

STATE OF NEW MEXICO  
ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION

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

Application of OXY USA, Inc. for a Case No. 22087  
Closed Loop Gas Capture Injection  
Pilot Project, Lea County, New Mexico

Application of OXY USA, Inc. for a Case No. 22088  
Closed Loop Gas Capture Injection  
Pilot Project, Lea County, New Mexico

Application of OXY USA, Inc. for a Case No. 22089  
Closed Loop Gas Capture Injection  
Pilot Project, Lea County, New Mexico

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

AUGUST 5, 2021

This matter came on for hearing before the  
New Mexico Oil Conservation Division, William  
Brancard, Esq. Hearing Examiners, Baylen  
Lamkin, Dean McClure and Dylan Rose-Coss, Technical  
Examiners, on August 5, 2021, via the Webex Virtual  
Conferencing Platform hosted by the New Mexico  
Department of Energy, Minerals and Natural Resources.

Reported by: Mary Therese Macfarlane  
New Mexico CCR #122  
PAUL BACA COURT REPORTERS  
500 Fourth Street NW, Suite 105  
Albuquerque, New Mexico 87102  
(505) 843-9241

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A P P E A R A N C E S

FOR OXY USA, INC. Adam G. Rankin, Esq.  
Kaitlyn A. Luck, Esq.  
Holland & Hart  
110 North Guadalupe, Suite 1  
Santa Fe, New Mexico 87501  
(505) 988-4421  
agrarkin@hollandhart.com  
kaluck@hollandhart.com

FOR MRC PERMIAN: James Bruce, Esq.  
Post Office Box 1056  
Santa Fe, NM 87504  
(505) 982-2043  
jamesbruc@aol.com

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1 (Time noted 10:25 a.m.)

2 EXAMINER BRANCARD: Okay. That leaves us just  
3 with three cases here from OXY USA, Inc., Cases 22087,  
4 22088, 22089.

5 Can I get an entry of appearance from  
6 Holland & Hart?

7 MR. RANKIN: Good morning, Mr. Examiner. Adam  
8 Rankin with the law firm of Holland & Hart here in Santa  
9 Fe along with my colleague Kaitlyn Luck appearing on  
10 behalf the applicant in these cases.

11 I think we will have three witnesses for  
12 each of the three cases.

13 EXAMINER BRANCARD: Okay. And you will be  
14 presenting these cases separately?

15 MR. RANKIN: Mr. Examiner, they are very similar  
16 in a lot of ways, however each of them have different  
17 elements. So we will do our best not to overlap. For  
18 example, the engineering, reservoir engineering testimony  
19 is very similar for each of the three cases and so where  
20 possible I may ask to incorporate testimony that's given  
21 during the course of the proceeding.

22 But to facilitate we have presented  
23 Prewritten Prefiled Written Testimony from each of the  
24 witnesses for each of the three cases in an effort to try  
25 to streamline the presentation today.

1           EXAMINER BRANCARD: Thank you. In Case 22088, I  
2 have an entry of appearance from MRC Permian.

3           MR. BRUCE: Yes, Mr. Examiner. Jim Bruce for  
4 MRC Permian company and Matador Production Company, and  
5 they have no objection to the cases being presented by  
6 affidavit.

7           EXAMINER BRANCARD: Am I correct that you're  
8 just entering an appearance in one of these cases? Is  
9 that right?

10          MR. BRUCE: Just 88, correct.

11          EXAMINER BRANCARD: Right.

12                   Okay. Do we've any other parties  
13 interested in Cases 22087, 22088, and 22089?

14                   Hearing none, I would like to introduce our  
15 examiners for these cases. We have Mr. Dylan Rose-Coss.  
16 Are you with us?

17          EXAMINER ROSE-COSS: I am here.

18          EXAMINER BRANCARD: All right. And Mr. Dean  
19 McClure.

20          EXAMINER McCLURE: I am also here.

21          EXAMINER BRANCARD: All right. I would like to  
22 ask the examiners whether you think we are ready to go  
23 forward with these cases or whether the Division has had  
24 adequate time to review all this information, just as a  
25 preliminary matter.

1 EXAMINER McCLURE: I think we're ready.

2 EXAMINER BRANCARD: Mr. Rose-Coss.

3 EXAMINER ROSE-COSS: I believe we're ready, Mr.  
4 Brancard, but we do have -- the Division's found a few  
5 items for discussion we would like to bring up with OXY.  
6 So putting it out there that there might be a follow-up  
7 meeting, but I believe Dean has done a fairly thorough  
8 review of the materials, so most of our concerns we should  
9 be able to address at this hearing.

10 EXAMINER BRANCARD: Okay. Thank you.

11 You know, we've gone a little over two  
12 hours so far. I'd like to take another little  
13 break before we start this, partly because I need to clear  
14 up a technical problem.

15 So why don't we get started at 10:35 on  
16 these cases.

17 MR. RANKIN: Thank you very much, Mr. Brancard.

18 (Note: In recess from 9:36 a.m. to 10:37 a.m.)

19 EXAMINER BRANCARD: Mr. Rankin, are you with us?

20 MR. RANKIN: Mr. Examiner, I believe all our  
21 witnesses are here, as well. We are ready to proceed.

22 EXAMINER BRANCARD: From what I understand from  
23 our chat a minute ago, we will do this case by case.

24 MR. RANKIN: I think that will be necessary, Mr.  
25 Examiner, but we will do our best, as I said, to limit our

1 overlap as much as possible.

2 EXAMINER BRANCARD: All right. So with that we  
3 will start with Case 22087. And I have no other Entries  
4 of Appearance at this point.

5 Are there any other parties interested in  
6 Case 22087? (Note: Pause.)

7 Hearing none, Mr. Rankin, please proceed.

8 MR. RANKIN: Thank you very much, Mr. Examiner.

9 In this case we have three witnesses that  
10 will be presenting testimony today, and I ask at this time  
11 they be sworn in.

12 EXAMINER BRANCARD: Can you have your witnesses  
13 identify themselves?

14 MR. JANACEK: Stephen Janacek here.

15 (Inaudible voices.)

16 EXAMINER BRANCARD: We are having a little bit  
17 of audio/video problems with your witnesses, Mr. Rankin.

18 MR. RANKIN: So let's see. The first witness is  
19 Stephen Janacek, the second witness is Michele Wiechman,  
20 and the third witness is Xueying Xie.

21 EXAMINER BRANCARD: Okay. Can I get each of you  
22 to raise your right hands. I assume Ms. Wiechman has  
23 raised her right hand.

24 (Note: Whereupon OXY USA, Inc. witnesses  
25 Stephen Janacek, Michele Wiechman and Xueying  
Xie were duly sworn by Examiner Brancard and

1

2

EXAMINER BRANCARD: All right. Thank you.

3

4

I think we are ready to go, Mr. Rankin with the first witness.

5

MR. RANKIN: Thank you very much, Mr. Examiner.

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Before I commence, I'll just say that we've prepared Prefiled Written Testimony for each of these witnesses. We are prepared, after adopting each witness' testimony, to present a short summary in each case, and, as I said, we will do our best to limit overlap.

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So we are happy to go ahead and provide that summary unless the Division examiners feel that they have enough information in the Written Testimony and that we don't need to present a summary. But we are happy to proceed and are prepared to do so, to give a short summary of each witness' testimony. I think it would be beneficial.

18

19

EXAMINER BRANCARD: Thank you. Mr. McClure and Mr. Rose-Coss?

20

21

EXAMINER McCLURE: I agree. I think it would be beneficial.

22

23

EXAMINER ROSE-COSS: Agreed.

24

EXAMINER BRANCARD: Okay. So a summary.

25

MR. RANKIN: Thank you.

STEPHEN JANACEK,

1                   having been duly sworn, testified in

2                   Case No. 22087 as follows:

3                   DIRECT EXAMINATION

4 BY MR. RANKIN:

5           Q.    Mr. Janacek, will you please state your full  
6 name for the record.

7           A.    Stephen Janacek.

8           Q.    Since you have already spelled it, we won't go  
9 through that exercise. By whom are you employed and in  
10 what capacity?

11          A.    I am employed by OXY as a petroleum engineer.

12          Q.    Have you previously testified before the  
13 Division?

14          A.    Yes.

15          Q.    Have you had your credentials as an expert in  
16 petroleum engineering accepted as a matter of record?

17          A.    Yes, I have.

18          Q.    Are you familiar with the application that's  
19 filed in this case?

20          A.    Yes, I'm familiar.

21          Q.    And have you undertaken an engineering study  
22 following the Division's Closed Loop Gas Capture  
23 guidelines?

24          A.    Yes.

25          Q.    Did you also oversee and coordinate OXY's land

1 department's identification of all affected parties  
2 required to be notified under the Division's guidelines?

3 A. Yes, I did.

4 Q. Did you prepare written testimony in this case  
5 marked as Exhibit B?

6 A. Yes, I did.

7 Q. Did you also prepare additional Exhibits B-1 and  
8 B-2?

9 A. That's correct.

10 MR. RANKIN: At this time, Mr. Examiner, I would  
11 tender Mr. Janacek's as an expert in petroleum  
12 engineering?

13 EXAMINER BRANCARD: Are there any objections?

14 Hearing none, so qualified.

15 MR. RANKIN: Thank you very much.

16 Q. Mr. Janacek, you indicated you have prepared  
17 Prefiled Written Testimony in this case that has been  
18 marked as Exhibit B along with Exhibits B-1 and B-2? Is  
19 that correct?

20 A. That's correct.

21 Q. Do you adopt that testimony today as your sworn  
22 testimony in this case?

23 A. Yes, I do.

24 Q. Now, just to be clear so the examiners  
25 understand what topics you are testifying to, the

1 materials and exhibits that you prepared in support of  
2 this application and that are covered in your testimony,  
3 are essentially everything that is required to be  
4 addressed under the Division's guidelines for Closed Loop  
5 Gas Capture projects, except for the geology and reservoir  
6 and engineering topics. Is that correct?

7 A. That's correct.

8 Q. And the materials you prepared and were covered  
9 in your testimony are in Exhibit A, which is the  
10 application that was filed in this case. Uhm, Exhibit A,  
11 actually is from pages 3 through 77; is that correct?

12 A. That's correct.

13 Q. In this case OXY is seeking Division approval  
14 for a Closed Loop Gas Capture injection project?

15 A. Yes, that's what we are seeking.

16 Q. And the purpose would be to temporarily inject  
17 gas through certain of its horizontal production wells  
18 that would otherwise be flared during a downstream-upset  
19 or interruption, or require OXY to shut in those affected  
20 wells; is that correct?

21 A. That's correct.

22 Q. And in this case OXY is seeking approval of a  
23 project area that's proposed to be approximately 640  
24 acres, more or less?

25 A. That's correct, as well.

1 Q. It's located in the east half of Sections 8 and  
2 17 in Township 23 South, Range 32 East, in Lea County?

3 A. Correct.

4 Q. And the project area and proposed injection  
5 wells are all located within OXY's existing Mesa Verde  
6 Bone Spring unit; is that correct?

7 A. That's correct.

8 Q. Mr. Janacek, I'm going to --

9 Mr. Examiner, I may ask I be given  
10 permission to share my screen? Thank you.

11 Mr. Janacek, I'm going to scroll down to  
12 one of the pages in Exhibit A.

13 EXAMINER McCLURE: We aren't seeing your screen  
14 if you are sharing.

15 MR. RANKIN: Thank you very much. I neglected  
16 to take the final step.

17 WITNESS JANOCZEK: Thank you, Mr. Examiner. I  
18 couldn't see it either.

19 MR. RANKIN: They changed the format for this.

20 Q. Let me know when you're able to see my screen.

21 A. Yes, I can see it.

22 Q. Mr. Janacek, is this page 6 of Exhibit A to the  
23 application?

24 A. Yes, that's correct.

25 Q. Can you just review for the examiners what this

1 **exhibit shows in terms of the project area.**

2 A. Sure. So when we look at Exhibit A, page 6,  
3 we're focused on the Mesa Verde project area and  
4 everything in the vicinity. So sort of at a high level,  
5 what we see here within the light-blue outline is the unit  
6 boundary of the Mesa Verde Bone Spring and Mesa Verde  
7 Wolfcamp units. They have the same lateral boundaries.

8 And then we zoom in a little bit further  
9 and we focus on the right-hand side of the exhibit, and in  
10 the dashed blue line is the outline of the project area,  
11 the CLGC project.

12 Then if we focus a little bit further we  
13 have our trajectories of each of the six proposed CLGC  
14 wells that are all wells within the Mesa Verde Bone Spring  
15 unit. And those old wells are 1 through 6H, and their  
16 surface location is notated with a dot, a black dot, as  
17 well as their first take point is indicated by FTP and  
18 their last take point, all these wells were drilled south  
19 to north, and their LTP is located at the top of the map.

20 So that is an overview of the wells, the  
21 unit boundary, and the project outline, and if need be I  
22 can go into the flow of fluid through the system, or we  
23 can cover that in another exhibit.

24 **Q. Yeah, let's cover that in the next exhibit.**

25 **So this project will be a total of six**

1 wells that would be temporarily converted to injection  
2 during downstream upsets or other interruptions; is that  
3 correct?

4 A. That's correct. These are all 10K wells.

5 Q. And OXY is proposing to inject temporarily  
6 during those upsets into three different intervals within  
7 the Bone Spring Formation?

8 A. That's correct.

9 Q. And the injection interval will range from  
10 approximately 9,100 feet, roughly, to 11,860 feet  
11 approximately?

12 A. Approximately, yes.

13 Q. So, Mr. Janacek, I'm going to flip back to that  
14 previous page in Exhibit A and ask you just to give an  
15 overview of how OXY's wells currently work under normal  
16 operations during production, and then explain how they  
17 will operate when there is an upset or downstream  
18 interruption.

19 A. Sure. So looking at this diagram, we're looking  
20 at an overview of the process flow of gas and other fluids  
21 through the Mesa Verde facilities.

22 All of these facilities are in the Mesa  
23 Verde area, and only have Mesa Verde Bone Spring wells and  
24 Mesa Verde Wolfcamp wells producing to these facilities  
25 and as source wells.

1                   So to start here, I know it's a little bit  
2 busy but we will start at the bottom-right-hand portion of  
3 the diagram, and I'll first walk through the normal  
4 operations and the flow of fluids.

5                   So we had the six Mesa Verde Bone Spring  
6 CLGC wells. And they are normally producing fluids, and  
7 those fluids will be produced down the green flow line to  
8 the Mesa Verde 18 Central Tank Battery. At the Central  
9 Tank Battery they will combine with other wells producing  
10 to these facilities.

