

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 NO: 20272

Application of Enduring Resources  
LLC for Approval of the Ridge  
Unit, San Juan County, New Mexico

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

THURSDAY, MARCH 7, 2019

SANTA FE, NEW MEXICO

This matter came on for hearing before the New Mexico Oil Conservation Division, Examiners Leonard Lowe and William Jones, and Legal Examiner David Brooks, on Thursday, March 7, 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.

Reported by: Irene Delgado, NMCCR 253  
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1 A P P E A R A N C E S

2 For the Applicant: Michael Feldewert  
 3 Holland & Hart  
 4 110 N Guadalupe Street, Suite 1  
 Santa Fe, NM 87501

5 I N D E X

6 CASE NO. 20272 CALLED

7 PAUL BROOK	03
8 BOB GERMAN	19
9 TAKEN UNDER ADVISEMENT:	39

10

11

12

13 E X H I B I T I N D E X

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15	Exhibit 1, Attachments A-C	12
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24

25

1                   HEARING EXAMINER: We are going to case 20272,  
2   Enduring Resources for approval of the Ridge Unit, San Juan  
3   County.

4                   MR. FELDEWERT: Michael Feldewert from the Santa  
5   Fe office of Holland & Hart appearing on behalf of the  
6   applicant. I have two witnesses here today.

7                   HEARING EXAMINER: Would the witnesses please  
8   stand and be sworn in.

9                   (Witnesses duly sworn.)

10                  MR. FELDEWERT: We will call our first witness.

11                  MR. BROOK: Good morning, Mr. Examiner, members  
12   and staff of the Commission. My name is Paul Brook. I'm a  
13   senior landman with Enduring Resources. And we thank you  
14   for the opportunity to present ourselves, Enduring, and this  
15   unit to you.

16                                   PAUL BROOK

17                                   (Duly sworn, testified as follows:)

18                                   EXAMINATION

19   BY MR. FELDEWERT:

20                  **Q. Mr. Brook, have you previously testified before**  
21   **this division as an expert in petroleum land matters?**

22                  A. Yes, I have.

23                  **Q. Are you familiar with the proposed unit and the**  
24   **subject that is the subject of the application in this case?**

25                  A. Yes, I am.

1                   MR. FELDEWERT: I would retender Mr. Brook as an  
2 expert witness in petroleum land matters.

3                   HEARING EXAMINER: So qualified.

4           **Q.     Mr. Brook, what does the company seek under this**  
5 **application?**

6           A.     We seek approval by the Commission of a voluntary  
7 undivided form unit limited to the Mancos Formation.

8           **Q.     Was that interval known by another name in the**  
9 **past?**

10          A.     There are issues in nomenclature and variances  
11 and understanding, sometimes it may be called the Gallup or  
12 part of the Gallup, but the Gallup may be part of the  
13 Mancos.

14          **Q.     Now, is looking at the acreage, how many acres**  
15 **are involved and what type of land?**

16          A.     It's 2560 acres proposed of federal and allotted  
17 Indian leases.

18          **Q.     If I turn to what's been marked as Enduring**  
19 **Exhibit Number 1 in your package --**

20          A.     Yes, sir.

21          **Q.     -- is this a copy of the proposed unit agreement?**

22          A.     Yes, it is.

23          **Q.     It has as an Exhibit A, B, and C to it?**

24          A.     Correct.

25          **Q.     Does this follow the BLM's form for federal and**

1     allotted land?

2           A.     Yes, it does.

3           Q.     And before we get to the exhibits, just talking  
4     generally about the unit agreement, does -- are there  
5     existing vertical wells in the unit area?

6           A.     There are.

7           Q.     How does this unit agreement treat those existing  
8     vertical wells?

9           A.     They are excluded.

10          Q.     Does this unit agreement then apply to future  
11     horizontal wells?

12          A.     Yes, it does.

13          Q.     Does it apply to future vertical wells?

14          A.     It does.

15          Q.     Does it treat this -- I think you mentioned  
16     this, but just for the record, does it treat this unit as a  
17     single participating area?

18          A.     That's correct. That is the form of the  
19     undivided unit.

20          Q.     And does it have a contraction clause?

21          A.     Yes, it does.

22          Q.     And what are the requirements for the initial  
23     obligation well?

24          A.     We are obligated under the unit agreement to  
25     drill and complete to the best of our ability a horizontal

1 well with a lateral of at least 1500 feet.

2 Q. Now, with that said, let's turn to the exhibits  
3 of the unit agreement. First take a look at Exhibit A.

4 A. Yes, sir.

5 Q. Which is probably about halfway through. Does  
6 Exhibit A contain a map of the unit area?

7 A. Yes, it does.

8 Q. How many tracts of land are involved?

9 A. There are eight.

10 Q. And if I look at Exhibit A down at the bottom,  
11 does it provide a breakout of the federal land versus the  
12 allotted land?

13 A. Yes, it does.

14 Q. Now, I see that you -- this Unit A actually abuts  
15 some existing approved units?

16 A. True.

17 Q. I look at the S/2 of Section 26, do you see that?

18 A. I do.

19 Q. Why was that particular half section not included  
20 within the unit area?

21 A. The S/2 of Section 26 contains a horizontal well  
22 along the length of the entire 320. It's called the Chaco  
23 2408 25M 327H. It was drilled by our predecessor entitled  
24 WPX, and has been producing for some time from this same  
25 Mancos Formation.

