circles represent the calculated drainage areas
14 for each of those Fruitland Coal completions. These are
15 both historical and current Fruitland Coal completions.

16 And what we have highlighted on here with
17 the blue wagon wheel and the red circle around it is our
18 proposed Koch State Com 1A well to add the Fruitland
19 Coal to. What you can see with this proposed take point
20 is that there is a lot of white, which suggests
21 undrained reserves. We don't foresee that those
22 reserves are going to be drained with any of the current
23 completions in place and, therefore, suggests that we'll
24 have plenty of room to fit in an additional take point
25 with this particular well.

1 **Q. Just as a reminder for the Examiners, this**
2 **spacing unit is the south-half spacing unit; is that**
3 **correct?**

4 A. Yes.

5 **Q. So you're looking at two existing wells in the**
6 **west half-south half of 36 or the well spacing unit**
7 **existing?**

8 A. Correct.

9 And some other specifics on this well: It
10 was drilled in 1977. It would be the second Fruitland
11 Coal well in this particular quarter section. The
12 southeast quarter section of Section 36 is about 1,900
13 feet away from the nearest well, which is in the
14 northeast quarter, at 620 feet from the section line.

15 And to address some of the questions that
16 have been asked previously, we are evaluating how we
17 want to complete this. We're looking at whether doing
18 it in a single stage or multiple stages. Right now we
19 are leaning towards doing multiple stages, doing a frac
20 stage per coal seam to try to increase our recovery
21 efficiency. And this would allow us to help better
22 drain that entire quarter section.

23 **Q. And then your next exhibit, Number 13, you said**
24 **demonstrates your calculations reflecting the potential**
25 **gas remaining in place?**

1 A. Yes, it is.

2 **Q. Will you review that for the Examiners?**

3 A. Yes, sir. The table located at the top of this
4 exhibit is a volumetrics table that we've evaluated at
5 this particular take point.

6 The first column shows the area that we're
7 calculating volumetrics for, whether it's a quarter
8 section, a section or a nine-section evaluation.

9 The second column is the original gas in
10 place, which, as we've mentioned previously, that's
11 actually absorbed into the clay matrix. Using the
12 previous volumetrics method that I've talked through, at
13 a quarter-section level, we're looking at 2.7 bcf
14 originally in place; at a section level, 11 bcf; and at
15 a nine-section level, 94 bcf.

16 In the third column, we do back into what
17 each of those relative areas would look at if we were to
18 either gross it up or cut it down to a section level
19 just to get confirmation that we have roughly the same
20 rock porosities across any of these various areas we're
21 looking at. So for the quarter section, we take that
22 original gas in place in column two and multiply it by
23 four, giving us the 10.8. The section number stays the
24 same at 11. And a nine-section level will take that 94
25 bcf and divide by nine, giving us 10-1/2 bcf. Again,

1 giving us comfort that, you know, whether we look at it
2 in a quarter section, section or nine section, we have
3 approximately the same rock porosities across all those
4 areas.

5 In column four is what has been produced to
6 date. At a quarter-section level, it's .6 bcf, which is
7 a 22 percent recovery factor; at a section level, 3.2
8 bcf, which is a 29 percent recovery factor; and at a
9 nine-section level, 43 bcf, which is a 46 percent
10 recovery factor.

11 In the fifth column is what we're
12 calculating as gas in place. This is a subtraction
13 method of taking the absorbed original gas in place in
14 column two and subtracting what's produced to date in
15 column four. So at a quarter-section level, we're
16 showing that there is still 2.1 bcf to be recovered; at
17 a section level, 7.8 bcf; and at a nine-section level,
18 we're calculating 61 bcf to be additionally recovered.

19 In the last column to the right is taking
20 the current take points that we have in each of these
21 relative areas forecasting via decline analysis how much
22 we ultimately think we're going to recover with just the
23 current take points.

24 So the quarter-section level, we're
25 forecasting that we will only recover 1 bcf out of the

1 total 2.7 bcf in that quarter section. That gives us a
2 recovery factor of only 37 percent. And considering the
3 depth and the nature of the coal, we would expect that
4 recovery factor to be more like 75 to 80 percent, is
5 what we would look for ultimately. And so, therefore,
6 that suggests there is more than enough reserves to put
7 in an additional take point in the Fruitland Coal in
8 that quarter section. At a section level, we're
9 forecasting that we will recover 6.6 bcf, which is a
10 recovery factor of 60 percent. And at a nine-section
11 level, we're forecasting we'll recover 70 bcf, which
12 will be a 74 percent recovery factor.