11                  Another thing to note here is all of the  
12 wells in the system are operated by OXY.

13                  Once they are at the Central Tank Battery,  
14 the oil, water and gas will be separated out. The gas,  
15 and we will be focusing on the gas in today's discussion,  
16 the gas will then enter the red low-pressure gas pipeline  
17 network, and that is indicated by the red line here.

18                  There are a couple of different pathways  
19 that gas can take once it enters this system. One of the  
20 points it can enter is the Enlink primary gas takeaway.  
21 So for the Mesa Verde area that's our primary gas takeaway  
22 that we sell gas to, and that's indicated by the blue  
23 star.

24                  The second path that gas can flow once it  
25 enters the low-pressure gas pipeline system is to the

1 flare, as indicated with the red star.

2                   And then finally, the last path the gas can  
3 flow to is to either one of our centralized gas lift  
4 stations. We have two, as indicated with the black  
5 squares. One is the Mesa Verde East CGL station and the  
6 other is the West CGL station.

7                   So once the gas passes through the CGL  
8 stations the gas is pressurized up to approximately 1250  
9 psi, where it has a couple of pathways it can flow to  
10 next.

11                   The first pathway that it could flow to,  
12 during normal operations it doesn't, is our secondary gas  
13 takeaway to DCP. And we don't utilize that -- we don't  
14 utilize the DCP takeaway during normal operations.

15                   The alternative path that is normally used  
16 is the high-pressure gas flows down the orange centralized  
17 gas lift line back to the wells on gas lift.

18                   So in addition to these six wells that we  
19 are proposing for CLGC operations, there are additional  
20 wells in the system that operate with gas lift.

21                   So that is a complete loop of how fluids  
22 move through the system during normal operations.

23                   **Q. Now, Mr. Janacek, if you would explain how --**  
24 **any differences in terms of operations or in terms of**  
25 **facilities that OXY proposes to operate these facilities**

1     **under the Closed Loop Gas Capture project.**

2           A.     Sure.   So with the Closed Loop Gas Capture  
3     project we are utilizing our existing facilities.   So the  
4     operations are similar yet different for a CLGC event, or  
5     what I'll call a storage event.   I may use those terms  
6     interchangeably.

7                         So whenever we have a storage event, that  
8     is initiated by the Enlink primary gas takeaway no longer  
9     accepting the gas.   So we are unable to sell gas to  
10    Enlink, which is the blue star noted, connected to the red  
11    low-pressure gas pipeline.   So since we can't sell gas,  
12    yet we're still producing fluids, our low-pressure gas  
13    pipeline system will begin to build up in pressure, and  
14    once the pressure builds to a certain point -- excuse me.  
15    Once the pressure builds to a certain point, we will start  
16    to initiate CLGC storage wells.

17                         The way the wells are initiated is by we go  
18    back to the wellhead, and we are looking at the wellhead.  
19    The SDV or the safety shutdown valve on the production  
20    side of the well will be shut in.   So the CLGC well will  
21    no longer be producing fluids, but it will still be  
22    injecting gas, produced gas, via the high-pressure  
23    gas-lift system.

24                         So this is a way we are able to do two  
25    things at once.   One, we are able to reduce the amount of

1 gas that's produced into the system; and 2, we are able to  
2 utilize this CLGC well as a storage well, and reduce the  
3 pressure on the low-pressure gas pipeline network.

4 Now, that is the initiation sequence for  
5 one well, yet we've six proposed here, so the way we  
6 envision operations occurring are if the pressure in the  
7 low-pressure gas pipeline continues to increase after  
8 bringing one well on, then we will bring a second  
9 additional well on, so on and so forth down the line,  
10 until we utilize all six of our proposed CLGC wells.

11 So that is a description of the cascading  
12 approach that we foresee utilizing for this project.

13 Q. A couple of questions Mr. Janacek -- oh, go  
14 ahead.

15 So once the Enlink upset has been  
16 completed, we will begin to sell gas to Enlink, therefore  
17 the pressure in the low-pressure gas pipeline will begin  
18 to reduce and therefore we can bring back on the CLGC  
19 wells and produce them.

20 Another thing I'd like to note, and I did  
21 not cover, is regarding the secondary gas takeaway point.

22 So we will utilize the capacity of our DCP  
23 takeaway during an upset event, however the DCP takeaway  
24 does not have a large-enough capacity to handle all of the  
25 production, unlike Enlink. So the steps would be once

1 shut in, utilize a DCP takeaway, and then with the  
2 remaining volume use these wells and a CLGC super center.

3 And that is a summary of how the operations  
4 are to be handled during an upset or storage event.

5 Q. Thank you, Mr. Janacek. Just two questions for  
6 you to follow up.

7 No. 1, as far as the initiation of your gas  
8 storage events is concerned, is that initiated through an  
9 automatic set point?

10 A. Yes. We will have an automated system and we  
11 will determine a set point at which the system will  
12 activate and the safety shutdown valves will automatically  
13 close.

14 Q. And what -- part of this proposed project is to  
15 avoid the necessity of flare or shut-in of OXY wells  
16 during an upset or interruption; is that right?

17 A. That is correct.

18 Q. Now, as far as the applications filed in this  
19 case and in fact each of the cases, does OXY request the  
20 Division authority to inject under this project for a term  
21 of five years?

22 A. That is correct.

23 Q. And does it also seek the ability to  
24 administratively extend authority to inject without the  
25 need for a hearing?

1           A.    That's correct.

2           Q.    Is the information and data for each of the  
3 injection wells proposed for this project, including all  
4 well diagrams and information regarding well construction,  
5 included in Exhibit A to the application?

6           A.    Yes, it is.

7           Q.    On the construction of each of those proposed  
8 injection wells, do all the wells have a packer interval?

9           A.    No, not all of these wells currently have a  
10 packer in the hole.

11          Q.    Could you just review and explain for the  
12 examiners how these wells are constructed.  Essentially  
13 there's two types of wells, some with a packer and some  
14 without, is that correct?

15          A.    That's correct.

16          Q.    Can you just review for the examiners exactly  
17 how these wells are constructed.

18          A.    Sure.  So like Mr. Rankin has pointed out, there  
19 are two types of gas lift wells that we have.  There's one  
20 type of well where we have gas lift injection that is down  
21 the casing tubing annulus that then combines with the  
22 produced fluids within the tubing.  That bottomhole set-up  
23 has a packer in the hole.

24                        When we go to the second type of well, the  
25 second type of gas lift well, that's where we have gas

1 lift injection down the tubing, and then it combines with  
2 produced fluids in the casing. And that downhole  
3 configuration, those wells do not have a packer in the  
4 hole during production.

5 So those are the two types of downhole  
6 wellbore configurations that are in this application that  
7 apply to all the wells, and there are two different types  
8 of wellhead diagrams because of those configurations for  
9 gas lift operations.

10 Q. So Mr. Janacek, I'm sharing on my screen now one  
11 type of wellbore diagram that does not have a packer  
12 downhole; is that correct?

13 A. That is correct.

14 Q. And I can flip back to see if I can find one  
15 easily, an example here of one that does have a packer  
16 downhole.

17 A. Yes. Those are the two different-type downhole  
18 configurations for gas lift wells where we do and do not  
19 have a packer in the hole.

20 Q. Now, on the packer does OXY request  
21 authorization from the Division to place its packers as  
22 deep as possible but no more than 100 feet above the top  
23 of the injection zone, which would here be the Bone Spring  
24 Formation?

25 A. That's correct.

1           **Q. Will you just explain, Mr. Janacek, and I'll**  
2           **leave this page up, the wellbore diagram for the Mesa**  
3           **Verde Bone Spring Unit 3H well on page 27 (sic) of**  
4           **Exhibit A of the applications, if you would just explain**  
5           **briefly why that request is necessary for injection into**  
6           **these horizontal wells.**

7           A. Sure. So with these proposed CLGC wells, all of  
8           them are horizontal wells that are 10K lateral lengths.  
9           And with the packer setting in these wells we usually set  
10          the packers via Wireline, so therefore there is a  
11          restriction as to the deepest point at which we can set  
12          the injection packers. It's roughly, give or take, 30  
13          degrees inclination into the curve of the lateral on these  
14          wells.

15                                So that's why we proposed the language to  
16          be able to set the packer like we've worded it.

17          **Q. And this is a circumstance that OXY has**  
18          **experienced before in other of its injection projects**  
19          **where it's injecting into a horizontal well such as a**  
20          **Huff-N-Puff EOR project?**

21          A. Yes. So we had utilized a similar request in  
22          our previous projects, as you mentioned.

23          **Q. And those requests have been previously approved**  
24          **by the Division?**

25          A. That's correct.

1           Q.    With the exception of the Mesa Verde Bone  
2           Springs 5H well, one of the proposed project wells in this  
3           case, has OXY provided a copy of the cement bond log for  
4           each of the project wells?

5           A.    Yes, we did.

6           Q.    Will OXY provide OCD a cement bond log for the  
7           5H well prior to commencement of injection?

8           A.    Yes, we will.

9           Q.    Mr. Janacek, you would just give us an overview  
10          of what the current average surface pressures are in the  
11          normal production operations for the project wells.

12                        And I'll just take a moment and I'll zoom  
13          up to the exhibit that has that information for your  
14          reference.

15          A.    Thank you.  Yes.

16                        So the current operations for these  
17          proposed CLGC wells are gas lift, and the current range of  
18          injection pressures is between roughly 500 and 1100 psi.

19          Q.    That information is contained in the table on  
20          page 54 of Exhibit A to the application; is that correct?

21          A.    That's correct.

22          Q.    What is OXY's proposed maximum allowable surface  
23          pressure for the project wells during injection  
24          operations?

25          A.    Our proposed maximum allowable surface pressure

1 during CLGC operations is 1200 psi, which is equal to that  
2 of the system pressure that we utilize for gas lift  
3 operations. Nearly equal to that of gas lift operations.

4 Q. Right. And I think you identified that pressure  
5 limitation at 1250; is that correct?

6 A. That's correct.

7 Q. Now, has OXY been able to demonstrate that each  
8 well proposed for injection in this project will meet the  
9 minimum engineering and strength requirements required by  
10 the Division's Closed Loop Gas Capture guidelines?

11 A. Yes. That can be seen in this exhibit on  
12 page 54.

13 Q. So these calculations just demonstrate that each  
14 of the requirements that the Division has imposed are met  
15 by the existing components within each of these wells?

16 A. That's correct.

17 Q. Will OXY monitor its injection and operational  
18 parameters with an automated SCADA system?

19 A. Yes, we will.

20 Q. Will there be pre-set alarms and automatic  
21 shut-in safety valves that will prevent the wells from  
22 exceeding the 1200 Maximum Allowable Surface Pressure.

23 A. Yes. There are currently on these wells and  
24 will be on these wells during the project.

25 Q. And the affidavit you prepared and the materials

1 you submitted along with the application go into greater  
2 detail as to exactly how those parameters will be measured  
3 and the safety valves and shut-in valves for each of the  
4 proposed wells?

5 A. That's correct.

6 Q. I'm going to skip ahead to the next page here,  
7 Mr. Janacek. If you would just summarize the well set-ups  
8 for the two types of wells that we have operating on this  
9 project.

10 A. Sure. So, like I mentioned earlier, there are  
11 two different types of wellheads, because there are two  
12 different types of downhole configurations for these gas  
13 lift wells.

14 This exhibit here on page 55 is a diagram  
15 of the wellhead for a casing injection and tubing flow  
16 well. And that's a reminder this well downhole does have  
17 a packer.

18 The bottom left is a chart of the wells  
19 that have this type of wellhead configuration. The bottom  
20 right is a key for the abbreviated terms that are found  
21 within the labels of different elements of the wellhead.

22 And then now I'll get into the flow of  
23 fluid -- oh, go back one.

24 Q. Back or forward?

25 A. Okay. Okay. Sorry. So now I'll walk through

1 the diagram after that outline.

2           If we start on the left-hand side we're  
3 looking at an arrow coming into the right, and that's a  
4 continuation of the system that we saw previously, and  
5 that is the -- if you will remember, the orange  
6 high-pressure gas lift line. So that is roughly 1200 psi  
7 pressure of produced gas entering the system. So the flow  
8 fluid at or near the wellbore starts there.

9           The gas will first pass through the flow  
10 meter, which is utilized to determine our injection rate.  
11 Then the gas will flow through our control valve, also  
12 referred to in this diagram as an SCV in other portions,  
13 and the flow control valve automatically adjusts the  
14 injection rate and the injection pressure for the  
15 individual well.

16           After that the gas will flow forward and  
17 pass through the Safety Shutdown Valve of the casing head,  
18 and this Safety Shutdown Valve is again another device  
19 that is controlled automatically and can be programmed, as  
20 such, to deal with different types of pressures or rates  
21 if encountered.

22           The fluid will continue to flow past the  
23 Safety Shutdown Valve and into the casing tubing annulus.  
24 That's not seen on here, but I will also make a note that  
25 on the opposing side of the casing head there is a label,

1 PIT and PI. And PIT is the Pressure Indicating  
2 Transmitter or the pressure transducer that is connected  
3 to our SCADA system and gives us readouts of the casing  
4 pressure, and then the PI is just a pressure indicator  
5 that you can see the pressure on location.

6           So if we continue the flow of the fluid,  
7 the fluid will flow down the casing, the production casing  
8 that is, and tubing annulus, down the hole through the gas  
9 lift mandrels and then it will combine with the produced  
10 fluid.

11           Once it combines with the produced fluid,  
12 we come back up through the wellhead and we enter the  
13 upper portion of the wellhead, which is the tubing head  
14 portion. Here we could have similar components to the  
15 casing side. We have our Pressure-Indicating Transmitter  
16 for tubing pressure; we have a production-size Safety  
17 Shutdown Valve, as well; and then we also have a Flow  
18 Control Valve which controls the rate of pressure of the  
19 produced fluids down the flow line.

20           So that completes the flow of gas and  
21 fluids through this wellhead diagram.

22           And one more thing to note is that once the  
23 produced fluids flow down that flow line they go to The  
24 Central Tank Battery.

25           **Q. And, actually, the next exhibit here is the**

1 **second type of wellhead?**

2 A. Yes. Yes, that's correct. So this is the  
3 second type of wellhead and this is for a gas lift well  
4 that has tubing injection and casing flow. So the gas is  
5 injected down the tubing and the produced fluids flow up  
6 the casing tubing annulus.