1           Q.     And that well is dedicated to that S/2 320-acre  
2     spacing unit?

3           A.     Correct.

4           Q.     Who is the current operator of that spacing unit?

5           A.     Enduring Resources.

6           Q.     And both Enduring and BLM agreed not to include  
7     that half section in this unit?

8           A.     Correct.

9           Q.     Okay. If I then turn to the next page of  
10    Exhibit 1, I go to Exhibit B, does that provide an ownership  
11    breakdown for the eight tracts?

12          A.     Yes, it does.

13          Q.     Are all of the tracts or leases, are they all  
14    held by production?

15          A.     That is correct.

16          Q.     How many -- who are the working interest owners  
17    involved in the eight tracts of land?

18          A.     Well, Enduring has the preponderance. The other  
19    operating rights owners identified are Coleman, DJ  
20    Simmons -- and there is a story behind that -- DJR, and you  
21    see Logos listed in Tract 3. I have since acquired the  
22    interest of Logos and secured a ratification for them for  
23    their record title interest.

24          Q.     As I flip through here, there is an entity, SFF  
25    Production; is that right?

1           A.     Production, correct.

2           **Q.     As the remaining interest owner?**

3           A.     That's correct. That's a 7.5 percent working  
4 interest in one 320-acre tract. I have been trying to find  
5 these folks for six months. I am communicating with them on  
6 a daily basis, and I am confident I will either acquire  
7 their interest or secure ratification from them.

8           **Q.     You mentioned there was a story with DJ Simmons?**

9           A.     Correct.

10          **Q.     Briefly, what's the circumstances?**

11          A.     Well, DJ Simmons has gone bankrupt. The  
12 bankruptcy court is sitting in Greenwich Village, Colorado.  
13 The bankruptcy court has sold the DJ Simmons asset to a  
14 company in Denver called Mustang Resources.

15                 Mustang is in the process of submitting for  
16 approval all of their assignments and securing their bonding  
17 and authority to conduct business in the State of New  
18 Mexico. So I have secured ratifications from Mustang, and  
19 then the bankruptcy court was kind enough to give me  
20 ratifications to cover the former DJ Simmons interest, also.

21          **Q.     Now, with respect to the ratifications, do you**  
22 **have ratification now from most, if not all, of the working**  
23 **interest owners?**

24          A.     All except SFF.

25          **Q.     And that's one you have been in constant**



1      communication with?

2            A.      Correct.

3            Q.      What percentage of control then does Enduring  
4      have?

5            A.      Including the acquisition of the Logos interest,  
6      we have 92.75 percent.

7            Q.      Now, before we leave Exhibit B, as I flip through  
8      here, I see that certain tracts have ownership differences  
9      based on depth.

10          A.      That's correct.

11          Q.      What tracts are affected?

12          A.      Those are 3, 7 and 8.

13          Q.      And what working interest owners are impacted by  
14      those depth severances?

15          A.      Coleman, DJR and DJ Simmons interest.

16          Q.      And you have ratifications from all of those?

17          A.      I do.

18          Q.      So do you have agreements in place with these  
19      interest owners to address the ownership differences.

20          A.      We do.

21          Q.      Then if I turn to the last page of this exhibit,  
22      Exhibit C is a type log that identifies the unitized  
23      interval?

24          A.      Yes, sir, that's correct.

25          Q.      And this is the type log that's referenced in the

1     unit agreement?

2           A.     That's correct.

3           Q.     We have a geologist that's going to talk a little  
4     bit more about that?

5           A.     Yes.

6           Q.     Did you discuss your proposed unit agreement with  
7     the Bureau of Land Management?

8           A.     Yes. We have done the area in-depth meeting with  
9     the BLM and FIMO and secured their signatures for  
10    preliminary approval.

11          Q.     And for the record, what does FIMO stand for?

12          A.     Federal Indian Minerals Office.

13          Q.     If I look at what's been marked as Enduring  
14    Exhibit Number 2 --

15          A.     Yes, sir.

16          Q.     -- does it contain a letter of preliminary  
17    approval from both the -- signed by both the Bureau of Land  
18    Management and FIMO?

19          A.     Yes, it does.

20          Q.     Now, with respect to -- since there is a lot of  
21    land involved here, did the company hold a town hall meeting  
22    to discuss these proposed units with the interested allottee  
23    owners?

24          A.     Yes, we did. That is our business practice to  
25    always include the allottees and give them the opportunity

1 to ask questions and express concerns.

2 Q. When did that take place?

3 A. It took place on February 5 at the School of  
4 Energy in Farmington.

5 Q. You mentioned that's your normal practice. Is  
6 that where you normally hold these meetings?

7 A. It has been so far.

8 Q. Was there any opposition expressed?

9 A. None.

10 Q. If I turn to what's been marked as Enduring  
11 Exhibit Number 3, does this contain a list of the allottee  
12 owners?

13 A. Yes, it does.

14 Q. And how is this organized?

15 A. It's organized in two parts by the two allottee  
16 leases included in the exhibits.

17 Q. Now, in any of these allottee owners, were there  
18 other overriding royalty interest owners on Exhibit B?

19 A. Yes, there are.

20 Q. Have you attempted to contact those overriding  
21 royalty interest owners?

22 A. We have?

23 Q. As part of that hearing in this matter, did you  
24 include them in the list of parties to be notified?

25 A. Yes, we did.

1           Q.     If I turn then to what's been marked as Enduring  
2     Exhibit Number 4, is this an affidavit prepared by my office  
3     with the attached letter providing notice to the overriding  
4     royalty interest owners?