13 **Q. And out of those recovery factors that are --**
14 **for the existing well patterns, correct?**

15 A. Correct.

16 **Q. And how do those compare to what you would**
17 **hopefully want to see a well space -- efficient well**
18 **density pattern?**

19 A. Ultimately, we would like to get to a 75 to 80
20 percent recovery factor.

21 **Q. Okay. So on existing density, these numbers**
22 **are below what you hope to see for recovery?**

23 A. Yes, sir.

24 **Q. Is that the basis for your request to increase**
25 **density?**

1 A. It is.

2 Q. Now, in your opinion, Ms. Sivadon, will the
3 proposed completion here recover additional gas left in
4 place -- that might otherwise be left in place, and will
5 the density remain the same?

6 A. Yes, sir.

7 Q. In your opinion, will the additional completion
8 adversely impact the reservoir in any way?

9 A. No, sir.

10 Q. In your opinion, will the additional -- impair
11 the correlative rights of the surrounding owners?

12 A. No, sir.

13 Q. And you conducted the same analysis --
14 subtraction analysis for the other cases as well?

15 A. Yes, sir.

16 Q. Let's use one as an example. Turn to the first
17 case in your exhibit packet, Case Number 16053, and
18 we'll just review your analysis for this well. Starting
19 with Exhibit Number 5, is this a similar bubble map that
20 represents the spacing unit in the proposed completion
21 well? Is that right?

22 A. Yes, sir.

23 Q. Would you review for the Examiners Exhibit 5 in
24 that case?

25 A. Yes, sir. The map on the left side, again, is

1 our calculated drainage areas for our Mesaverde
2 completions. The Mesaverde completions are denoted with
3 the blue wagon wheels, and the orange and brown circles
4 represent the calculated drainage area for each of those
5 Mesaverde completions.

6 The proposed take point, the Helms Federal
7 1F, is with the blue square and the red circle around
8 it, and it's also in an area where we don't have any
9 orange or brown circles, indicating that undrained
10 reserves that could be captured with that additional
11 take point.

12 On the right are some well specifics. This
13 well is in the southwest quarter of Section 22. It's a
14 2007 drill well, where we would anticipate not a lot of
15 mechanical risk with it. It would be the third
16 Mesaverde completion in this quarter section. It's
17 approximately 1,200 feet away from its nearest offset.
18 We would complete the Mesaverde in either two or three
19 stages. That's something we're continuing to evaluate,
20 what's the most efficient way to complete and drain the
21 reserves in the Mesaverde. And it is 820 feet from the
22 west section line.

23 **Q. In each of the Mesaverde cases, it's your**
24 **opinion that there are remaining unrecovered reserves**
25 **that you're seeking to recover here?**

1 A. Yes, sir.

2 **Q. And let's move on to the next exhibit here just**
3 **to reflect your volumetric subtraction method.**

4 EXAMINER BROOKS: That would be Exhibit 8?

5 MR. RANKIN: Yes. Let's see.

6 THE WITNESS: 6.

7 MR. RANKIN: Should be Exhibit 6, Case
8 16053.

9 EXAMINER BROOKS: Exhibit 6. Okay. Thank
10 you.

11 THE WITNESS: Yes, sir.

12 Exhibit 6 is the original gas-in-place map
13 that we've done across the entire Basin for the
14 Mesaverde. What we have noted on here is the red
15 outline is what we call the naturally fractured area of
16 the Mesaverde, and the blue outline from the -- or the
17 blue line -- pardon me -- from the northwest to the
18 southeast is what we call the Cliff House water line.
19 The Cliff House to the left or below that line tends to
20 be wet. That's the uppermost sand member of the
21 Mesaverde interval.

22 Again, cooler colors suggest lower volumes
23 or values. Warmer colors suggest higher values. And
24 you can see the concentration of the higher values are
25 in what's referred to as the naturally fractured area.