7 The respective wells that this wellhead  
8 diagram represents is in the bottom left. There are four  
9 wells that this applies to. And when we look at the  
10 wellhead diagram itself we see all of these same elements  
11 but the flow path is reversed, so instead of fluid  
12 going -- excuse me. Instead of gas starting and going  
13 down the casing head for injection we now have our flow of  
14 gas going down the tubing head for injection.

15 So if you could imagine your fluid pathways  
16 are reversed and all of the elements are the same.

17 And a reminder here: Downhole we do not  
18 operate these wells with a packer in the hole due to the  
19 nature of the flow path associated with this type of  
20 production.

21 **Q. So then as far as operations go during the**  
22 **proposed for the -- operations during the gas injection**  
23 **period during upsets, what does OXY propose should be the**  
24 **average injection rate for each well during injection?**

25 A. To the best of our knowledge and calculation the

1 average injection rate will be about 1.8 to 2 million  
2 standard cubic feet per day of gas.

3 Q. And how about -- what is your estimate for the  
4 approximate proposed injection rate for each well in this  
5 system?

6 A. Our estimate for the maximum rate for these  
7 wells, because they are 10K lateral lengths, is probably 3  
8 million standard cubic feet a day.

9 Q. And are all the proposed wells that are subject  
10 to this injection approval, have they been -- have they  
11 undergone a pressure test previously?

12 A. Yes, they have previously been pressure tested.

13 Q. Will OXY nonetheless retest the pressure  
14 capabilities of each of these wells prior to commencement  
15 of injection?

16 A. Yes. We intend to, because none of the previous  
17 pressure tests have been within a year.

18 Q. So you'll submit that proof of demonstration  
19 that they have complied with the Division's guidelines for  
20 pressure tests prior to commencing injection operations?

21 A. That's correct.

22 Q. And is the source of gas -- source of gas for  
23 each of these projects, will it be in OXY's Bone Spring  
24 and Wolfcamp wells within the Mesa Verde Bone Spring and  
25 Wolfcamp Units?

1           A.    Yes, that's correct.

2           **Q.    Are all of these potential source wells and**  
3 **injection wells, are they single permitting approval from**  
4 **the Division?**

5           A.    Yes, they are.

6           **Q.    Did you prepare an analysis of the gas**  
7 **composition of the injection gas and reservoir gas?**

8           A.    Yes, we have a composition of the injection gas  
9 at multiple compressors at the different compressor  
10 stations, as well as for each of the different reservoirs  
11 that we will utilize as CLGC storage.

12          **Q.    Okay.  And were there any identified**  
13 **compatibility issues as a result of your gas composition**  
14 **analysis?**

15          A.    No, we did not identify any compatibility  
16 issues.  And I would like to also add that we have been  
17 utilizing this source gas on these proposed CLGC wells in  
18 gas lift operations for some time now with no  
19 compatibility issues.

20          **Q.    Does OXY have a Corrosion Prevention Plan in**  
21 **place for these wells that's currently in place?**

22          A.    Yes, we currently have a Corrosion Prevention  
23 Plan that's part of our overall chemical plan in place for  
24 these wells.

25          **Q.    And your prevention plan, the Corrosion**

1     **Prevention Plan will be continued and applied during**  
2     **injection operations under the proposed project?**

3             A.    Yes, that is correct, it will be continued.

4             **Q.    And an outline of that plan is included in your**  
5     **testimony and the accompanying exhibits?**

6             A.    That's correct.

7             **Q.    Does OXY also have a proposal for a Data**  
8     **Collection Plan?**

9             A.    Yes.  We have a proposal for the Data Collection  
10    Plan, as well.

11            **Q.    Is that outlined in your attached Exhibit B-1?**

12            A.    Yes, that is Exhibit B-1.

13            **Q.    Will you review for the examiners the elements**  
14     **of your proposal for data collection and submission to the**  
15     **Division.**

16            A.    Sure.  So in our proposed Data Collection Plan  
17    there are a couple of elements.  The top portion of the  
18    Data Collection Plan has a list of the CLGC wells and the  
19    involved wells that are directly offsetting the CLGC wells  
20    in the formation.

21                    Oh, excuse me.  Can't see.  Thank you.

22            **Q.    Sorry about that.**

23            A.    So yes, there are CLGC wells on the left-hand  
24    column.  We have their completion reservoir in the second  
25    column.  We've had wells in Avalon, the 2nd Bone Spring,

1 and the 3rd Bone Spring, and then we have the involved  
2 well either to the east or the west listed.

3 And the involved well for our definition,  
4 for discussion, is a well that's a direct offset and  
5 completed within the same reservoir as the CLGC well.

6 So these are the wells that we are applying  
7 the proposed Data Collection Plan to for the Mesa Verde  
8 project.

9 The remaining portion of the proposed data  
10 Collection Plan is an outline very similar to the recently  
11 issued EOG Order. I don't have that Order number off the  
12 top of my head but OXY reviewed it in detail to see what  
13 the requirements were per the Order, and then we assessed  
14 whether or not we would be able to meet the same  
15 requirements for our CLGC projects.

16 So upon review we've identified some  
17 changes that we are proposing to our Data Collection Plan  
18 when compared to that previously mentioned Data Collection  
19 Plan.

20 The first item that we are proposing to  
21 change is regards to status updates. We're proposing that  
22 OXY provide status updates every 12 months instead of  
23 three months to reduce the administrative burden for  
24 reporting.

25 Additionally, this project is similar to

1 our existing gas lift operations, we aren't increasing our  
2 pressure or anything like that, so we don't foresee any  
3 issues, but if there are any issues those will be reported  
4 as outlined in the EOG Order to the Division. If there  
5 are any abnormal pressure increases on any of the  
6 production strings, or if there's an increase in  
7 operational pressure, or if there is a bulkhead leak,  
8 those items will be reported, as proper, to the Division.

9           The next change I want to address is  
10 regarding the recovery analysis for each well as required.

11           The recovery analysis that we're proposing  
12 should only be submitted if there is a change in  
13 production casing pressure or production volumes if it  
14 relates to a CLGC event. These wells in the project, as  
15 well as the offset wells listed are all currently under  
16 gas lift operations for our official lift.

17           As part of gas lift operations the  
18 pressures and rates of those wells are changed at a  
19 certain frequency, per the asset teams, to optimize the  
20 lifting of fluids, so there are constantly changes to  
21 pressures, as well as rates of these wells.

22           So, as we saw, it would be beneficial for  
23 OXY and the Division to submit only recovery analyses  
24 associated with CLGC events, so that way the data is  
25 material to this project.

1           The next one I have and the next change  
2     that we note here is as it relates to commingling permits.

3           As you have stated previously, there is a  
4     commingling permit in place for all of these wells  
5     producing from the Bone Spring/Wolcamp/Mesa Verde Units.  
6     OXY will use our best efforts to obtain the well  
7     production volumes at the frequency required, but the  
8     commingling measurements for proper allocation under the  
9     approved commingling permit will take precedence over this  
10    project.

11           Additionally, there's one point I would  
12    like to include, and that is: OXY would prefer no  
13    additional well-testing equipment be required for  
14    installation for this project. That would severely impact  
15    OXY's ability to pursue the CLGC project.

16           And that is the high points of the attached  
17    proposed data collection.

18           **Q. Very good. Mr. Janacek, did you also conduct an**  
19    **engineering analysis on wells within the half-mile Area of**  
20    **Review?**

21           A. Yes, I did.

22           **Q. Let me get myself to that portion of the**  
23    **application.**

24           A. There's lot of pages to get through here.

25           **Q. Yeah. To facilitate, it...**

1                   Area of Review. Uhm, are the maps, the  
2 data supporting that analysis all included within  
3 Exhibit A to the application?

4           A. That's correct, yes.

5           Q. It's not letting me scroll down. Why not?  
6 There it goes. There.

7                   Is this, the first map here on page 71, is  
8 this a two-mile Area of Review map for the Mesa Verde  
9 area?

10          A. Yes, we have a two-mile outline and then the  
11 half-mile outline, as well.

12          Q. And within that half-mile Area of Review did you  
13 identify all the wells that penetrate the injection  
14 intervals for this project area?

15          A. Yes, I did.

16          Q. And did you include a tabulation of data for  
17 each of those wells?

18          A. Yes. The tabulation follows the map.

19          Q. And did you also identify each of the wells that  
20 are current that penetrate the injection intervals?

21          A. Yes.

22          Q. And did you include the wellbore schematics for  
23 those wells that are plugged and abandoned that actually  
24 penetrate the injection interval?

25          A. Yes, those are included.

1           Q.    In your review of the area of the wells that  
2 penetrate the injection intervals in that area, did you  
3 identify any wells that might serve as conduits or  
4 pathways for injected gas in this case, outside of the  
5 injection interval?

6           A.    No, I didn't identify any wells that would act  
7 like a conduit in any of the PA (phonetic) wells or any of  
8 the other wells listed in the AOR.

9           Q.    One thing that isn't in the Division's  
10 guidelines but I understand the Division would like some  
11 comment on is the question of how OXY proposes to allocate  
12 production between gas that was injected and native gas  
13 produced from the reservoir.

14                   Do you have a plan that addresses OXY's  
15 proposed allocation methodology?

16           A.    Yes, we do.

17           Q.    Has that been marked as Exhibit B-2 that gives a  
18 summary or an outline of that proposal?

19           A.    Yes, it is.

20           Q.    Mr. Janacek, I'll ask you just if you would  
21 review what OXY is proposing here and the discussions  
22 you've had with BLM and State Land Office regarding that  
23 allocation methodology.

24           A.    Sure. So what we have here are some notes  
25 regarding the gas production percentage allocation method

1 for this CLGC project.

2                   So after we have a storage event, the gas  
3 that's produced from the CLGC storage well will be  
4 allocated at 70 percent of the return of storage gas  
5 volumes and then 30 percent will be allocated as native  
6 gas production. We believe this is a fair and reasonable  
7 method, because it's based on our modeling that shows the  
8 injected gas volumes will stay near wellbore, which means  
9 once the wells are brought back online for production,  
10 most of the gas produced back will be injected gas.

11                   And I will note that our reservoir  
12 engineering testimony will go through this reservoir  
13 modeling in more detail later.

14                   Another point about this allocation method  
15 is that it's simple compared to a GOR method. The GOR  
16 method requires engineering analysis for every well, for  
17 every storage event. In considering that, we have low  
18 injection pressures, and what we'll see later on is our  
19 reservoir model that indicates nearly all of the injected  
20 gas is produced back over time. We believe this simple  
21 method can be applied.

22                   Another point to note here is that this  
23 method is consistent with other methods applied to EOR  
24 projects of OXY's in New Mexico, as well as Texas.

25                   And then another point I'd like to make is

1 we met previously with the State Land Office and the BLM  
2 about this method and they did not voice any objections.

3 Q. Mr. Janacek, you mentioned the acronym GOR, and  
4 I know engineers in the audience and among the examiners  
5 understand what that means, but for the record what does  
6 that acronym stand for?

7 A. GOR is Gas Oil Ratio.

8 Q. And I think the point there is that for each  
9 injection storage event OXY would have to conduct a  
10 separate engineering analysis to determine, based on that  
11 methodology, an allocation for injected gas versus native  
12 gas.

13 A. Yes, that's correct. It would be individual --  
14 excuse me. It would be individual engineering analysis  
15 that could be subjective, so with this method that's  
16 another way that we've removed the subjectivity of  
17 analysis out of the process.

18 Q. Now, Mr. Janacek, I think this brings us to the  
19 cherry on top of the testimony, and that is the discussion  
20 of Notice.

21 Did you work with OXY's land department to  
22 identify each of the surface owners for each of the  
23 proposed injection wells, and then all of the affected  
24 parties within a half-mile radius of the proposed  
25 injection within the project area, prior to Notice of this

1 application and hearing?

2 A. That's correct.

3 Q. And did you provide that list of parties to  
4 Holland and Hart so that they could send out Notice to  
5 each of those individuals?

6 A. Yes, I did.

7 Q. Is Exhibit B, which I'm showing here on your  
8 screen, is this a true and correct copy of the Notice  
9 Packet reflecting that Notice was provided by Certified  
10 Mail to each of those parties, including status of receipt  
11 from the U.S. Postal Service?

12 A. Yes, as seen in Exhibit B-3.

13 Q. I'll just go through it.

14 So first is an affidavit prepared by my  
15 office and myself indicating that we have sent Notice  
16 pursuant to the Division requirements. And then following  
17 is a copy of the Notice Letter that was sent, and each of  
18 the -- the status of each of the Notice parties prepared  
19 by the USPS System. And then finally, Mr. Janacek, is the  
20 last page of that exhibit a copy of the Affidavit of  
21 Publication reflecting that we prepared Notice in the  
22 newspaper in the county where this project is located  
23 identifying each of the interest owners, affected parties  
24 by name?

25 A. Yes, that's correct, that's a copy of the

1 Affidavit of Publication.

2 MR. RANKIN: I believe at this time,  
3 Mr. Examiner, that we have concluded a summary of Mr.  
4 Janacek's testimony, and I would ask at this time that  
5 Exhibits A, B, along with Attachments B-1, B-2 and B-3, be  
6 admitted into the record.

7 EXAMINER BRANCARD: Thank you. Any objection to  
8 these exhibits?

9 Hearing none, they are admitted.

10 Thank you. That was an informative  
11 summary, if a bit lengthy.

12 MR. RANKIN: I understand. Mr. Examiner, at  
13 this time we would have no further questions of Mr.  
14 Janacek, and pass the witness for questioning by the  
15 examiners.

16 EXAMINER BRANCARD: Thank you, Mr. Janacek.

17 Who would like to go first?

18 EXAMINER McCLURE: Doesn't matter to me. Do you  
19 want to go first Dylan, or do you want me to?

20 EXAMINER ROSE-COSS: I imagine I'll be brief,  
21 Dean, so I can go ahead. And also if Mr. Lamkin has any  
22 questions, I'd encourage him to participate, or any of the  
23 other...

24 Bill, I know that Dean and I have been  
25 reviewing this, so I'll just start off by saying thanks to

1 Mr. Janacek for your testimony. That was helpful in  
2 understanding the proposal. And nice to see you again;  
3 it's been a few weeks here. So glad you were able to put  
4 it all together.

## CROSS EXAMINATION

5  
6 BY EXAMINER ROSE-COSS:

7 Q. I suppose -- I don't have too many questions.  
8 You addressed many of the topics that we did have  
9 questions about in your testimony. So I will say: Did  
10 you provide or was there anything -- maybe I missed it. I  
11 know you had mentioned the expected volumes during each  
12 injection. Could you comment on the duration and  
13 frequency of the expected injection events?