5           A.     Yes, it is.

6           Q.     To the allottee owners?

7           A.     Correct.

8           Q.     And the BLM and FIMO?

9           A.     Yes.

10          Q.     If I turn to what's been marked as Enduring  
11     Exhibit Number 5, is this an affidavit of publication in the  
12     local newspaper directed by name to all of these folks?

13          A.     Yes, it is.

14          Q.     Mr. Brook, were Enduring Exhibits 1, 2, and 3, as  
15     well as the list of parties to be noticed prepared by you or  
16     under your direct supervision?

17          A.     That's correct.

18                 MR. FELDEWERT:  Mr. Examiner, I move the  
19     admission of Exhibits Enduring 1 through 5.

20                 HEARING EXAMINER:  Exhibits 1 through 5 will be  
21     admitted.

22                 MR. FELDEWERT:  That concludes my examination of  
23     this witness.

24                 HEARING EXAMINER:  I have a question for you.

25                 THE WITNESS:  Yes.

1           HEARING EXAMINER: A few, actually. When you set  
2 up your public notice, at the school of where?

3           THE WITNESS: At the School of Energy at San Juan  
4 College in Farmington.

5           HEARING EXAMINER: When you set that meeting up  
6 and you indicated there was no opposition --

7           THE WITNESS: Correct.

8           HEARING EXAMINER: -- does that mean people  
9 showed up and not opposed, or people didn't show up?

10          THE WITNESS: It means allottees did show up. We  
11 had plus or minus 20, and there were no objections expressed  
12 then, nor did we receive any other objection or protest.

13          HEARING EXAMINER: Okay.

14          THE WITNESS: Oral or written.

15          HEARING EXAMINER: Okay. And you indicated you  
16 had one working interest. Was that SFS?

17          THE WITNESS: SFF.

18          HEARING EXAMINER: SFF. And you said you are  
19 communicating with them?

20          THE WITNESS: I am.

21          HEARING EXAMINER: Is it a one-way communication?

22          THE WITNESS: No, no, it's a bilateral  
23 communication.

24          HEARING EXAMINER: So you are communicating.

25          THE WITNESS: Right. Just, for instance, I have

1 submitted to them the Exhibits A, B, and C, the unit  
2 agreement, and my draft unit operating agreement and asked  
3 that they either sell to me and or agree to ratify and join  
4 the unit.

5 HEARING EXAMINER: Okay. That's all I have for  
6 now.

7 MR. JONES: It defines -- the unit defines the  
8 top and bottom of the unitized interval, but does that  
9 correspond with the top and bottom of what the base in  
10 Mancos definition is?

11 THE WITNESS: May I defer that to my geologist?

12 MR. JONES: Yeah. I don't want to forget that  
13 question. And most of the drilling will be in certain  
14 formations, so that we will defer that to the geologist,  
15 also, I guess.

16 THE WITNESS: Yes.

17 MR. JONES: But drilling across the existing  
18 space, the vertical spacing unit that are going to remain on  
19 their own, is that anything you -- Coleman, is it -- who  
20 else has the vertical wells?

21 THE WITNESS: DJ Simmons.

22 MR. JONES: Okay. So Coleman, they -- they  
23 didn't express any -- they would be happy for you to drill  
24 across those spacing units?

25 THE WITNESS: Correct.

1                   MR. JONES: Because they would participate,  
2 obviously?

3                   THE WITNESS: Exactly.

4                   MR. JONES: So this is around four and a half  
5 square miles. Is that right? Or it's four square file  
6 miles?

7                   THE WITNESS: Yes, sir.

8                   MR. JONES: And eight tracts. The contraction  
9 clause, how does that work? How is it triggered? Is there  
10 a time -- like a five-year deal?

11                  THE WITNESS: It has timing on it, and then it  
12 has proven production parameters. In all honesty, in our  
13 experience it has never been employed.

14                  MR. JONES: Yes, that's --

15                  THE WITNESS: So I can't give you a practical  
16 nuts-and-bolts answer on how that would work.

17                  MR. JONES: You are confident you are going to  
18 drill up this four square mile unit reasonably soon?

19                  THE WITNESS: Yes, we are. We have it on our  
20 drilling scheduling to spud the initial well by mid summer.

21                  MR. JONES: Okay. Okay. And as far as surface  
22 land issues go, you have the right to get out there and put  
23 facilities and pipelines and --

24                  THE WITNESS: We do. Two things I will mention  
25 briefly. The surface location is just north of the unit

1 boundary and permitted by the BLM on BLM location.

2 MR. JONES: Okay.

3 THE WITNESS: And then the other thing I want to  
4 mention, with some pride, is Enduring's method of doing  
5 business, which is to incorporate and tie together our  
6 surface operations, including water, pipelines, roads, to  
7 the greatest extent possible.

8 Now, since we have existing operations in the  
9 general area and in the immediate area through the adjacent  
10 Northwest Lybrook Unit which we operate, we believe that  
11 that resounds to the benefit of everyone in the State of New  
12 Mexico because we make a sincere effort to limit surface  
13 disturbances.