1 Then we also have a red star on this map
2 showing the location of the Helms 1F -- pardon me --
3 which is in a warmer-color area, suggesting more higher
4 volumes of original gas in place.

5 **Q. (BY MR. RANKIN) Just to be clear, because it's**
6 **a little hard to tell from the map, but this Helms 1F**
7 **indicated by the star is outside of the fractured area;**
8 **is that right?**

9 A. Yes, sir. It's outside of the fractured area,
10 and it's to the right or north of the wet Cliff House
11 line.

12 **Q. And the next exhibit, Number 7, represents**
13 **cumulative gas produced; is that right?**

14 A. Yes, sir. It is the cumulative gas produced
15 across the Basin in the Mesaverde interval. Again,
16 cooler colors are lower values. Warmer colors are
17 higher values. You can see, again, the concentration of
18 higher values of cumulative gas produced -- naturally
19 fractured area. The red star, again, denoting where the
20 Helms Federal 1F is and the lower volumes of gas
21 produced there.

22 **Q. And the next exhibit, Number 8 --**

23 A. Yes, sir.

24 **Q. -- what does that show?**

25 A. This maps shows remaining gas in place for the

1 Mesaverde. Again, cooler colors suggest lower values.
2 Warmer colors are higher values. You can see within the
3 naturally fractured area it is white, suggesting that
4 there is not much remaining gas in place to be produced
5 there. And then we've denoted with the red star where
6 the Helms Federal 1F is, which is in the warmer colors,
7 suggesting that there is more gas to be produced there.
8 The way we arrive at this remaining gas, again, is
9 taking the original gas in place and the cumulative gas
10 produced to date.

11 **Q. And similar to your analysis in the Fruitland,**
12 **does Exhibit Number 9 reflect your calculated analysis**
13 **here for those remaining reserves?**

14 A. Yes, sir.

15 **Q. And does it also show that there is a lower**
16 **recovery than what you would expect?**

17 A. Yes, sir.

18 **Q. Will you review that for the Examiners?**

19 A. Yes, sir. Much like we just discussed with the
20 Fruitland Coal, this is the same volumetrics table
21 looking at the same relative areas, original gas in
22 place and calculated volumetrically using porosity,
23 water saturation, thickness and area.

24 So at the quarter-section level, we're
25 showing 7.4 bcf. At the section level, 31.6 bcf, and at

1 the nine-section level, we have 282.4 bcf, but, again,
2 the same methodology that we discussed previously. We
3 look at it at a section-level equivalent. So you can
4 see in column three all of these values are produced
5 close to one another ranging from 29.6 bcf to 31.6 bcf.

6 Cumulative to date, which is represented in
7 column four, at a quarter-section level, we've produced
8 1.4 bcf, which calculates only to be a 19 percent
9 recovery efficiency, which is very low low. At a
10 section level, we've produced 7.1 bcf, a still very low
11 recovery factor of 22 percent. At a nine-section level,
12 we've produced 78.4 bcf, which equates only to 28
13 percent recovery efficiency.

14 The gas in place shown in column five, we
15 take the original gas in place and we subtract what's
16 been produced to date, so the quarter-section level, we
17 are showing 6 bcf remaining. At the section level, 24.5
18 bcf, and at the nine-section level, 204 bcf. That's
19 quite a bit of gas remaining at both -- at all three
20 levels, actually, the quarter section, section and the
21 nine-section level.

22 In the last column to the right is the EUR.
23 This is what we're forecasting to produce with just the
24 current take points, utilizing decline curve analysis.
25 At a quarter-section level we're showing that -- we're

1 estimating we'll recover 2 bcf, which is only 27 percent
2 of what's originally in place. At a section level,
3 we're forecasting a recovery of 9 bcf, which is only 28
4 percent of what was originally in place. And at a
5 nine-section level, we're forecasting we will recover
6 just under 102 bcf, which is only a 36 percent recovery
7 efficiency.

8 Again, at all these various levels that
9 we're looking at, the recovery efficiencies are much
10 lower than what we would expect for a depletion drive
11 gas reservoir. For a conventional sandstone like this,
12 we would also expect to recover about 80 percent of
13 what's in place.