14 A. Yes. I'll speak in general to the frequencies.  
15 I believe our reservoir engineering testimony will get  
16 into the details of it.

17 To talk over it in general, the storage  
18 events we anticipate will be on a period of a couple of  
19 hours to a couple of weeks, at most. And that's what  
20 we've seen based off of historical interruptions, and  
21 that's what we have modeled for potential injection cases.

22 Q. Okay. So a couple of weeks. Is that when you'd  
23 envision needing all six wells? Is there a particular  
24 well that's going to be your primary target for an  
25 injection and then a follow up, or how will that play out?

1           A.    Good question.  So we will probably pick the  
2 well that's the most depleted and the lowest bottomhole  
3 pressure, and that would be the first storage well that we  
4 bring online.  So that will be the first one, because we  
5 will -- we believe it will have the most potential for  
6 storage volumes downhole.

7                       Then as the upset event continues, we'll  
8 kind of go down the list based on priority ranking, that  
9 way.

10           **Q.    Okay.  And then is it identified in your**  
11 **testimony which is the most depleted or should we just --**  
12 **we can figure that out, whatever one is the oldest?**

13           A.    Yeah, we could follow up and look into it.  
14 When -- every engineer has a different definition of  
15 depleted.  It could be volumes, it could be age, it could  
16 be pressure.  So we can definitely follow up and give you  
17 all that information if that's something you-all would  
18 like to consider.

19           **Q.    Yeah.  Why don't we say that.  If you could**  
20 **inform us kind of what your order of operations on these**  
21 **wells would be, I think that would be helpful.  Appreciate**  
22 **that.**

23                       And I suppose that your reservoir engineer  
24 that has done the modeling is going to speak to kind of  
25 providing some evidence about how this allocation method,

1    **which allocation method is going to be as accurate or as**  
2    **fair as the GOR method.**

3                   **Will that be discussed there?**

4           A.    No, we don't have any testimony today regarding  
5    that.

6           Q.    Okay.  Could you speak to that a little bit,  
7    then, about kind of if you think there's going to be an  
8    over or an under, or if this is an over/under estimate one  
9    way or the other, your 70/30 versus a GOR recovery  
10   analysis.

11          A.    Yeah.  I don't think I can say that the  
12   percentage allocation method will be more or less exact as  
13   a GOR method, but I can say that it will be simple to  
14   apply here.  We will be able to utilize our injection gas  
15   volumes that are captured with our injection meters, and  
16   so we will utilize that other method, and then we will  
17   utilize the well test and the produced volumes to continue  
18   off that method.

19                   EXAMINER ROSE-COSS:  Okay.  Well, I might have  
20   some more questions about that, but I'm going to go ahead  
21   and let Dean continue with his line of questioning.

22          Q.    And one thing, just for clarification in my  
23   mind:  You referred to these as 10K wells and what is  
24   that, 10 kilometers in length?

25          A.    Sorry.  I'm talking -- when I say 10K wells I'm

1 referring to these horizontal wells being 10,000 feet  
2 lateral length.

3 Q. Okay. Sure. Well that's it. I'll pass the  
4 microphone to Dean, but if you can address that.

5 A. Thank you, Mr. Examiner.

6 EXAMINER McCLURE. And my questions, I don't  
7 know if they are in any specific order. I'll just kind of  
8 start talking about allocation, since that's where Dylan  
9 left off

10 CROSS EXAMINATION

11 BY EXAMINER McCLURE:

12 Q. I guess what is the reasoning that you believe  
13 you're going to get 100 percent recovery of your injected  
14 gas?

15 A. The reason why we think we'll receive 100  
16 percent recovery is our reservoir modeling indicates that  
17 we'll produce back 90 to 95 percent of this gas, and with  
18 the percentage of deviation due to error in reservoir  
19 modeling we think it very well could be 100 percent of the  
20 injected gas being produced back.

21 Q. Well, with that same reasoning it can be 80  
22 percent produced back, then, if you can go plus or minus  
23 10 percent.

24 A. That's true.

25 Q. So I guess that there is my primary concern, and

1 the reason that we are going to have to modify, I guess,  
2 your allocation plan, because a part of these pilot  
3 projects, the purpose of them is to acquire data for when  
4 we start issuing these full-term and (inaudible) ones.

5 Like, here you're making a pretty broad  
6 assumption here. So I don't know as there's any easy  
7 solution beyond having an individual declined curve.  
8 Maybe we can have that, a simple declined curve.

9 I guess, what is your thoughts in that  
10 regard if you are not going to be allowed to use a fixed  
11 percent allocation method here?

12 A. Hmm. That's a good question. I'd have to think  
13 about it, Dean. I haven't thought through what that looks  
14 like. So I can think through it, get with my team, and  
15 see what type of method we would be comfortable with.

16 Again, that would -- if we were to utilize  
17 a different method, we would, of course, go back to the  
18 OCD and the BLM, because they previously agreed to this  
19 methodology.

20 Q. Well, BLM, not the OCD. Correct?

21 A. They both -- I'm sorry, that is correct. The  
22 State Land Office. Yes. They had no objections.

23 Q. Okay. Yeah, on the OCD side we are gathering  
24 data, like I said, where in the BLM and State Land Office  
25 it's just that state and federal interests are protected,

1 essentially. So we got two different sets that we're  
2 looking at, or reasonings, for our approvals.

3           Yeah, I was going to say, based on that --  
4 yeah, I was going to say, yeah, in the past you're exactly  
5 right that we would utilize all the -- well, the previous  
6 operators had utilized both the GOR and a declined curve  
7 analysis, and they made this huge and the most  
8 conservative value for native production, I believe was  
9 what they used. But of course you wouldn't have to follow  
10 that precisely. We can discuss and see exactly what we're  
11 thinking here.

12           **EXAMINER ROSE-COSS:** Can I interrupt again?

13           EXAMINER McCLURE: Go ahead.

14           EXAMINER ROSE-COSS: Thinking through it now, is  
15 it correct that the decline curve wasn't recalculated  
16 after every injection test in previous instances, as like  
17 one decline curve was calculated, and then I guess it's  
18 safe to assume like you don't have to recalculate decline  
19 curves every injection tests under the premise that the  
20 injection periods aren't going to affect overall recovery.

21                   And if we have a statement, that I don't  
22 know if I heard, maybe it's covered in the reservoir  
23 engineering, that the injection won't have any effect on  
24 ultimate recovery, then a decline curve used pre injection  
25 should be valid going forward.

1 EXAMINER McCLURE: To reach -- I'm sorry. Go  
2 ahead.

3 THE WITNESS: Yeah, the reservoir engineer will  
4 address that and talk to the details for you, Examiner  
5 Rose-Coss.

6 EXAMINER ROSE-COSS: Good.

7 EXAMINER McCLURE: The only thing I speak to  
8 is -- I believe you're correct, Dylan, that in the past  
9 essentially the operator had calculated the decline curve  
10 and then it was relatively static, although having said  
11 that, I think those wells were in a greater state of  
12 depletion than these wells are. These wells are  
13 definitely much newer and much higher production than what  
14 we've seen in past pilot projects, for sure.

15 Q. I guess moving on from allocation, because  
16 that's something that essentially we will probably be  
17 looking at then, is maybe an amended proposal that you'll  
18 want to submit here at some point once you and your team  
19 have had a chance to discuss, and then depending upon  
20 whether we just accept it directly or if we have to meet  
21 later to discuss it. I guess we'll go from there.

22 A. Sure.

23 Q. I'm going to say, I guess not any particular  
24 topic in order, but your tubing versus casing injection, I  
25 guess -- well, I mean I can speculate looking at the

1 numbers here, but what is the reasoning or determination  
2 that you've used to determine which ones you're going to  
3 inject down the tubing and which ones you're going to  
4 inject down the casing?

5 A. The ones that are injected down tubing are  
6 usually associated with higher flow rates, higher  
7 production rates for oil, water and gas, so whenever we  
8 inject down the tubing and produce up the casing tubing  
9 annulus, we have a larger cross-sectional area of flow.

10 Q. Yes, okay. I'm just having you confirm.

11 Essentially I guess the question I have is:  
12 As far as the termination point where you switch from one  
13 to the other, can you speak as to where that point is? I  
14 mean, I'm assuming there's some sort of variable in how  
15 much percentage of what your oil cut actually is and maybe  
16 how much native gas production you have, but I guess I'm  
17 wondering how close these wells are to where you would, on  
18 your own accord, switch these wells over, the ones that  
19 are injecting down the tubing.

20 A. Sure. I'm not familiar with gas lift operations  
21 and that decision point. That is a good question, so I  
22 can follow up with my engineering team and see what goes  
23 into their decision as far as that switchover point is  
24 concerned.

25 Q. Yeah. Because, like I said, there is a very

1 real possibility that as a condition of approval we may  
2 require that you switch it over to injecting down the  
3 casing and producing up the tubing.

4 In your current situation, uhm -- I mean,  
5 like you speak to a dehydration unit on your gas, but I  
6 mean it essentially is a moot point if you are producing  
7 up your casing, because I guess the casing is what we're  
8 concerned about on the OCD side, anyway.

9 A. Yeah, speaking to that -- that's a fair point.

10 The dehydrated gas, that's only as it  
11 relates to the injected gas and what part of the system it  
12 touches.

13 Whenever we get to this type of production  
14 where we have injection down the tubing and production up  
15 the casing tubing annulus, we have the corrosion inhibitor  
16 injected on those wells. And it's at different points in  
17 the system: at the well, downhole, various locations. So  
18 that gives us the corrosion protection on the back side of  
19 the casing tubing annulus where the produced fluids go.

20 Q. And that's actually a good switchover point for  
21 me, I guess, as far as topic goes.

22 On your -- you're currently taking iron and  
23 manganese samples, correct, currently --

24 A. That's correct.

25 Q. -- from your production fluids?

1                   Have you seen concentrations of such that  
2 would you have any concerns as to corrosion problems  
3 currently?

4           A.    Not that I'm aware of, no.

5           Q.    But you're still seeing -- I guess I'm not sure  
6 if this is the right terminology, but unspent corrosion  
7 inhibitor in your returns?

8           A.    I would have to review the details of these  
9 wells to look at the return of corrosion inhibitor, as  
10 well as the iron and manganese levels, to confirm that.

11          Q.    Okay. You don't need to give us something on  
12 that. I guess I just -- I presume that's something that  
13 you're going to obviously be typically looking at, and  
14 then adjust your corrosion inhibitor accordingly, I'm  
15 sure. Correct?

16          A.    That's correct. That's in our current Corrosion  
17 Prevention Plan. It is checking for the iron/manganese  
18 and the return of residuals, and that would be continued  
19 for the CLGC project, as well.

20          Q.    Okay. I was going to say: If there are already  
21 large (inaudible) from OXY having a condition of approval  
22 to have injecting down the casing and producing up the  
23 tubing, then that is information we'll want to see:  
24 iron/manganese levels, corrosion inhibitor levels. But if  
25 it is not burdensome upon operations then we will likely

1 just require that you switch to, you know, going down the  
2 casing and up the tubing.

3 Can you speak to -- I guess you will need  
4 to talk to your team, I suppose, before you can speak to  
5 that? Or not?

6 A. Yes, I'll need to speak with the team to go  
7 through multiple aspects of this. Like you referred to,  
8 these wells might be at that point where they might be  
9 switched over to casing injection/tubing production, so we  
10 can factor that into the discussion.

11 But, yes, it would be, uhm -- it would  
12 impact our decision to utilize these wells for CLGC  
13 operations if they had to be converted to the casing  
14 injection. So I think we could -- I could talk with my  
15 team about providing the information requested for these  
16 wells with injection down the tubing.

17 Q. Okay. Sounds good. That will just be another  
18 document I guess I'll just want you to submit here when  
19 you have it prepared. Bill can go over whatever date or  
20 deadlines he wants at the end.

21 Let's see. I think that's the Well  
22 Corrosion Plan. I don't think I had any other questions.

23 I guess a quick statement. I have another  
24 document I'm going to want submitted. On your AOR map  
25 that has the different wells labeled for your spread

1 sheet, can you please resubmit one with the laterals  
2 included on that map for the AOR wells.

3 A. Yes, we can work on that.

4 Q. Okay. Okay. Now, I know in your written  
5 statement you talk, you approach -- I believe it was yours  
6 but I didn't hear you speak to it directly today, I guess  
7 in testimony, and that is the CBL for the 5H. Sounds  
8 like -- I believe you're thinking that you might have the  
9 incorrect one on file, perhaps.

10 Can you speak towards that?

11 A. Sure. Yes. Upon further review of the drilling  
12 reports and the echo meter shot that was performed on that  
13 cement job on the Mesa Verde Bone Spring 5H well, it looks  
14 like the well does not belong to -- I'm sorry, it looks  
15 like the log doesn't belong to that well. There was some  
16 discrepancies on the log header that we identified.

17 So moving forward, we are proposing to run  
18 a Cement Bond Log, CBL, on that well at the same time that  
19 we pull the equipment for the Mechanical Integrity Tests.

20 Q. Very good. Yeah, that's something that we will  
21 want to see. Maybe you can submit it at the same time  
22 that you submit your MIT, and tell us if you're getting  
23 ready to inject into it, go into operations.

24 We would also just want that submitted -- I  
25 think we are submitting it by e-docs, but however we

1 normally take it to put it into the well log file should  
2 be fine.

3                   And then the other one that we don't seem  
4 to have a CBL on file, and I don't know what's going on  
5 there, is for the 4H. There might be one included, but I  
6 know I was actually referencing the well logs we have on  
7 file because of the Resolution, I guess, on your submitted  
8 exhibits. So for whatever reason, and maybe it was  
9 corrected since yesterday I think I was looking, but I  
10 don't think we have one on the 4H, so if you could submit  
11 that through the normal channels, and then also let us  
12 know when that has been submitted so we can take a look at  
13 it.

14                   Or, better yet, just submit it prior to the  
15 submittal of these additional documents, and then we will  
16 just look at it at that time.

17           A.    Okay.

18           Q.    Because you do have one, right?

19           A.    Yes, we do have one.

20           Q.    Okay. Sweet.

21                   I guess a general question I had is: The  
22 Commingling Order that you were referring to that covers  
23 these wells is the Pool Commingling 13-18. Following this  
24 Order we actually have an additional six wells, I believe,  
25 that is not included as source gas in this application.

1 These wells were added to that Pool Commingling just a few  
2 months ago.

3 I guess can you speak as to why it's not  
4 included here?

5 A. Yes. I believe at the time those wells were  
6 about to be spud, uhm, so at the time the analysis was  
7 complete those were not included.