14 MR. JONES: And the Crow Canyon Unit, do you know  
15 who operates that?

16 THE WITNESS: That was an Encana Unit, which is  
17 being transferred to DJR now.

18 MR. JONES: Okay. So most of these wells are  
19 going to be surface to the north of the unit boundary and  
20 then --

21 THE WITNESS: Correct.

22 MR. JONES: -- drill south?

23 THE WITNESS: Well, drill in an orientation of  
24 southeast to northwest.

25 MR. JONES: Okay. Okay. Well, the BLM, did you



1 negotiate with them a long time for this, or is that --

2 THE WITNESS: It was a fairly standard area  
3 in-depth meeting. Of course we submit our documentation  
4 beforehand, particularly the unit agreement, and allow them  
5 to make any comments or express concerns, and then we go  
6 formally to present with the various geologic exhibits, that  
7 sort of thing, and yes, they have given us all  
8 encouragement.

9 MR. JONES: What's the status of the leases  
10 involved right now as far as their term and when they are  
11 going to expire?

12 THE WITNESS: They're all HBP.

13 MR. JONES: Okay. Thank you.

14 THE WITNESS: Thank you.

15 MR. BROOKS: You passed to the geologist in terms  
16 of the vertical limits, I believe.

17 THE WITNESS: Correct.

18 MR. BROOKS: That's -- I have been very concerned  
19 because I worked a lot of the temps to come up with pool  
20 rules on the Mancos Formation, and I have dealt a good deal  
21 with how we define the Mancos Formation, and I'm not a  
22 geologist, so --

23 THE WITNESS: Nor am I, sir, but I do know that  
24 it's challenging in this part of the world to define the  
25 Mancos, particularly since the Gallup which seems to be

1     recognized by the State of New Mexico as kind of a sandwich  
2     between portions of the Mancos.

3                 MR. BROOKS:  Yes, I believe I have heard that  
4     said before, and the problem has been so formidable to the  
5     Division that so far as anybody has ever been able to find  
6     in the old orders, the Division has never attempted to  
7     define, before the recent, the Division never attempted to  
8     define the Mancos Formation.

9                 Okay.  Well, I guess I don't have any questions  
10    for you.

11                MR. JONES:  The  -- you mentioned vertical depth  
12    severances.  Do you know where those are and who owns above  
13    and below those?

14                THE WITNESS:  Yes, they will be reflected in  
15    Exhibit B.  For instance, using Tract 3, the vertical  
16    severance is at the base of the Gallup -- or the depth  
17    severance, rather.

18                MR. JONES:  Okay.  At the base of the Gallup.  So  
19    from Gallup  -- the Gallup sands on down to the Graneros?

20                THE WITNESS:  Correct.

21                MR. JONES:  Okay.  Did you guys have to run out  
22    and lease some of that?

23                THE WITNESS:  We did --

24                MR. JONES:  Or acquire that acreage?

25                THE WITNESS:  We did not.

1                   MR. JONES: But the owners are reflected in the  
2     unit?

3                   THE WITNESS: Yes, sir.

4                   MR. JONES: Okay.

5                   HEARING EXAMINER: One last question for you. On  
6     your public notice class that you held, of the 73 interests  
7     people you indicated notice of, how many showed up?

8                   THE WITNESS: Of the allottees?

9                   HEARING EXAMINER: Yes.

10                  THE WITNESS: We had approximately 20.

11                  HEARING EXAMINER: 20, okay. Thank you. That's  
12     all I've got.

13                  THE WITNESS: Thank you, sir.

14                  MR. FELDEWERT: Call our next witness.

15                  MR. GERMAN: My name is Bob German. I'm the  
16     manager of geologic sciences for Enduring Resources, and I'm  
17     a geologist.

18                                 BOB GERMAN

19                                 (Duly sworn, testified as follows:)

20                                 EXAMINATION

21     BY MR. FELDEWERT:

22                 **Q.     Mr. German, did you previously testify before the**  
23     **Division as an expert in geology?**

24                 A.     Yes, I have.

25                 **Q.     In fact, did you testify during -- before this**

1     **Division with respect to Enduring?**

2           A.     That's correct.

3           **Q.     When did that testimony take place?**

4           A.     In September of last year.

5           **Q.     Are you familiar with the unit that is the**  
6 **subject of this application?**

7           A.     Yes, I am.

8           **Q.     Have you conducted a geologic study of the lands**  
9 **that are the subject of the proposed unit?**

10          A.     Yes, I have.

11                   MR. FELDEWERT:  I will re-tender Mr. German as an  
12 expert witness in petroleum geology.

13                   HEARING EXAMINER:  He is so qualified.

14          **Q.     If you would please go to Enduring Exhibit Number**  
15 **1 and go to the last page.  I have some questions about**  
16 **these.  First off, have you identified on Exhibit C the**  
17 **proposed unitized interval?**

18          A.     Yes, I have.  It's the red rectangle on the far  
19 right side of the well, and it extends from the base of the  
20 Point Lookout Sandstone to the base of the Graneros Shale.

21          **Q.     Now, some questions about that unitized interval.**  
22 **What can you tell us about that in terms of nomenclature and**  
23 **how it's been used?**

24          A.     I look -- I look at this, the top of the Mancos  
25 Shale, the transitional contact.  And so it's not precisely

1 located, but I can be consistent on the log that I have in  
2 the area, it shows where the sands begin to accumulate at  
3 the Point Lookout.

4 The basin of the formation is commonly picked as  
5 the base of the Graneros Shale, which is the first fully  
6 marine shale that flooded over the Dakota Formation.