14 **Q. So this is an ideal candidate, therefore, for a**
15 **completion in this zone?**

16 A. Yes, sir.

17 **Q. Now, in your opinion, again, will this proposed**
18 **completion recover some of these additional unrecovered**
19 **reserves?**

20 A. Yes, sir.

21 **Q. And would these reserves otherwise potentially**
22 **remain in place but for this additional completion**
23 **proposed?**

24 A. Yes, sir.

25 **Q. And in your opinion, will the additional**

1 completion here adversely impact the energy or the
2 functioning of the reservoir in any way?

3 A. No, sir.

4 Q. In your opinion, will the additional completion
5 impair any of the correlative rights of surrounding
6 owners?

7 A. No, sir.

8 Q. Have you conducted a similar analysis for each
9 of the other cases in the Mesaverde?

10 A. Yes, sir.

11 Q. And do your -- do the other cases, Cases 16055
12 and 56, contain similar exhibits and similar analyses?

13 A. Yes, they do.

14 Q. If you were to review those exhibits and
15 undertake -- here today, would you come to the same
16 opinion -- would you have the same conclusions with
17 respect to each of these cases?

18 A. Yes, I would.

19 Q. And in your opinion, will the granting of these
20 applications, 16053 through 16056, protect correlative
21 rights, protect against waste and otherwise serve the
22 interest of conservation?

23 A. Yes, they will.

24 Q. Ms. Sivadon, were Exhibits 5 through 9 in Case
25 Numbers 16053, 16055 and 16056 prepared by you or under

1 **your direct supervision?**

2 A. Yes, they were.

3 **Q. And in Case Number 16054, were Exhibits 8**
4 **through 13 prepared by you or under your direct**
5 **supervision?**

6 A. Yes, they were.

7 MR. RANKIN: Mr. Examiner, I would move the
8 admission of those exhibits for the record. And I'd
9 give you a cheat sheet -- sorry --

10 EXAMINER JONES: How about: Those exhibits
11 are admitted?

12 MR. RANKIN: That's great.

13 (Hilcorp Energy Company Exhibit Numbers 5
14 through 9 in Case Numbers 16053, 16055 and
15 16056 and Exhibit Numbers 8 through 13 in
16 Case 16054 are offered and admitted into
17 evidence.)

18 MR. RANKIN: Mr. Examiner, I have no
19 further questions. I pass the witness for questioning.

20 CROSS-EXAMINATION

21 BY EXAMINER GOETZE:

22 **Q. Good morning.**

23 A. Good morning.

24 **Q. I really don't have any questions regarding the**
25 **presentation. As usual, it's very thorough and very to**

1 the point.

2 A. Thank you.

3 Q. What I'm going to ask you about is: Are you
4 tracking the orders that we approved and have been
5 recompleted?

6 A. Yes, sir. Yes, sir.

7 The wells that we came to hearing in
8 January, we fracked those in February. The wells that
9 we came to the hearing in February and the three we've
10 gotten approved, we fracked two of those in March, and
11 then we're looking to frac the third later this month.

12 Q. And I've been sent here as kind of a henchman
13 for the district office. It was brought to our
14 attention that at least one of the wells, we had a
15 serious fracturing of the casing as a result of the
16 fracture pressure?

17 A. Okay.

18 Q. It was tested at 500 and fractured up to 4,000
19 and, with that, ended up with an 800-foot opening for at
20 least fracturing of the casing.

21 I know you folks look at these wells. Has
22 Hilcorp considered probably adding some other type of
23 activity to assess well integrity as you go along in
24 this project? Are you revisiting how you screen your
25 wells?

1 A. Yes, sir, we have. In the area that I'm
2 focused on, on the east side of the Basin, we do make
3 sure that we test the casing to the surface treating
4 pressures that we anticipate that we'll see. I'm not
5 familiar with the well, that we didn't test it all the
6 way to what we thought we would see during fracturing
7 treatment.