8 Q. Okay. But so essentially they are not currently  
9 a part of the source gas, but you are feeling that  
10 sometime in the future they will be added likely. Is that  
11 correct, then?

12 A. Yes, that is correct.

13 Q. Okay. I was spec -- I was speculating that's  
14 probably what the deal was, considering the recent  
15 timeline, I guess, on adding them to the surface  
16 commingle, but I just thought I'd address it real fast.

17 A. Yes.

18 Q. On these wells on the table as, far as current  
19 surface pressure for your gas lift operations, can you  
20 speak as to why the 4H and the 5H currently have an  
21 average -- or current injection pressure of 1100, which is  
22 only 100 pounds lower than your max, I guess.

23 A. Yes. That's because those wells aren't as  
24 depleted as the other ones are, I would assume.

25 Q. So likely a higher bottomhole pressure is the

1 thought process.

2 A. Possibly.

3 Q. So then you're thinking -- would it be correct,  
4 then, to assume that those would have a lower possible  
5 injection rate, then, considering you're only looking at  
6 100 above the current?

7 A. Probably yes.

8 Q. Which brings me to the next question.

9 You have projected rates. Was that  
10 determined from a reservoir model analysis or is that like  
11 the rates that you would need to meet your current  
12 production rates? Or what's the thought processes as to  
13 how those rates were determined?

14 I think you have 1.8 -- I don't have it in  
15 front of me -- as average and 3 is max. Million cubic  
16 feet, I mean. Excuse me.

17 Q. Yeah. The 1.8 value million cubic feet is based  
18 off the current injection rates that we are able to see  
19 with gas lift operations on these wells. So it comes from  
20 there. But we also have some additional analysis in the  
21 reservoir engineering testimony as it pertains to what our  
22 max rates are for different lateral lengths, and what that  
23 rate looks like over time.

24 Q. Very good. Uhm, I guess -- and you're referring  
25 to maybe going from one well to the next to the next.

1    **What sort of rates are you actually going to need out of**  
2    **this build to be able to meet your -- and not shut in any**  
3    **wells, might be the way to say it.**

4           A.    I would have to get back with you on that.  
5    Right now I think there's -- uhm, we don't know completely  
6    what the rates are going to look like. We've modeled it  
7    but we're not certain on that, so at this point in time  
8    we're hoping we will get as much storage volumes as we can  
9    out of them.

10           Q.    Okay. I mean, the reason I ask is because  
11    theoretically if we did need to drop some of the wells, I  
12    guess I was wondering if that was going to meet the needs,  
13    I guess, so you don't end up having to flare, especially  
14    taking into consideration you do have a secondary takeaway  
15    point, I guess. And I wasn't sure if those considerations  
16    were made, I guess.

17           A.    Yes. So based off of my communication with  
18    asset team provided us the list of wells, they have been  
19    adamant on utilizing six wells. So I believe, based off  
20    of their calculations, that's what they need to address  
21    all of their gas production.

22                   And in regards to -- what was the second  
23    part of your question?

24           Q.    I was going to say I think you mostly addressed  
25    it. I guess what I asked was: Like, considering if we

1 had to drop off some of them. And the reason I add that  
2 is a prior discussion about the tubing versus casing  
3 discussion, I wanted to make sure it was going to meet  
4 your needs, which you address that: You think that you're  
5 going to require six, which obviously makes the prior  
6 conversation about casing versus tubing injections more of  
7 a consideration if you need all six of these.

8 A. Yes. I remember what I was going to say now.

9 Q. Go ahead.

10 A. It wasn't a question, it was a second point that  
11 I had to provide some clarity.

12 Yes, you mentioned the secondary gas  
13 takeaway, the DCP takeaway is what we have here, but that  
14 takeaway can only handle a certain percentage of the fluid  
15 volumes. I don't know what that is, but that's something  
16 that we would utilize to the fullest extent and then  
17 utilize our CLGC wells.

18 Q. I presumed that was going to be case, that you  
19 would rather sell it rather than store it, if at all  
20 possible, I'm sure.

21 A. Exactly.

22 Q. Yeah. Oh, and I guess a quick question I guess  
23 on a prior topic.

24 I am correct that you do have -- based off  
25 your discussion, you do have individual, I don't want to

1 call them allocation meter, but individual flow meters  
2 through the wells. You will be able to monitor your  
3 individual injection rates and have that as data, correct,  
4 in each of these wells?

5 That is correct. We will be able to have --

6 Q. Okay.

7 A. -- the individual injection rates monitored, the  
8 individual pressures monitored, as well.

9 Q. Okay. Yeah. Which, actually the reason it  
10 comes to mind is the next topic I was going to get into is  
11 the data collection.

12 And I think there might be a  
13 misunderstanding as to what we are actually wanting in the  
14 status updates. Essentially what you laid out as events  
15 is kind of what we're looking for. We are looking for  
16 like a high-level review, as in you got two wells ready to  
17 inject, uhm, but you experienced high annulus press- -- or  
18 I guess in this case you wouldn't necessarily -- like,  
19 intermediate pressure, intermediate casing pressure,  
20 excuse me, due to whatever, and you had to do such and  
21 such because of that.

22 So we are not really looking for individual  
23 injection, like I injected it two days over this week and  
24 and then two weeks later we had another injection event.  
25 We are not really look for that in the status updates.

1 That would be something we're looking for in, you know,  
2 like recovery profiles and like the final report.

3 I think we changed the words we used from  
4 final report to summary report or something like that.

5 But essentially that would be the thing  
6 that you would give to us after the project is done, or as  
7 requested by us, which likely won't be very often unless  
8 we see a need for it.

9 But essentially what we are looking in the  
10 three-month, the quarterly update, would be just your, you  
11 know, a simple couple -- depending of when you had  
12 something happen, but it might be just a simple page we  
13 are looking for, and as such we will be requiring that to  
14 be submitted quarterly, because we don't think it's going  
15 to be a too-awful burden, I guess, to submit it.

16 A. With that being -- with you explaining it that  
17 way, Mr. Examiner, that makes a lot more sense.

18 Q. Uh-huh. Yep. And I'll have to take a look at  
19 our exact language in the Order, I guess to maybe clarify  
20 what the requirement is, if there is any question in it  
21 for sure. But I'll review the language, because that's  
22 definitely the intent and it's definitely what we are  
23 intending to require out of our prior Orders is  
24 essentially what I just laid out.

25 Then I guess just to quickly address the

1 timeline. Essentially right now we are giving two years  
2 and then extension for good cause. The hope is that we'll  
3 have a final requirement, hopefully, maybe, around the  
4 two- to three-year deadline, and as such in theory would  
5 then transition to an actual Order. And whatever form  
6 that takes, we don't know yet, but as such we won't be  
7 giving a five-year, it would be a two-year. Uhm, just so  
8 you're aware on your prior request.

9 A. Okay.

10 Q. When you are referring to your packer, your  
11 100-foot packer exception, just to confirm with you  
12 essentially what you're asking for is to still be within  
13 100 foot of TBD but be greater than 100 feet of your  
14 measured depth. Correct?

15 A. No. It's more so we are requesting to be within  
16 100 feet of the top of the proposed injection interval,  
17 which here would be the top of the Bone Spring.

18 So that's the depth that we are referring  
19 to.

20 Q. Okay. And I'm thinking of those prior Orders  
21 that you referenced. I think that might have been the  
22 case there. Yeah. And if I recall, I think in those  
23 cases you were also at like the 30-degrees incline, if I  
24 recall, so I think it's something along those lines.

25 I guess the question I would have for you

1 for the wells that do not have packers in the hole: Is  
2 your intention then to give us MIT results based upon that  
3 packer depth, or what is your thought there? Or if we are  
4 just talking about during operations.

5 A. That's correct. It's during Mechanical  
6 Integrity Tests as well as operations.

7 Q. Okay. On this particular Order that we're  
8 talking about, the first one, 22087, I don't  
9 necessarily think there will be an issue there. On the  
10 22088 we may have more of an issue there in regards to the  
11 top of the Bone Spring. It may have to be a little  
12 further down due to complications in that case. But we  
13 can discuss that more when we get there.

14 Then as far as your offset wells that you  
15 have determined here -- uhm, well, I guess I wasn't  
16 actually down in the data collection, but it's kind of the  
17 same topic here, as well. You only identified two. Was  
18 that two within 1/8 of a mile, or is that two within the  
19 1/2 a mile, or what was the thought process there?

20 A. We have the gunbarrel view submitted.

21 Q. Uh-huh.

22 A. As with the -- was that B-2 or -3?

23 Q. It was B-2, I believe.

24 A. So, yeah. The thought process there -- let me  
25 get it pulled up in front of me.

1           Q.    I just wasn't sure what criteria you used to  
2 determine that there is no offset wells in the Bone  
3 Spring 1 and the Bone Spring 3?

4                    I'm just assuming there wasn't any within  
5 such and such a distance. I wasn't sure the distance you  
6 used for that.

7           A.    Yeah. So for the Bone Spring, I've got it  
8 pulled up here, the 3H and the 1H are in the Avalon as  
9 storage wells. And we looked in the section, so we looked  
10 in all of Section 17 and all of Section 16 for an offset,  
11 and did not identify anything. So that would be within a  
12 half mile and within a little bit over a mile.

13                   And the same thing applies to the Mesa  
14 Verde Bone Spring 2H, which is in the 3rd Bone Spring. We  
15 looked at wells that were in Section 17, the 3rd Bone  
16 Spring, and then as well as Section 16 in the 3rd Bone  
17 Spring.

18           Q.    Okay. Sounds good.

19                    Yeah, I mean obviously since this is a data  
20 collection project, then it's obviously ideal to have  
21 offset wells, but it's not an eliminating factor if you  
22 don't. So that's what I was getting at.

23                    But I guess that moves me directly into the  
24 next question, which is back to data collection.

25                    How many separators do you currently have

1 at this facility, as in how many wells are we going to be  
2 able to get continuous meters on directly after an event?

3 A. I believe there are six well testers out there.  
4 I would have to double check on that for you, though.

5 Q. Okay. So hypothetically you could actually give  
6 us low rates for all six of these wells -- now, I mean  
7 just conservatively say you might have a separator down  
8 for maintenance, at least five of these wells at any given  
9 time, which may not be necessary if you only inject down  
10 two or three of them and never get to the sustained  
11 amount. Is that kind of a correct statement, then?

12 A. That is true, yes.

13 Q. Okay. When you submit additional documents,  
14 please do look into that and see how many separators you  
15 do have and how many wells we would be able to  
16 conservatively figure that we could continuously measure  
17 directly after an event.

18 I understand that obviously we want to use  
19 these separators for allocation purposes for the well  
20 testing requirements; however, having said that, directly  
21 after an upset in your -- or directly after an event that  
22 would cause... (Note: Pause.)

23 Well, you know, I was going to say you  
24 would have increased production afterwards, but I guess if  
25 you have that affect your production, you're injecting in

1 there, but this won't be the case.

2 I'm sorry, I'm going to have to back off my  
3 thought. Originally I was thinking that you couldn't get  
4 a well test anyway, directly after the compressor going  
5 down, perhaps, if it was going to cause your production to  
6 change, but having said that, I guess it won't since  
7 you're going to just directly stop injecting again.

8 So, yeah, we would definitely have to know  
9 how many separators there are, and also a conservative  
10 figure as to how many you could conceivably be metering at  
11 a given time, I guess.

12 Are you understanding, I guess, my  
13 question, considering I kind of rambled on there?

14 A. If you could restate it and summarize the  
15 specifics, that would be great.

16 Q. Yes. I'm sorry. My flow -- my thought process  
17 kind of shifted halfway through there. I'll restate that.

18 Essentially what I want to see is how many  
19 separators you have at the facility, and then I want to  
20 see a conservative value, a conservative figure on how  
21 many of these wells could be continuously metered directly  
22 after an event for a presumed duration of a few days, I  
23 guess, while you're recovering production from those  
24 wells.

25 A. Understood. And you're saying for a period of a

1 few days is the period of time you'd be interested in?

2 Q. Well, I mean ideally we would want to see it  
3 until we think we've recovered what we're going to  
4 recover, but obviously these particular projects are not  
5 the ideal as far as data collection goes into the  
6 allocation methodology, I guess. The well testing  
7 specifically.

8 So, yeah, I mean at least a few days. As  
9 long as possible until we get back, but at least a few  
10 days at a minimum. Maybe just to give me figures on that.

11 Just say three or four days. You know?

12 I mean, in theory if you are only down for  
13 an hour or two, then clearly it would be, you know, less  
14 than -- I mean, a day. You know. So it's going to  
15 determine somewhat how long you're down for -- so as far  
16 as having a concrete value that we are going to have here.

17 I guess essentially what I'm getting at is  
18 that overall exception to the paragraph on data collection  
19 is not going to be something that we just overall grant,  
20 it will be something that is additional, would be the  
21 thought process.

22 But I do perceive that we would be able to  
23 work something out with the operational requirements here,  
24 with hopefully we will look at the numbers. But ideally  
25 of course it would be not having to install additional

1 separators, but that's something we'll have to discuss  
2 moving forward once we actually get what your further  
3 document is and actually see what we are looking at, the  
4 numbers there.

5 And actually I think that might pretty much  
6 cover my questions. Thanks. Thanks a lot. Thanks a lot  
7 for your time.

8 THE WITNESS: Thank you, Mr. Examiner.

9 EXAMINER BRANCARD: Thank you.

10 Mr. Lamkin, did you have any questions?

11 EXAMINER LAMKIN: I don't have any questions.

12 Thank you.

13 EXAMINER BRANCARD: Thanks.

14 Mr. Rankin, did you have redirect?

15 MR. RANKIN: Mr. Examiner I don't have any  
16 redirect at this time. I think we have a couple of items  
17 that the examiners have requested, and we will work to get  
18 those to the Division.

19 So I have no further questions of Mr.  
20 Janacek at this time.

21 EXAMINER BRANCARD: Okay. You have two further  
22 witnesses. How long do you think that's going to take?

23 MR. RANKIN: Well, I think our geology will take  
24 very little time, depending on the examiners' questions,  
25 so we could potentially try to schedule that in the next

1 10 minutes or so, but I think our engineering witness will  
2 take a little more time because I expect there would be  
3 some extensive questioning around the same questions that  
4 the examiners had for Mr. Janacek.

5 So I suggest, depending on how everyone is  
6 feeling, particularly Ms. Macfarlane, I think we can  
7 either try to go on for 10 or 15 minutes, or take a break  
8 now and resume after the lunch hour.

9 (Note: Discussion off the record.)