7 Q. In your opinion, does this unitized interval  
8 extend across the acreage that the Enduring improved in the  
9 unit?

10 A. Yes, it does.

11 Q. And is this an interval in this acreage that can  
12 be efficiently and effectively developed by a horizontal  
13 well?

14 A. Yes, I believe so.

15 Q. Have you created exhibits to support your  
16 conclusion?

17 A. Yes, I have.

18 Q. If I turn to what's been marked as Enduring  
19 Exhibit Number 6, what do we have here?

20 A. This is a structure map on the top of the Mancos  
21 Formation. It shows that there is just from -- from the  
22 southwest into the basin. The triangles or the diamonds are  
23 wells that I have logs for, and the pool numbers are the  
24 data points I used to construct this map.

25 Q. Now, have you outlined the unit area on this

1 exhibit?

2 A. I have. It's the red outline.

3 Q. And we see a line here, red line here labeled  
4 Ridge Unit 127H?

5 A. Yes.

6 Q. That's the initial obligation well?

7 A. That is.

8 Q. And does that depict the proposed orientation for  
9 that well?

10 A. Yes, it would be spud in Section 14 just off the  
11 unit, and then it would be drilled to the southeast into  
12 Section 26.

13 Q. So this is where surface location is just off the  
14 unit area?

15 A. Yes, it is.

16 Q. Now, with respect to your contours here, how are  
17 they shown? How are they depicted?

18 A. I've got 100-foot contours in bold and 25-foot  
19 contours in the smaller font.

20 Q. And when you look at the structure in this area,  
21 do you observe any faults, pinchouts, or other geologic  
22 impediment to developing this acreage of horizontal wells?

23 A. I didn't see any faulting, and I don't see any  
24 impediments to that.

25 Q. Have you created some stratigraphic cross-

1     **sections for review?**

2           A.     Yes, I have.

3           **Q.     If I turn to what's been marked as Enduring**  
4     **Number 7, does this identify the path of the two**  
5     **stratigraphic cross-sections?**

6           A.     It does. I have two cross-sections here, A to A  
7     Prime, which is north to south; and B to B Prime, which is  
8     west to east. The wells that are incorporated in A to A  
9     Prime are with the purple dots. The B to B prime wells are  
10    red dots, and the Type Well would be the farthest to the  
11    south and A prime.

12          **Q.     Down by the A Prime?**

13          A.     That's correct.

14          **Q.     Now, do you have one well that is common to both**  
15    **stratigraphic cross-sections?**

16          A.     I do. It's in the middle well on B to B Prime.  
17    It's also indicated on both sections.

18          **Q.     And that's all your B to B Prime wells that are**  
19    **being put in the unit?**

20          A.     That is correct.

21          **Q.     Why did you choose these particular logs that you**  
22    **note on here?**

23          A.     They are representative of the wells that produce  
24    in the unit. They happened to be some of the better logs  
25    that I had. There are a wide vintage of wells out here

1 similar to this that are very hard to read, but these are a  
2 good example.

3 Q. Let's take a look at the A to A Prime  
4 stratigraphic cross-section. Do you have that set forth in  
5 what's been marked as Enduring Exhibit Number 8?

6 A. Yes, I do.

7 Q. Which well is the -- on this exhibit is the type  
8 log well?

9 A. The Type Well is the well in the farthest right  
10 side, and that's the same as Exhibit C.

11 Q. And which well is the well that's common with  
12 both A to A Prime and B to B Prime?

13 A. It would be the third well from the right-hand  
14 side, the black and white image. It does state below it  
15 intersects with B to B Prime.

16 Q. And the colors on here, and then you see some in  
17 black and white, does it look like an image of the type of  
18 the well logs that you have?

19 A. Yes, it does.

20 Q. Have you identified on here the unitized  
21 interval?

22 A. I have. It's shown on the far left-hand side on  
23 the well. It's the, the red outline, and it goes from the  
24 base of the Point Lookout Sandstone to the top of the  
25 Dakota.



1           Q.     And some of these wells don't penetrate all the  
2     way through?

3           A.     Most of the wells do not.

4           Q.     You have a couple here that did though; correct?

5           A.     Actually, the wells that penetrated fully are not  
6     on the unit. They were just outside.

7           Q.     Okay. Have you also identified for the Examiner  
8     those A to A Prime the wells that are within that unit?

9           A.     I have. That would be the the three -- the five  
10    wells that are in the middle of the cross-section, and above  
11    it it says wells on the Proposed Ridge Unit.

12          Q.     When you look at this data available to you, A to  
13    A Prime, what do you observe about the proposed unitized  
14    interval?

15          A.     Well, I can see that the objective formation that  
16    we are going to be targeting is present throughout,  
17    throughout the unit area. It looks to me as if it would be  
18    amenable to a horizontal development program. I don't see  
19    any evidence of faulting or any significant pinching out.

20          Q.     Do you expect the acreage within the area would  
21    be productive?

22          A.     I do.

23          Q.     If I then turn to Enduring Exhibit Number 9, does  
24    this contain your B to B Prime west-east cross-section?

25          A.     It does, yes. And all of these wells are on the

1 Proposed Ridge Unit.

2 Q. Okay. And have you similarly identified the  
3 unitized interval?

4 A. Well, the unitized interval is not fully  
5 penetrated on these wells, but it extends from the base of  
6 the Point Lookout Sandstone to the total depth of the wells,  
7 and I have indicated with the Mancos Shale on the far left  
8 side.