8 **Q. Well, this was an earlier well. This is a 1964**
9 **well, I believe.**

10 A. Okay. Okay.

11 **Q. Again, what the district wanted me to do is**
12 **suggest, maybe with the earlier wells, maybe a little**
13 **more mechanical integrity testing might prove to be**
14 **beneficial not only for your effort but to keep them**
15 **having to show up at the site and us having to come in.**

16 A. Yes, sir.

17 **Q. At that point, I leave it. Thank you very**
18 **much.**

19 A. Thank you.

20 EXAMINER JONES: Mr. Lowe?

21 EXAMINER LOWE: I have no questions at this
22 time.

23 EXAMINER JONES: Mr. Brooks?

24 EXAMINER BROOKS: No questions.

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CROSS-EXAMINATION

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BY EXAMINER JONES:

Q. On the Fruitland recompletion, what's the zone that's producing there now?

A. It's the Pictured Cliffs and the Mesaverde.

Q. Okay. Both?

A. Yes, sir.

Q. And they're both dry gas?

A. Yes, sir.

Q. Low-pressure dry gas?

A. Yes, sir.

Q. Okay.

A. Yes, sir.

Q. So are you anticipating -- are the surrounding Fruitland wells actually dewatered totally?

A. I don't know that they're dewatered totally, because the way I understand the coal and what I've seen is you'll continue to produce water throughout.

Q. Are you pumping them?

A. Yes. They do have pumping units on them.

Q. So you're going to put a pumping unit on this well?

A. Yes, sir, we will.

Q. It looks like you've got about one-third of the reserves for the Fruitland as you're attributing to the

1 **Mesaverde in the averages.**

2 A. Okay.

3 **Q. Because you said, what, 10 bcf per section --**

4 A. Right.

5 **Q. -- versus 30 bcf per section?**

6 A. Yes, sir. Yes, sir. That's correct.

7 **Q. So are you -- are you -- are you going --**
8 **you're going to have to change also your surface**
9 **facilities a little bit, too, right, because you're**
10 **going to be introducing CO2 into your subsurface**
11 **facilities?**

12 A. Yes, sir.

13 **Q. Did that 10 bcf take into account the CO2**
14 **production of the Fruitland? It's just total gas,**
15 **right?**

16 A. Right. It's just total gas. Yes.

17 **Q. So the economics took into account that?**

18 A. Right. Right. Yeah. The economics take that
19 into account. And then they'll visit the operating
20 expenses, so they'll end up stripping the CO2 out.

21 **Q. Okay. Okay. You've got gas-fired compression**
22 **out there?**

23 A. Yes, sir. Yes, sir.

24 **Q. Okay. Now, as far as your -- your just -- are**
25 **you going down into the higher density part of your**

1 **reserve calculations on your -- lower than we always**
2 **used to on coal, right? You're going into the shales**
3 **now and assuming some recovery from the shales?**

4 A. No. We haven't been assuming any recovery from
5 the shales. We've been focusing just on the coal seams
6 themselves.

7 **Q. But you did a volumetric -- coalbed methane**
8 **volumetrics, correct?**

9 A. Correct, based on the thickness of the coal
10 seams.

11 **Q. So what density did you cut it off at?**

12 A. Well density or --

13 **Q. The Fruitland -- the coal well density.**

14 A. The coal density itself? I don't remember what
15 that value was.

16 **Q. Okay. But it's consistent across all of them?**

17 A. Yes, sir.

18 **Q. You don't have a coalbed methane simulator set**
19 **up for this, do you?**

20 A. No, we do not.

21 **Q. Do you have one in-house?**

22 A. Not currently, no.

23 **Q. Okay. And you're someday going to look at the**
24 **recompletions that were done in the past, like ten years**
25 **ago? There were some increased density recompletions**

1 **back in those days.**

2 A. Yes, sir, we will. We will. And as I
3 mentioned earlier, we're also looking at different
4 completion techniques, how do we increase recovery
5 efficiency with the current take points and treating
6 individual seams, you know, as separate frac stages.
7 This is a vertical well that we're looking at doing frac
8 stages per coal seam versus treating all coal seams as
9 one stage.

10 **Q. So you're going down casing with your frac jobs**
11 **here, or you're going --**

12 A. When we have casing integrity, meaning that
13 it'll hold the frac pressures that we anticipate, we do
14 frac down casing. Where we have concerns about casing
15 integrity, we do go ahead and pump down a frac string.