10 Mr. McClure, Mr. Rose-Coss, are you okay  
11 going with the other witness?

12 EXAMINER McCLURE: I'm fine myself. I don't  
13 have very many questions as far as the geology side goes.  
14 I don't know about Dylan, though.

15 MR. ROSE-COSS: For Dylan, I'm on board.

16 EXAMINER BRANCARD: All right. Let's give it a  
17 try, Mr. Rankin.

18 MR. RANKIN: Okay. At this time I would like to  
19 call our second witness, Ms. Wiechman.

20 THE WITNESS: I hope you all can hear.

21 EXAMINER BRANCARD: Thank you. You have already  
22 been sworn in. Let's go ahead and proceed with your  
23 testimony?

24 MICHELE WIECHMAN,

25 having been previously sworn, testified as follows:

DIRECT EXAMINATION

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BY MR. RANKIN:

Q. Ms. Wiechman, will you please state your full name for the record?

A. I am Michelle Wichel (phonetic) Wiechman.

Q. By whom are you employed, and what in what capacity?

A. I work as a development geologist for OXY USA.

Q. Have you previously testified before the Division?

A. I have not.

Q. At this time Ms. Wiechman, let's go ahead and review your summary of your education and background. I'm going to share with you on my screen what has been marked as Exhibit C-1 in this case. And when you're able to see it on your screen, will you just please review for the examiners your educational background and relevant work experience as a petroleum geologist.

A. Yes. I can see your screen.

So as far as my education, I have a Bachelor of Science in geological engineering from Colorado School of Mines, in addition to a Bachelor of Science in geology from the same school.

My listed experience and experience with OXY has been with OXY since 2013. I started as a

1 production geologist and appraising (phonetic) geologist  
2 in Texas until 2019 when I came over to New Mexico, and I  
3 have been working as a development geologist on these  
4 assets ever since.

5                   Additionally, I have a Professional  
6 Geologist's license from the Texas Board of Professional  
7 Geoscientists.

8           **Q. Thank you very much. Ms. Wiechman, I'm going**  
9 **to switch over to Exhibit A, the application, and scroll**  
10 **down to the portion of that exhibit that addresses your**  
11 **analysis of the geology of the project area. Once I get**  
12 **there I'm going to ask you just to give a summary of your**  
13 **view and analysis of the geology and its appropriateness**  
14 **for the proposed injection projects at (inaudible).**

15                   **We're looking at the first slide on page**  
16 **79. Just give an overview to the examiners of what this**  
17 **shows.**

18           **A. Yeah, there is a lot of detail on here, then in**  
19 **the affidavit there's a lot more information, but time,**  
20 **I'll try to keep it pretty high level.**

21                   On the right-hand side of the slide you  
22 will see two type logs. They are actually from the same  
23 well. This is a combined well. We have actually pilots  
24 right next to each other, showing different depths. We  
25 have combined the logs to give you a complete picture to

1 surface through our intervals.

2 The rightmost side is the entire interval  
3 where you can see all the way from the Rustler down to the  
4 Pennsylvanian section.

5 I want to draw your attention to a couple  
6 of the red boxes on the right. Those are highlighting  
7 some of the vertical barriers both in our injection  
8 interval of the Delaware Mountain Group, and then the  
9 overlying anhydrite intervals of the Salado instill  
10 barriers for the entire basin.

11 Initially in the deeper section of the  
12 Wolfcamp, the low permeability/porosity show the Wolfcamp  
13 provides a barrier to migration in some of those  
14 reservoirs.

15 (Note: Reporter interruption.)

16 A. (Continued) Yeah. So the middle section of  
17 that log on the left is a zoomed-in interval focusing on  
18 that Brushy canyon and Bone Spring interval, and I've  
19 highlighted the three intervals where we have wells  
20 injecting in this proposed project area of the Middle  
21 Avalon, the 2nd Bone Spring Sands and then the 3rd Bone  
22 Spring Sands.

23 And then additionally highlighted on the  
24 left of the log are some barriers, internal barriers to  
25 migration that we've identified via our analysis.

1                   Also, to highlight, in the note on the  
2 center we've identified our higher oil zone above these  
3 wells we do have production in the Brushy Canyon about  
4 8,000 feet TBD and then lower oil wells in the Wolfcamp  
5 about 12,000 TBD.

6                   And then the description of the leftmost  
7 side of the slide is just giving you a quick little  
8 overview of some of the geological characteristics of  
9 these reservoirs. Everything that we are producing in the  
10 Bone Springs are alternating members or alternating  
11 carbonate which is a classic (inaudible). Our reservoirs  
12 are turbidites. They have a very (inaudible)  
13 sandstone/mudstone. Porosity ranges from to 4 to 10  
14 percent and permeability is very low at 480 -- or 400 to  
15 800 nanodarcy.

16                   Like I mentioned, the barrier is in that  
17 surrounding production.

18                   **Q. (Pause.) Sorry. I was muted.**

19                   **The next line is a similar depiction of the**  
20 **targeted interval on a cross-section basis. Just review**  
21 **for the examiners the key elements of this slide in your**  
22 **testimony.**

23                   A. Yeah, correct. These are three -- actually  
24 four, but three vertical wells surrounding our project  
25 wells. Just really the main takeaway here is that we do

1 have control on the other side of the project area where  
2 we can go and actually map the distribution of the  
3 reservoir we're injecting into, but then also the low  
4 permeability and porosity barriers that would result in  
5 containment within the injection interval.

6 Then I have highlighted where the wells are  
7 located in the location of that cross-section, and again  
8 the green boxes represent the intervals that we will be  
9 injecting into.

10 **Q. The wells that you have selected for this**  
11 **cross-section, in your opinion are they representative of**  
12 **the geology in the area?**

13 A. Yes, they are.

14 **Q. And your next slide, what does this show?**

15 A. Yeah, so this is a structure map at the top of  
16 the Avalon. I'm using it to represent the entire  
17 geological construction of the section below it.

18 We don't have any major structural  
19 components. There is a slight dip from the west to the  
20 east, which is highlighted there in the depths, but we  
21 don't have any major geological concerns. This isn't a  
22 very active area. The structure is predictable.

23 Also highlighted on here are the wells that  
24 we are planning to inject into, and then those three or  
25 four wells that we have used as a cross section.

1 Q. And the following pages of the Exhibit A contain  
2 your more detailed analysis of the geology for the  
3 proposed injection intervals in this case?

4 A. Yes, that's correct.

5 Q. And finally the last page of your analysis, page  
6 85 of the exhibit, is this your affirmative statement that  
7 you have reviewed the geologic engineering data and  
8 confirmed that there is no hydrologic connection between  
9 the proposed injection zone underlying sources of drinking  
10 water?

11 A. As far as the geology goes, no, there is not.

12 Q. Thank you. And finally your conclusion is that  
13 the proposed injection will stay within the Bone Spring  
14 Formation?

15 A. Yes, that's correct.

16 MR. RANKIN: Thank you very much. At this time,  
17 Mr. Examiner, I would move the admission of Exhibit B --  
18 I'm sorry, C and C-1 into the record.

19 EXAMINER BRANCARD: Any objections?

20 There being none, they are admitted into  
21 the record. I will also -- you didn't ask, but I will  
22 accept Ms. Wiechman as an expert in geology.

23 MR. RANKIN: Thank you, Mr. Examiner. I did not  
24 ask but I intended to.

25 .

1                   With that I have no further questions at  
2 this time this. I have moved the admission, and I will  
3 pass Ms. Wiechman for cross-examination by the examiners.

4                   EXAMINER BRANCARD: Okay. Mr. Rose-Coss?

5                   EXAMINER ROSE-COSS: Thank you, Mr. Examiner.

6 Thank you, Ms. Wiechman. You know, I don't have many  
7 questions for you

8                   CROSS EXAMINATION

9 BY EXAMINER ROSE-COSS:

10                 **Q. One that I do have: In the cross section are**  
11 **the well logs hung on any particular interval or is that**  
12 **surface, from the surface?**

13                 A. No, from --

14                   (Note: Reporter interruption. Off-the-record  
15 Discussion on sound issues.)

16                 THE WITNESS: I'm going to attempt another  
17 microphone. Can you hear me now?

18                 EXAMINER BRANCARD: We can. Thank you.

19                 MR. ROSE-COSS: So my last question.

20                 **Q. Do you believe that the Bone Spring is, for any**  
21 **geologic reasons, is a preferred interval for this type of**  
22 **project over say the Wolfcamp; or why in this instance has**  
23 **OXY chosen Bone Spring over, say, the Wolfcamp to carry**  
24 **out these injection pilot projects?**

25                 A. I'm assuming you guys can hear me now.

1           **Q.    Yes.  Can you hear us?**

2           A.    Okay.  I did hear the question.

3                         Yes, I caught your question about why the  
4 Bone Spring is preferable to the Wolfcamp.

5           **Q.    Yes.**

6           A.    Was that the question?

7           **Q.    Essentially.**

8           A.    Geologically they are very similar.  I would say  
9 the reason for the well selection would probably be better  
10 answered by our engineers.

11          **Q.    So there's no geologic reason you picked one  
12 over the other?**

13          A.    No, not necessarily, no.

14                         EXAMINER ROSE-COSS:  Okay.  Well, thank you.  
15 Those are really all the questions I have for you.

16                         THE WITNESS:  Okay.  I apologize for the mic  
17 issue.

18                         EXAMINER McCLURE:  I was going to say I think  
19 Mr. Rankin and the testimony from the expert witness  
20 answered all my questions, so I have no more questions for  
21 this witness.

22                         EXAMINER BRANCARD:  Okay.  Thank you.

23                                 Mr. Lamkin, did you have any questions?

24                         EXAMINER LAMKIN:  None for me, either.

25                         EXAMINER BRANCARD:  Okay.  I don't know if we

1 got the answer to that question Mr. Rose-Coss asked about,  
2 and I'm not going to understand the question about whether  
3 you were hanging something on a formation, Ms. Wiechman.  
4 I think that kind of got garbled.

5 THE WITNESS: Okay. No, I did not hang this  
6 cross section on a specific well top. It's all  
7 stratigraphic. This I think was the examiner's exact  
8 words.

9 EXAMINER BRANCARD: Thank you.

10 Mr. Rankin, any redirect for this witness?

11 MR. RANKIN: None from me, Mr. Examiner.

12 EXAMINER BRANCARD: All right. So shall we take  
13 a break here?

14 MR. RANKIN: This would be a good time to do so.

15 EXAMINER BRANCARD: All right.

16 I guess, you know, please consider what the  
17 examiners are asking you-all and how you would like to  
18 respond while you have some time. There may be more  
19 requests with the next witness, I'm not sure.

20 So shall we come back at, say, I don't  
21 know, 1:30?

22 MR. RANKIN: That works for us, Mr. Examiner,  
23 and we will be ready to resume with our reservoir engineer  
24 witness at 1:30.

25 EXAMINER BRANCARD: Thank you. Okay. 1:30 p.m.

1 Mountain Daylight time.

2 (Note: In recess from 12:33 p.m. to 1:31 p.m.)

3 MR. RANKIN: Mr. Hearing Examiner, I believe we  
4 are ready to go. I see our witness is also here and ready  
5 to proceed.

6 THE COURT: Please proceed.

7 Mr. Bruce?

8 MR. BRUCE: Mr. Examiner, yes. Jim Bruce. I  
9 am here.

10 EXAMINER BRANCARD: Yes.

11 MR. BRUCE: This is a case I entered an  
12 appearance on, and I would ask to be excused from the rest  
13 of the hearing. I have entered my appearance, my clients  
14 have no objection to the proceedings as Mr. Rankin is  
15 presenting them. We have no questions, and actually  
16 Mr. Rankin's clients and mine have spoken with each other  
17 recently.

18 So I don't think there's anything I can add  
19 to the proceedings. I would probably only detract from  
20 the proceedings. So I've got other things I need to get  
21 done, and I would ask that I be allowed to be excused from  
22 further proceedings at this point.

23 EXAMINER BRANCARD: Okay. Mr. Bruce, we haven't  
24 actually gotten to your case yet, but when we will you  
25 will be excused. And we will miss you, of course, but

1 have a good rest of the day.

2 MR. BRUCE: Why? Okay. I didn't realize the  
3 other one wasn't done yet. I appreciate it. I have other  
4 things I need to get done

5 EXAMINER BRANCARD: Thank you. Take care Jim.

6 MR. BRUCE: 'Bye.

7 MR. RANKIN: Mr. Examiner, at this time I would  
8 like to call our next witness Ms. Xueying Xie.

9 THE WITNESS: Yes.

10 MR. RANKIN: I'm working on the pronunciation.

11 XUEYING XIE,

12 previously sworn, testified as follows:

13 DIRECT EXAMINATION

14 BY MR. RANKIN:

15 Q. Ms. Xie, will you please state your full name  
16 for the record.

17 A. Xueying Xie.

18 Q. And we've already gone through the spelling of  
19 your name prior to this time so I'll move on to the next  
20 questions.

21 By whom are you employed and in what  
22 capacity?

23 A. I'm employed by OXY USA as a reservoir engineer.

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

1           A.    No, I have not.

2           **Q.    At this time Mr. Examiner, I would like to**  
3 **review briefly Ms. Xie's educational and work experience.**

4                   **Ms. Xie, I'm going to show on my screen a**  
5 **copy, a summary of your education and work experience. As**  
6 **soon as you're able to see it, will you just review for**  
7 **the examiners your background, education and relevant work**  
8 **experience as a petroleum reservoir engineer.**

9           A.    Okay. I can see it now.

10                   I have a PhD degree from Rice University.  
11 I worked for Shell from 2005 to 2016 as a reservoir  
12 engineer for multiple geographic areas and drive  
13 mechanisms for a full value chain from exploration to  
14 development to production.

15                   Since 2016 I have worked for OXY as an  
16 Unconventional Technical Manager for Permian New Mexico.

17           **Q.    Are you familiar with the applications filed in**  
18 **this case?**

19           A.    Yes, I am.

20           **Q.    Have you conducted a reservoir engineering**  
21 **analysis and study of the proposed injection project?**

22           A.    Yes.

23                   MR. RANKIN: At this time, Mr. Examiner, I would  
24 tender Ms. Xie as an expert in reservoir engineering.

25                   EXAMINER BRANCARD: Thank you.

1 Any objections?

2 The witness is so qualified.

3 MR. RANKIN: Thank you.

4 Q. Ms. Xie did you prepare Written Testimony in  
5 this case?

6 A. Yes, sir.

7 Q. Is that testimony marked as Exhibit D in this  
8 application packet?

9 A. Yes, sir.

10 Q. And did you also prepare Exhibit D-1, which is a  
11 summaray of your education and work experience?

12 A. Yes.

13 Q. And as you sit here today, do you hereby adopt  
14 the testimony that you prepared in Exhibit C -- I'm sorry,  
15 Exhibit D, as your testimony in the case today?