9 Q. And when you look at the cross-section from west  
10 to east, what do you observe happening? Do you come to  
11 similar conclusions with respect to the unitized, proposed  
12 unitized interval?

13 A. Yes. This is very similar to A to A Prime.  
14 Production formation is present in all the wells.

15 Q. So when you look at all of this data available to  
16 you, is this an area, in your opinion, that can be  
17 efficiently and effectively developed with a horizontal  
18 drilling program under a unit?

19 A. Yes, I do.

20 Q. In your opinion, would the approval of this  
21 application be in the best interest of conservation, the  
22 prevention of waste, and protection of correlative rights?

23 A. Yes, sir.

24 Q. Mr. German, were Exhibits 6 through 9 prepared by  
25 you or under your direct supervision?

1           A.       Yes, they were.

2                   MR. FELDEWERT: I would move the admission of the  
3 Exhibits 6, 7, 8 and 9.

4                   HEARING EXAMINER: Exhibits 6, 7, 8, and 9 are  
5 admitted.

6                   MR. FELDEWERT: That concludes my examination of  
7 this witness.

8                   HEARING EXAMINER: Mr. Jones?

9                   MR. JONES: So this is all cretaceous marine?

10                  THE WITNESS: This is all cretaceous marine.

11                  MR. JONES: And it looks pretty boring from -- I  
12 guess it was boring until recently, wasn't it?

13                  THE WITNESS: This is what, you know, it's a good  
14 horizontal target.

15                  MR. JONES: Okay. When you say driller's Gallup,  
16 is that kind of like slang Gallup?

17                  THE WITNESS: When they first started drilling  
18 out here in the 20s, late 1920s they had various names for  
19 these sands. Driller's Gallup was commonly the first break  
20 they get when using a pulley type -- bit.

21                  MR. JONES: Oh, PVC bit?

22                  THE WITNESS: Long before that, so it was the  
23 first.

24                  MR. JONES: The hand tool stuff?

25                  THE WITNESS: They essentially had a break in the

1     driller's time that was commonly called -- there is another  
2     sand, a cleaner sand a little bit farther down that they  
3     also named, and it was called a Marye Sand.

4                     MR. JONES:   Okay.

5                     THE WITNESS:  It was on the far right-hand side  
6     of B to B Prime.

7                     MR. JONES:   That was a good marker.

8                     THE WITNESS:  It was a good marker, and that was  
9     the primary productive sand in that between the 1920s and  
10    1980s.

11                    MR. JONES:   Oil?

12                    THE WITNESS:  Yes, oil.  Most of these wells --

13                    MR. JONES:   In this area we are the oil leg of  
14    the Mancos.

15                    THE WITNESS:  That's correct.  And the wells in  
16    the proposed unit have made under 20,000 barrels per day  
17    with a small amount of gas, maybe ten would be of gas.  And  
18    there are 28 penetrations in the unit.  There are eight  
19    wells that are still productive, and a couple of wells that  
20    are listed as inactive oil wells so there will be some  
21    depletion in the best rock, but that's not really what we're  
22    after.

23                    MR. JONES:   Okay.  So but your main target is  
24    this --

25                    THE WITNESS:  The main target would be the lower

1 section between -- it probably would start between the G and  
2 Basal Niobrara Unconformity, so it would be lower 150 to 200  
3 feet.

4 MR. JONES: Okay. So the theory is that that  
5 will be oil saturated, it will be maybe heterogenous enough  
6 to give you some permeability or something?

7 THE WITNESS: There is permeability. It's tight  
8 rock, and the process is intergranular between the sand  
9 grains, but also in the organic materials as it's been  
10 matured, it expands, and there is void spaces within the  
11 organics, and it's our hope that we can communicate these  
12 spaces with the wellbore by frac'ing.

13 MR. JONES: And you are able to drill these wells  
14 with a lower pressure by -- under balance drilling or are  
15 you going to set your casing above the --

16 THE WITNESS: Probably set casing somewhere near  
17 the base of the Point Lookout Sandstone and then do --

18 MR. JONES: And then the curve will be --

19 THE WITNESS: The curve will be in the upper  
20 portion of the Mancos Shale, and it comes down (indicating.)

21 MR. JONES: Okay. So the unit as you showed us  
22 has mostly been drilled vertically to the southwest, it  
23 appears like. The the northeast doesn't appear to have many  
24 vertical wells. Is that because it's not as productive up  
25 there?

1                   THE WITNESS: We are chasing one particular sand,  
2     primarily this Marye Sand, and that particular sand tends  
3     to -- tends to go away, it goes away pretty abruptly as you  
4     go to the southwest and more gradually as you go to the  
5     northeast, and so I think it got to the point where it was  
6     so thin it was no longer --

7                   MR. JONES: Okay. Do you deal with the BLM's  
8     geologist or OCD's geologist in Aztec much?

9                   THE WITNESS: We spoke with them at the area  
10    in-depth meeting.

11                  MR. JONES: And Kate Pickward, do you know her?

12                  THE WITNESS: I don't know her.

13                  MR. JONES: It used to be Bill Hoppy, and before  
14    that Steve Haden. You probably knew some of those guys.  
15    Bill is back in Denver now, I think.