16 **Q. Gotcha. Thanks very much.**

17 A. Thank you.

18 MR. RANKIN: No further questions from
19 myself.

20 With that, Mr. Examiner, I would ask that
21 Cases 16053, 55 and 56 be taken under advisement.

22 And on Case 16054, we will supplement
23 information, pursuant to the Examiner's request,
24 regarding the pressures in the different zones we're
25 seeking to commingle, and we'd ask, once we do, that the

1 case be taken under advisement as well.

2 EXAMINER JONES: You're not going to
3 consider continuing that one to early May and then ask
4 for downhole commingling approval, along with the
5 approval of increased density?

6 MR. RANKIN: I guess we could do
7 whatever --

8 EXAMINER JONES: That would take a re --
9 you would have to re-advertise it, though. So you don't
10 have time to do that, do you, for May the 3rd? Okay.
11 Well, you can supplement the record then, but you still
12 have to continue it.

13 Right, Mr. Brooks?

14 EXAMINER BROOKS: Well, for May 3rd, there
15 would be time to re-advertise.

16 MR. RANKIN: 20 days is what we would need.

17 EXAMINER BROOKS: Yeah. And you've got --

18 EXAMINER JONES: Not 30 days.

19 EXAMINER BROOKS: You've got 30 from today.
20 Actually, you're right, 28 days from today, which that's
21 more than -- 28 is more than 20. It's up to you what
22 you want to do.

23 MR. RANKIN: Do you think we could present
24 that information by affidavit at the May 3rd hearing?

25 EXAMINER JONES: Sure.

1 EXAMINER GOETZE: May I also suggest that
2 you may apply administratively for downhole commingling,
3 and we could just incorporate your information into the
4 record. We've got it there. Take the separate
5 application for downhole commingling.

6 MR. RANKIN: Frankly, Mr. Examiner, I think
7 that may be our preference so we don't hold up the
8 procedure and orders administratively. I think that
9 might be the best.

10 EXAMINER JONES: But if they're still going
11 to submit it as an entry in this case, they're going to
12 submit it at the May 3rd docket, right?

13 EXAMINER GOETZE: Well, I mean, they can
14 submit this information. They can ask that it be taken
15 under advisement now and supplement it with an affidavit
16 with this information so we have it in the record. But
17 I don't see it as a necessity, evaluation or judgment.
18 Since they're not considering a downhole commingling,
19 it's not part of the application, but it is something
20 that we need to think about in the context of how this
21 well is completed. And, therefore, going down from that
22 case, we may state in the order that a DHC order is
23 required.

24 MR. RANKIN: Okay.

25 EXAMINER JONES: And so it's all right to

1 be taken under advisement for right now?

2 We'll take all four of these cases under
3 advisement.

4 EXAMINER GOETZE: Plus, Mr. Brooks doesn't
5 want to be here for another case.

6 EXAMINER BROOKS: Not necessarily, no.

7 MR. RANKIN: So with that, Mr. Examiner, we
8 appreciate you taking all four cases under advisement.
9 We will supplement the record with the information
10 requested, as well as an administrative request for
11 downhole commingling for three zones for the State Com
12 1A.

13 EXAMINER BROOKS: Time to take a break.

14 EXAMINER GOETZE: This is not a marathon.

15 EXAMINER JONES: We'll take a break, and
16 then do that telephone case real quick.

17 (Case Numbers 16053 through 16056 conclude,
18 9:49 a.m.)

19 (Recess, 9:49 a.m. to 10:16 a.m.)

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1 STATE OF NEW MEXICO
2 COUNTY OF BERNALILLO

3

4 CERTIFICATE OF COURT REPORTER

5 I, MARY C. HANKINS, Certified Court
6 Reporter, New Mexico Certified Court Reporter No. 20,
7 and Registered Professional Reporter, do hereby certify
8 that I reported the foregoing proceedings in
9 stenographic shorthand and that the foregoing pages are
10 a true and correct transcript of those proceedings that
11 were reduced to printed form by me to the best of my
12 ability.

13 I FURTHER CERTIFY that the Reporter's
14 Record of the proceedings truly and accurately reflects
15 the exhibits, if any, offered by the respective parties.

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

20 DATED THIS 22nd day of April 2018.

21

22

23 MARY C. HANKINS, CCR, RPR
24 Certified Court Reporter
New Mexico CCR No. 20
Date of CCR Expiration: 12/31/2018
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