16 A. Yes, sir.

17 Q. Were the exhibits prepared by you or compiled  
18 under your direction and supervision?

19 A. Yes, sir.

20 MR. RANKIN: At this time, Mr. Examiner, I would  
21 move the admission of Exhibits D and D-1 into the record.

22 EXAMINER BRANCARD: Are there any objections?

23 Hearing none, so admitted.

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

25 Because I expect there will be some

1 questions on the testimony here I'm going to ask that Ms.  
2 Xie spend a little bit of time reviewing her analysis and  
3 the slides that were prepared and presented as part of the  
4 application. I will slide forward now to the beginning of  
5 her analysis at page 86 of Exhibit A.

6 Before I do, one preliminary matter.

7 Q. Have you examined the available engineering data  
8 and found no evidence of open faults or other hydrologic  
9 connections action between the injection zone and any  
10 underground source of drinking water?

11 A. Yes.

12 Q. Have you prepared, along with your colleague, a  
13 statement, affirmative statement confirming that on page  
14 85 of the exhibit?

15 A. Yes, that is correct.

16 Q. Now, let's talk about your analysis, your other  
17 analysis here, the bulk of the analysis.

18 Will you review for the examiners, looking  
19 at this slide I have on the screen, page 87 of the  
20 exhibit, and review for the examiners what it is, what  
21 this project is, and what you analyzed and what you looked  
22 at.

23 A. So for the CLGC project we applied reservoir  
24 engineering study, basically by simulation techniques to  
25 investigate the potential impact on wells adjacent to the

1 CLGC area, and the CLGC wells there. And also we  
2 investigated the gas movement in the injection zone after  
3 the gas is injected.

4 And the model it is based on data from the  
5 Cedar Canyon gas injection project. We had that data from  
6 2017 and 2018, so we have a solid simulation model for  
7 that.

8 Q. I'm sorry. Just clearing my throat. I'm trying  
9 to get myself off mute.

10 On the next slide you mention this Cedar  
11 Canyon analogous simulation that you have data from an  
12 analogous area. Will you review in more detail what  
13 exactly that data is comprised of.

14 A. Yes, sure.

15 So Cedar Canyon is about 15 miles to the  
16 west of Mesa Verde. In 2017 we had high-pressure gas  
17 injection in Cedar Canyon Section 16 in the 2nd Bone  
18 Spring horizontal wells

19 On the left it shows a big picture of the  
20 actual area of (inaudible) and the middle column shows the  
21 Cedar Canyon area. The right column shows the injection  
22 section and the two red wells are injectors 7H and 12H.

23 For the 7H we had continuous injection for  
24 five months in 2017. At the end of injection we had  
25 pressure, we had injection pressure reach 4,000 psi.

1 Bottomhole pressure reached about 5,000 psi. So we had  
2 the reservoir model for this section as a history match  
3 for both primary production and the gas injection pilot.

4 For this injection for the five months  
5 injection, in the first three months we didn't see any gas  
6 breakthrough; however, after three months' injection we  
7 did see gas breakthrough.

8 The model was cued to capture the gas  
9 breakthrough of the offset wells, and the model was also  
10 made -- this model for the 7H location section and for our  
11 gas CLGC project, model adjusted continually to  
12 (inaudible).

13 **Q. So I think the takeaway, and correct me, is that**  
14 **the geology is analogous in the Cedar Canyon project area;**  
15 **is that correct?**

16 A. Yes.

17 **Q. And unlike the proposed project here, in the**  
18 **Cedar Canyon injection occurred for a period of five**  
19 **months; is that correct?**

20 A. Five months and high-pressure injection.

21 **Q. So what is the maximum duration of upset that**  
22 **OXY has experienced, that you have experienced, anticipate**  
23 **experiencing within the Mesa Verde project?**

24 A. Hmm. According to the past history in the Mesa  
25 Verde area the maximum thing we expect is about six days.

1 So in general just a few hours, or one day, two day.

2 Q. What's the longest experienced upset or shut-in  
3 that OXY has experienced as a result of upsets anywhere in  
4 the New Mexico Permian Basin?

5 A. Yeah, for all the other fields it's about three  
6 weeks.

7 Q. Very good. So let's review, if you would, your  
8 next slide there, and explain what this shows and the  
9 parameters that you used for your model analysis.

10 A. Yes. So this one show more details about the  
11 Section 16 analysis.

12 The top right shows that 3D dynamic model  
13 has over one million grid cells and has 56 layers. The  
14 bottom left shows the reservoir properties and initial  
15 conditions.

16 With that we had matched from the top to  
17 the bottom right. All the symbols represent for actual  
18 field data, all the curves represent for modeling results.

19 The green one, the top left has oil rate  
20 match, the blue one is the water rate match, and the red  
21 one, on the left of the red one is the gas match.

22 All these match for the primary production,  
23 so you stop at 2017.

24 Then the most -- the bottom right is the  
25 gas injection pressure match. It's the bottomhole

1 pressure. Because it's reservoir model we don't have the  
2 tubing pressure match.

3 So all this match shows a very good match.  
4 Not only this match but also we capture the gas  
5 breakthrough. It's not showing in this model.

6 So with this we have confidence with our  
7 model that reflect the actual ability.

8 Q. So just so I understand, because I think it's  
9 important that this come through, but I understand you to  
10 say that OXY has confidence that this model is able to  
11 predict the behavior that you expect to see during  
12 injection operations for the Mesa Verde project. Correct?

13 A. Yes.

14 Q. And that's in part because -- is that in part  
15 because the data that was collected during the Cedar  
16 Canyon project was collected during a time when gas  
17 injection occurred over a longer period of time than OXY  
18 would expect to occur in the Mesa Verde project?

19 A. Yes. Yeah.

20 Q. And also because the injection pressures were  
21 much higher than what you would -- the limitations that  
22 are going to be imposed on this injection project.

23 A. Yes.

24 Q. I think you testified that was around 4,000 --  
25 5,000 bottomhole, whereas in this case the Mesa Verde

1 injection will only be a limit of 1200 psi.

2 Q. Yes, that's correct. So the surface pressure  
3 for this project -- the Cedar Canyon project is 4,000 psi,  
4 and Mesa Verde it is 1200 psi, yeah.

5 Q. And also during this project at Cedar Canyon,  
6 did OXY collect data during gas breakthrough events  
7 where gas was communicating between its wells?

8 A. Yes. So we have the test separator for the two  
9 offsetting wells, and we have dedicated that separator, so  
10 we monitor it all the time.

11 Q. Okay. So because OXY has that data  
12 demonstrating the effect of gas breakthrough on offset  
13 wells, is that part of the reason you're confident that  
14 this model is particularly well-suited to predict what may  
15 occur in the Mesa Verde project area?

16 A. Yes. So we viewed the complexity of the  
17 subsurface to track the communication between the injector  
18 and offset producers.

19 Q. Okay. So let's go ahead and review with the  
20 model in the cases where you had analyzed, if you would.

21 A. So now we have a model which we have confidence  
22 to check the gas column scenario.

23 First of all we have base models for base  
24 case. When I say base case it's final production without  
25 any injection, so all the other cases with injection can

1 compare with this base case to see that difference.

2                   So with the base case then we ran numerous  
3 other scenarios, including possible case and the very --  
4 and the worst case, to cover all the possible injection in  
5 the future, and then we compare with that to check the  
6 results. We compare the oil, gas, and the pressure to  
7 check the impact.

8                   In the meantime we would also check the gas  
9 movement in the reservoir from this casing.

10                   I don't have the example of the movement in  
11 the next, I think, slides.

12                   **Q. So what does this next slide show? Is this some**  
13 **of the results from your modeling?**

14                   A. Yes. So this one shows that the gas injection  
15 rate that may be for this application, we focus on the  
16 orange one, which is 10,000 feet of length. The other one  
17 is a shorter well.

18                   So this one we integrated the reservoir  
19 model with wellbore model, which is possible model, and  
20 after the condition of the tubing well pressure 1200 psi  
21 to check injection rate for an average well, we find that  
22 all the time the injection rate is around 3,000 mcf per  
23 day; however, while we inject into the well the bottom  
24 pressure buildup, the injection will continue to decline,  
25 so after three weeks the rate will decline to about 50

1 percent of original rate.

2 **Q. And what does this next slide show?**

3 A. This one we want to show the gas movement in the  
4 reservoir when it's injected. It's a busy slide, so a lot  
5 of parts. Let me explain you one by one

6 So the top left is the gas saturation point  
7 before any injection. In this slide the dark blue shows  
8 no gas saturation. The cyan color will show some gas  
9 saturation, and the warmer the color, the higher the gas  
10 saturation.

11 Then for the well -- let me talk about the  
12 wellbore.

13 The wellbores are east to west direction,  
14 which is the white line, and the middle one is the  
15 injector 7H. And the fracture is northeast to southwest,  
16 which is cyan color. Those are fractures, because the  
17 fracture has low pressure. So that's gas in this  
18 low-pressure system.

19 Then that middle plot shows the gas  
20 saturation after one week of injection of 3 million scf  
21 per day.

22 We can see that the new wellbore of the  
23 injector, the gas saturation was higher because it has a  
24 warmer color, and if we look at the bottom two plots I  
25 magnify the comparison of the 7H wellbore. The top has no

1 injection, the bottom one has injection. Now we can  
2 clearly say that new wellbore has much warmer color. And  
3 we checked in our simulation, we find that the simulation,  
4 we find that the color change, the saturation change  
5 happened within the 100 feet of wellbore, even though that  
6 fracture outside the 100 feet, because of fracture  
7 conductivity is low when it's away from the wellbore. And  
8 also the injection volume is so low so the gas couldn't  
9 move out to beyond the 100 feet.

10 Okay. And then the top-right plot, after  
11 we produce for quite some time and force the injection we  
12 can see the gas saturation actually becomes similar as the  
13 pre-injection so majority of gas is recovered.

14 **Q. Before we leave this slide, will you explain**  
15 **what we are looking at here where you see it looks like**  
16 **there is connections between the wellbore lengths in your**  
17 **model.**

18 A. Yes. That's the subsurface complexity I  
19 have mentioned in previous slide. In order to history  
20 match that gas breakthrough, we had a few fractures, kind  
21 of a super fracture connected to between the injector and  
22 the producer. Even though they are connected, just the  
23 conductivity is low when is away from the wellbore, even  
24 though here we see some depletion. But -- depletion  
25 before injection, but when we inject the gas still we can

1 see that the color is exactly the same as the  
2 pre-injection and super fracture color, so the gas doesn't  
3 go through the super fracture.

4 Q. Just so I'm clear, you have confidence in the  
5 model results depicting lack of communication in gas  
6 breakthrough here between wellbores because when you were  
7 collecting this data or the data that you used to create  
8 this model in the Cedar Canyon project, you didn't see gas  
9 breakthrough until much higher volumes, much higher  
10 pressures over a longer duration of time.

11 Is that correct?

12 A. Yes, correct.

13 Q. What is this -- go ahead.

14 A. So only after three months with injection we did  
15 observe breakthrough through the bore.

16 Q. What does this next slide show?

17 A. This one shows the pressure profile. Actually  
18 it tells the same story as previous slide, and so when we  
19 did injection, gas increase in the wellbore and pressure  
20 also moves up only near wellbore. We can go to the top  
21 plot and direct it to see the time.

22 So the bottom plot, the bottom shows  
23 pressure post one-week injection, and then the top of the  
24 bottom shows that pressure before injection. You can see  
25 that again the new wellbore pressure is up, but away from

1 wellbore we don't see any pressure change.

2                   And after long time for production you can  
3 see the pressure of injector comes back the same as  
4 previous injection pressure.

5                   MR. RANKIN: Mr. Examiner, for this next exhibit  
6 we filed a replacement exhibit, last night or this  
7 morning, for page 94 to Exhibit A of the application. I'm  
8 going to show that page now. It was a minor adjustment in  
9 the note at the bottom.

10                  **Q. And so, Ms. Xie, I'll ask you to just review**  
11 **what this next exhibit shows and explain what the change**  
12 **was that we made to this exhibit.**

13                  A. Okay. So I have compared with original exhibit.  
14 We only changed the last sentence in this -- yeah, changed  
15 the injection --

16                  EXAMINER BRANCARD: Mr. Rankin, we're losing  
17 your witness.

18                  MR. RANKIN: Ms. Xie, maybe try turning off your  
19 video. That may help.

20                  (Note: Pause.)

21                  THE WITNESS: Okay?

22                  MR. RANKIN: You're breaking up.

23                  THE WITNESS: A little choppy?

24                  MR. RANKIN: Yeah, a little choppy.

25                  THE WITNESS: Oh. Let me -- is this better?

1 MR. RANKIN: That's better.

2 THE WITNESS: Okay. I just changed the  
3 direction of my computer. Okay.

4 A. In this table we show eight different -- we  
5 check the numerous scenarios for single-well injection for  
6 even with single-well injection with multiple injection  
7 periods. And also checked the well spacing. So the  
8 color --

9 (Note: Reporter interruption. Discussion off  
10 the record.)

11 THE WITNESS: Okay. Can you hear me okay now?

12 Sorry for that.

13 A. (Continued) Okay. So for the fourth column we  
14 show that there's no impact on the oil recovery of the  
15 injector wells, and then the fifth column shows that no  
16 impact in the offset wells for the oil recovery.

17 And we don't observe any gas breakthrough  
18 in the offsetting wells.

19 EXAMINER BRANCARD: Okay. The witness' voice is  
20 coming through but somebody may have a second mic on  
21 somewhere. We are getting a little bit of an echo.

22 MR. RANKIN: Yeah.

23 **Q. Ms. Xie, just to make sure the record is clear,**  
24 **will you explain what WPS stands for in the third column.**

25 A. It's Well Per Section.

1           **Q.    And you tested various densities from four wells**  
2 **per section up to eight wells per section?**

3           A.    Yes.  And eight wells per section is the worst  
4 case.  Actually we don't have any eight wells per section  
5 in our applications.  We just want to check the worst  
6 case.

7           **Q.    And in this case, how how many wells per section**  
8 **are there for the Mesa Verde project?**

9                   **(Note:  Reporter interruption.)**

10                   EXAMINER McCLURE:  I'm wondering, the witness  
11 may just want to call in on the phone, maybe, because I  
12 think there may be an Internet connection issue, maybe.