16                  So basically this, above the Driller's Gallup is  
17    pretty much non-target?

18                  THE WITNESS: In this area, it doesn't appear to  
19    have very much porosity, and our main map shows it to be of  
20    little interest right now. But we think if you drill, if  
21    you put a lateral where it says Driller's Gallup, the frac  
22    would extend up quite a bit, but right now it's not a  
23    target.

24                  MR. JONES: Can you tell us more about the  
25    lateral? Is it going to be, you know, put a liner in it or

1 a casing all the way to surface?

2 THE WITNESS: Well, they are going to cement --  
3 they're going to cement casing, intermediate casing down  
4 into probably the top of the Mancos, I would say 4500 B on B  
5 Prime, and then they will kick out and drill the total  
6 depth. They will clean out the hole, and then they will  
7 run -- run casing and cement that, try to cement the  
8 surface.

9 MR. JONES: No logs, no open hole logs?

10 THE WITNESS: Well, we have a lot of control  
11 here.

12 MR. JONES: Okay.

13 THE WITNESS: We will have open hole logs through  
14 intermediate casing, and then we will have, again on the  
15 drill bit, so we will be continuously logging as we go and  
16 steering the bit through the zone.

17 MR. JONES: And so you are, basically you are  
18 getting some good logs over the Point Lookout on up also?

19 THE WITNESS: We have, as you can see, a lot of  
20 control.

21 MR. JONES: Lot of control. And the frac job  
22 that you put on it, is it a typical Mancos frac job?

23 THE WITNESS: We are going to be using slick  
24 water, I believe that's the plan. And so water primarily  
25 for the Entrada Formation where we use water from other

1 operations, and fairly close spacing, as much sand as we can  
2 put into the formation. It's probably, I guess, over 2000  
3 pounds per foot.

4 MR. JONES: Oh.

5 THE WITNESS: A lot of sand.

6 MR. JONES: Pretty dense.

7 THE WITNESS: This is a similar type frac that we  
8 did in the Wolfcamp near Midland.

9 MR. JONES: Okay. Okay. Just for my quick  
10 purposes here, was it BP that drilled that two-mile well in  
11 the gas up to the north --

12 THE WITNESS: Yes.

13 MR. JONES: -- that everybody was trying to mimic  
14 that. Is that still going on?

15 THE WITNESS: Oh, yes. It's still going on,  
16 although BP is going to be selling their interest.

17 MR. JONES: They are selling their interest up  
18 there?

19 THE WITNESS: Yes.

20 MR. JONES: Okay. Okay. Well, thanks.

21 MR. BROOKS: I would like to ask you some  
22 questions about this vertical column that you've got  
23 attached to Exhibit 1 where you indicate the proposed  
24 unitized formation.

25 I believe your top and bottom markers are the



1 same that are used in the order that we entered spacing the  
2 Mancos in about 2008, and that's the first definitional  
3 thing that OCD has done so far as I know.

4 The bottom marker is the base of the Graneros.  
5 Is that correct?

6 THE WITNESS: Yes, sir.

7 MR. BROOKS: And the top marker is the --

8 THE WITNESS: Point Lookout.

9 MR. BROOKS: -- the base of the Point Lookout.

10 THE WITNESS: Yes.

11 MR. BROOKS: Now the Point Lookout, is that a  
12 portion of the -- is that a zone of the Mesa Verde?

13 THE WITNESS: Yes, it is. It's the lowest member  
14 of the Mesa Verde.

15 MR. BROOKS: So the base of the Point Lookout is  
16 equivalent to the base of the Mesa Verde?

17 THE WITNESS: Yes, sir.

18 MR. BROOKS: Now, when we did that rulemaking in  
19 2008, Steve Haden was the district geologist in Aztec, and  
20 he testified that the Mancos does not exist in the  
21 productive -- I mean, not the Mancos -- the Gallup does not  
22 exist in the productive portion of the San Juan Basin. And  
23 I have heard some people who agree and others who say it's a  
24 matter of semantics. How would you describe that?

25 THE WITNESS: If you look on the cross-section or

1 on Exhibit C, at 5450 there's an orange line that's labeled  
2 Basal Niobrara Unconformity.

3 MR. BROOKS: Yes, sir.

4 THE WITNESS: So the Gallup, as we understand it,  
5 generally exists above that marker. And below it, from  
6 there to the top of the Juana Lopez member is what we call  
7 the true Gallup. It's not productive, by and large. It's  
8 Shale, Silver Shale, it's a source rock, but there is no  
9 porosity in it.

10 MR. BROOKS: There is between the Basal Niobrara  
11 Unconformity and the Juana Lopez member?

12 THE WITNESS: That's correct.

13 MR. BROOKS: The base is one of those.

14 THE WITNESS: Yes.

15 MR. BROOKS: Because the marked line at 5700 is  
16 the base of Juana Lopez, and below that is the Carlisle  
17 Shale?

18 THE WITNESS: Yes, sir. As you get farther into  
19 the basal, this unconformity cuts deeper and deeper into the  
20 formation, and there are places where the Basal Niobrara  
21 Unconformity will actually rest right on the Carlisle.

22 MR. BROOKS: Okay. So the -- where is the area  
23 in the -- within the Mancos formation where the primary --  
24 well, first of all, let me ask you this:

25 It's my understanding, and tell me if this is

1 correct, that the, most of the vertical well development in  
2 the Mancos was at a rather remote time period, and there has  
3 been very little recent vertical development in the Mancos.  
4 Is that correct?

5 THE WITNESS: That's right. Most of the vertical  
6 development stopped in the late 1980s and early 90s.

7 MR. BROOKS: Okay. And those wells, the ones  
8 that still exist, are rather marginal?

9 THE WITNESS: Yes. Or they have been completed  
10 uphole and other holes commingled.

11 MR. BROOKS: The -- what area of the Mancos  
12 formation were those wells completed in, generally speaking?

13 THE WITNESS: Generally they were completed where  
14 I call the top of the G down through the top of the -- the  
15 top of the I, about 120 feet, and those sands tend to get  
16 thicker and stack as you go to the southwest.

17 They form sand bodies that were parallel to the  
18 paleo shoreline oriented northwest-southeast, and they tend  
19 to just stack and at the sea level, they would move back and  
20 forth.

21 MR. BROOKS: Right, I have heard testimony about  
22 the sea level shifting and back and forth movement of the,  
23 of the area where, you know, it's correct to say, is it not  
24 that, as a very general term, that you get sand deposits in  
25 a shore area and you get shale deposits in an area that's

1     below the    -- below the tide?

2                   THE WITNESS:   Below the wave base.

3                   MR. BROOKS:    I'm sorry?

4                   THE WITNESS:   Below wave base.

5                   MR. BROOKS:    Below --

6                   THE WITNESS:   The base of storm waves.

7                   MR. BROOKS:    Wave base, I see.

8                   THE WITNESS:   If you look at a cross-section from  
9     the oil window and what we are drilling here, and you go up  
10    to where BP is drilling their gas well or drilled their gas  
11    well, you will see that in the oil window we have these sand  
12    bars present.   But as you get to where the condensate  
13    begins, the sand pretty much disappears, and you've got very  
14    fine laminated silk stones, and then by the time you get up  
15    to where BP is, there is no sand.   It's all organic  
16    porosity.   It's black shale, just wispy little bits of  
17    silk.

18                   MR. BROOKS:    I have somewhat more familiarity  
19    with the Eagleford in South Texas than I have more with the  
20    Mancos.

21                   THE WITNESS:   The Eagleford would look more like  
22    what BP is drilling up there.

23                   MR. BROOKS:    Well, the Eagleford has very  
24    definite oil condensate and dry gas.

25                   THE WITNESS:   We have that here in this basin.

1                   MR. BROOKS: You do have that here?

2                   THE WITNESS: Yes, we have that in the San Juan  
3 Basin as primarily a function of maturation.

4                   MR. BROOKS: Okay. And is it generally true that  
5 to the north is the sand -- is the gas area and to the  
6 south is the oil area?

7                   THE WITNESS: Yes, sir.

8                   MR. BROOKS: Okay. So you said the oil  
9 development, the historic oil development was from -- did  
10 you say E to I?

11                   THE WITNESS: E to I, any place where you had  
12 good sand development, they would state it on the log. They  
13 had a little show in the mud log where they have a little  
14 indication that there was production on the log, they would  
15 pop a perk in it and try to complete it.

16                   MR. BROOKS: Is it correct to say that most of  
17 the horizontal wells that have been drilled in the Mancos  
18 recently are in that same general area vertically?

19                   THE WITNESS: Yes. Most of them are taking  
20 advantage of these sandier zones because that tends to be  
21 the better rock. But when you frac it, you also get a  
22 sizeable contribution from the rock that would not be --  
23 could not be produced in a vertical well. So you get all  
24 the organic shales, you get the very fine laminated silk  
25 stones, and those, those type of reservoirs become more

1 important as you go farther off shore farther to the  
2 northeast into what was deeper water.

3 So this is -- this is probably one of the last  
4 areas before you got into fully marine, open waters, and the  
5 sands pretty much disappeared.

6 MR. BROOKS: Okay. Now, is the portion of the  
7 Mancos, the upper Mancos, which is Rafael Shale, is that  
8 considered prospective at all in this state of the industry?

9 THE WITNESS: As you get up to where BP is, it  
10 would be potentially productive from above where I have  
11 marked the Mancos A down to the Unconformity, so essentially  
12 that entire section is potentially productive.

13 MR. BROOKS: Okay. And that would probably be  
14 developed horizontal wells.

15 THE WITNESS: It would have to be, yes.

16 MR. BROOKS: Because that's all shale and pretty  
17 dense shale.

18 THE WITNESS: Yes.

19 MR. BROOKS: That was my impression. Okay.  
20 Well, I have not probably used your time very well because  
21 you are here to present a case for Enduring, and I'm trying  
22 to get generally educated so I can effectively work on the  
23 Mancos, but thank you very much --

24 THE WITNESS: My pleasure.

25 MR. BROOKS: -- for your knowledgeable and

1 helpful responses.

2 MR. JONES: Thank you very much.

3 HEARING EXAMINER: Thank you.

4 MR. FELDEWERT: We ask that the case be taken  
5 under advisement.

6 HEARING EXAMINER: Case 20272 will be taken under  
7 advisement.

8 At this time we will take five-minute break.

9 (Adjourned.)

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STATE OF NEW MEXICO )  
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COUNTY OF SANTA FE )

I, IRENE DELGADO, certify that I reported the  
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the date I reported these proceedings I was a New Mexico  
Certified Court Reporter.

Dated at Santa Fe, New Mexico, this 7th day of  
March 2019.

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