13                   MR. RANKIN:  We can take a short break and make  
14 sure she has a phone number to call in.

15                   Ms. Xie, do you want to see if you have a  
16 better connection now, or maybe shut down some of the  
17 other applications you may have open.

18                   THE WITNESS:  Yes.  Yeah, even I couldn't hear  
19 everyone well.

20                   MR. RANKIN:  You sound good now.  Is it okay if  
21 we try again?

22                   EXAMINER BRANCARD:  Okay.  Let's give it one  
23 more try.

24                   THE WITNESS:  Okay.  Can everyone hear me?

25                   EXAMINER BRANCARD:  Yes.

1 MR. RANKIN: Yes.

2 A. Okay. So for the wells in the application, for  
3 the Avalon wells we have two wells per section, for the  
4 2nd Bone Spring wells we have six wells per section, for  
5 the 3rd Bone Spring we only have one well per section.

6 Q. Thank you. And so I think I understood you to  
7 say that OXY tested the worst-case scenario of eight wells  
8 per section but none of OXY's cases have that number of  
9 wells per section.

10 A. Correct. Correct.

11 Q. And then another worst-case scenario is that OXY  
12 tested injection rates of 3 million scf per day for 21  
13 days. Is that correct.

14 A. Yes. That's the Case No. 5.

15 Q. And that's a duration that's longer than OXY has  
16 experienced for upset or interruption in the New Mexico  
17 portion of the Permian Basin; is that correct?

18 A. Yes, correct.

19 Q. And even at that duration and at that volume,  
20 rate, you did not identify or see any effects either in  
21 recovery, production for the producing wells or offset  
22 wells; is that correct?

23 A. Correct.

24 Q. And, again, nothing shows up in terms of gas  
25 breakthrough, communication between injection wells and

1     **offsetting production wells in OXY's model.**

2           A.    No, nothing shows up.

3           **Q.    Just to be clear, you have confidence in that**  
4 **result because OXY actually has data it was able to use to**  
5 **tune its model from the offsetting Cedar Canyon**  
6 **approximately 15 miles away.**

7           A.    Yes, I have confidence.

8           **Q.    All right. Thank you.**

9                   **What does this next slide show, page 95 of**  
10 **your Exhibit A to the application?**

11          A.    This one shows the gas storage capacity compared  
12 with respect to the gas injection volume.

13                   So in the table the third column shows that  
14 fracture volume gas equivalent. If we only inject gas  
15 into the fracture this can store that much volume, which  
16 is over 200 mmcf.

17                   Compared with our expected maximum  
18 injection volume of 60, this is way above that 60.

19                   And the last column is the total produced  
20 gas equivalent volume, that we have produced that much  
21 from the wellbore already. It shows huge storage if gas  
22 goes through go through the (inaudible).

23          **Q.    Is it fair to say that this analysis of these**  
24 **volumes serves as a cross check to confirm what your model**  
25 **results show?**

1 A. Yes.

2 **Q. What does the next exhibit show?**

3 A. This one shows the fracture dimension and  
4 probable volume.

5 We use fracture software package called  
6 Gohfer. We have Gohfer model to predict the fracture  
7 dimension for 3rd Bone Spring, 2nd Bone Spring, and Avalon  
8 wells.

9 We can see that here I listed all the  
10 dimensions: FH is fracture height, XF is half length.

11 The fracture height for the three zones uh,  
12 285 feet to 350 feet. The half length is 300 to 400 feet  
13 range.

14 And with that we characterize the SRV  
15 volume in the table to have in this application. I show  
16 the SRV volume here. It's around two billion, 2 to 2.7  
17 billion cubic feet of SRV volume, so it's a huge volume.

18 **Q. And this last exhibit, is this an affirmative**  
19 **statement confirming that you have reviewed the available**  
20 **geologic and engineering data and determined that the**  
21 **recoverable volume of hydrocarbons from the target**  
22 **reservoir will not be adversely affected by the project?**

23 A. Yes. Correct.

24 **Q. And you also re-evaluated the gas composition**  
25 **and determined that this will not damage the reservoir?**

1           A.    Yes.

2                   MR. RANKIN:  Mr. Examiner, at this time I have  
3 no further the questions for the witness and I would --  
4 we've already admitted the exhibit so I would offer her  
5 for cross-examination by the examiners.

6                   EXAMINER BRANCARD:  Thank you.

7                                Just back to that frack model.  Is that  
8 Gopher, like G-o-p-h-e-r for the name of the model?

9                   THE WITNESS:  G-o-h-f-e-r.

10                   EXAMINER BRANCARD:  Okay.  All right.  Mr.  
11 Rose-Coss, do you want to go first?  (Note:  No response.)

12                                Maybe not.  Mr. McClure?

13                   EXAMINER McCLURE:  You responded now, Dylan.  
14 Did you just say no?

15                   EXAMINER ROSE-COSS:  No, I don't have any  
16 questions.  Thank you, Mr. Examiner.

17                   EXAMINER McCLURE:  Yeah, I do have some  
18 questions.

19                                        CROSS EXAMINATION

20 BY EXAMINER McCLURE:

21           Q.    I guess in regards to, uhm, their expected  
22 recovery values, did you have anything to add to the  
23 earlier testimony in regards to assuming a 90 to 95  
24 percent recovery plus or minus 10 percent?

25                                What is your thoughts there?

1           A.    Yes.  So we did -- for each of our well  
2    scenario, we did check the gas recovery, and we do find  
3    that it's a range of 90 to 95 percent.

4           **Q.    Okay.  But not 100 percent, though?**

5           A.    Not -- so because the injection volume is low,  
6    you know, so -- yeah.  So the (inaudible) rate is, like,  
7    100 mcfi, so it's really difficult to capture that with  
8    accuracy.

9           **Q.    I was going to say.**

10          A.    98 percent -- 90 --

11          **Q.    Go ahead.  Keep going.**

12          A.    Okay.  So could be -- could have some numeric --  
13    because the injection volume is low, so it could have some  
14    numerical error.  While we really got in the volume of oil  
15    90, 95 percent, but in reality, yeah, we have some  
16    uncertainty, and could possibly all oil recovered because  
17    (inaudible).

18          **Q.    I was going to say:  Would it be an accurate**  
19    **statement to say that as your injection duration goes up**  
20    **your recovery goes down?**

21          A.    I agree with you, yes.

22          **Q.    Okay.**

23          A.    For a while.  Like -- okay.

24          **Q.    Go ahead.  Were you still going?  I'm sorry.**

25          **Did you still have more?  Did I interrupt you?**

1           A.    I agree with you, yeah, when the injection  
2   period is longer, rate --

3                   (Note: Reporter interruption.)

4           THE WITNESS:   Okay.

5           A.    (Continued) Okay. Mr. Examiner, so when the  
6   injection here go to like many weeks or months, we would  
7   expect less recovery. For like hours or days of injection  
8   I would say majority of the gas is recovered.

9                   I think since we've had a couple of  
10  problems --

11                   (Note: Reporter interruption.)

12           MR. RANKIN: We have some technical problems.

13           THE WITNESS: Okay. Can you hear me now?

14                   (Note: Discussion off the record.)

15           THE WITNESS: Okay.

16           MR. McCLURE: Sounds like a connection issue to  
17  me. I think maybe you're losing your Internet or  
18  something. Maybe, Bill, I think we should take a break  
19  and let her call in.

20                   EXAMINER BRANCARD: I think that is a great  
21  idea. Can you work with that, Mr. Rankin?

22           MR. RANKIN: We will do. If we take a short  
23  break, we will have Ms. Xie call in and rejoin.

24                   EXAMINER BRANCARD: Okay. Good idea.

25                   (Note: In recess.)

1 EXAMINER BRANCARD: Mr. Rankin, do you have a  
2 witness?

3 MR. RANKIN: Ms. Xie, are you there?

4 THE WITNESS: Yes, I'm here.

5 MR. RANKIN: Okay. I think, Mr. Examiner, we  
6 broke off with a question, and the answer didn't come  
7 through, really, from Mr. McClure about the duration of  
8 injection and recovery, so I thought that might be a good  
9 place to pick the record up.

10 EXAMINER McCLURE: Do you want me to re-ask  
11 or...

12 THE WITNESS: I can address that, yes. I  
13 remember the question.

14 A. So I said I agree with the examiner that when  
15 the injection duration is long the recovery will be less;  
16 however, for all our cases, like with a few hours, a few  
17 days of injection, the majority of the gas will come back,  
18 and from our simulation of three weeks injection we  
19 predict 90 percent recovery.

20 Q. And I was going to say from a theoretical  
21 standpoint it makes perfect sense to me. It's just a  
22 matter of -- I mean, theoretically you could be injecting  
23 three weeks in this project if that ends up happening, so  
24 it's hard for us not to go with, you know, less than 100  
25 percent, I guess.

1                   Which actually brings up another question.  
2                   You had mentioned that in the Mesa Verde  
3 Unit you only expect an upset of maybe five to six days,  
4 at most, but you said in other areas you have had upsets  
5 of multiple weeks. Do you know what the difference is  
6 there? Is there a different midstream company, or what's  
7 going on?

8           A. Yes. So actually all of our pre-application  
9 area we've had the maximum history six days interruption.

10                   When it happened -- it only happened once  
11 for Turkey Check area, which is in the north, uh,  
12 northwest. Turkey Check area is a small area. We  
13 experience, just once, 21 days for interruption.

14                   For the takeout company, actually I don't  
15 know which takeout company for the 21 days of  
16 interruption.

17           Q. But there was only one above -- this is in how  
18 many years of history that you went through?

19           A. Uhm, that area we developed in 2018, so three  
20 years.

21           Q. Of history. And you only had one upset that was  
22 longer than a week, essentially; is that correct?

23           A. Yes.

24           Q. Okay. Let me see. I'm just trying to go in a  
25 logical order here, I guess. I don't know how well I'm

1 going to be able to make it logical order topics, so I  
2 guess we will just keep going down the line.

3 In the Cedar Canyon project which you used  
4 to produce the model, were you aware of those faults  
5 existing prior to building -- the connectivity faults  
6 between the wells prior to building the model, or did you  
7 have to insert those after you saw the change in offset  
8 production?

9 A. So we did check at the tube in this area.  
10 Majority of area is quite quiet, and we do see some. So  
11 we did do those kind of like connections and before the  
12 breakthrough. Of course the conductivity we adjusted to  
13 match the breakthrough.

14 Q. So you had reason to believe that there may be  
15 some connectivity but of course you had to adjust the --  
16 oh, it's not called (inaudible) -- yeah, connectivity of  
17 it based to match your chain. I'm with you.

18 I guess there was -- in the Cedar Canyon 16  
19 area, do you see the same evidence of faults and potential  
20 connectivity between the wells and the Mesa Verde Unit.

21 A. Mesa Verde unit we didn't check at the well.  
22 It's also relative quiet, so we predict that it would be  
23 similar.

24 Q. So you do think there is -- there could  
25 potentially be something connecting the wells, but

1     until -- unless a guy were to inject -- and you inject it  
2     for two or three months, you said, is that correct, before  
3     you started seeing?

4             A.     Three months.

5             Q.     Yeah. Okay. So then we wouldn't actually --  
6     okay.

7                     Uhm, I guess you don't have any reason to  
8     think that you would see a breakthrough prior to the three  
9     months in this area that you had seen prior in the Cedar  
10    Canyon; is that correct?

11            A.     Yes, that's correct, especially in this CLGC  
12    project we have low pressure injection, and injection  
13    bottomhole pressure will be even much lower than the  
14    initial reservoir pressure.

15            Q.     Yeah, you make a very good point. You may have  
16    to reach that higher pressure before you start even  
17    opening them up and held them open for you.

18                     Okay. Which actually brings me to the next  
19    question I had. You mentioned 4,000 pounds. Was that  
20    your surface injection pressure in the Cedar Canyon or was  
21    that your downhole pressure?

22            A.     Surface injection pressure.

23            Q.     That was surface injection pressure.

24                     I'm going to presume there's not really  
25    enough compositional difference between your injection

1 fluids so as to assume that you're going to have very much  
2 different hydrostatic pressure difference between your  
3 surface and downhole. Is that correct?

4 Between the two projects. Excuse me.

5 A. It has some difference because of Cedar Canyon  
6 high pressure injection, so the pressure difference  
7 between wellhead and tubing and the bottomhole pressure is  
8 about 1,000 psi for the Cedar Canyon area. Because very  
9 (inaudible) the gas density high, so the gradient is  
10 higher. For the Mesa Verde area, however, we will get  
11 that low pressure, so the gas pressure will be much lower.  
12 We accept a few hundred of psi drop in the wellbore.

13 Q. Okay. Makes sense. If I thought about it for  
14 ten seconds, I guess I would have seen that's clearly  
15 going to be the far larger difference than any  
16 compositional differences in the gas as your starting.  
17 Pressure being much higher is going to make drastic amount  
18 more difference.

19 But essentially the point I'm getting to is  
20 you essentially experienced much more bottomhole pressure  
21 in the Cedar Canyon than you're going to see here,  
22 clearly, is essentially what I was getting at. Yeah.

23 A. Yeah. Correct.

24 Q. Thank you. And on your Cedar Canyon model that  
25 you had there, you had some units of gas saturation. Was

1 that just the saturation of the -- of injected gas?

2 Because I'm assuming that you are producing gas and there  
3 was already gas present. So am I incorrect in that  
4 assumption?

5 A. You are correct that for the prior production we  
6 already had gas exist in the fracture, because fracture  
7 has low pressure.

8 Q. So essentially those numbers -- I'm sorry. Keep  
9 going.

10 A. And the bottom point is much higher than the  
11 fracture pressure, so the gas comes out.

12 Q. Yeah, but still having said that, then would it  
13 be accurate to say that the units that we saw in the  
14 submitted images, charts, whatever you want to call them,  
15 is essentially the invasion gas rather than the actual gas  
16 saturation, then, or am I incorrect in that assumption?

17 A. It's the reservoir gas coming out from the oil  
18 when the pressure is low.

19 Q. Do you remember what page that's on? Maybe I'm  
20 misremembering the chart.

21 MR. RANKIN: Mr. McClure, I think are you  
22 referring to page 92, which is the gas injection profiles?

23 EXAMINER McCLURE: Yes that, is exactly -- oh,  
24 and you know now I look at them again, I do see they start  
25 out at 0.25, they don't start out at zero. I was just

1 looking at the bottom of the scale, but that's purely for  
2 the matrix itself, essentially, rather than the fractures.  
3 I'm seeing that again.

4 I'm sorry. I understand now, so we can  
5 move on, I guess. I went through the thought process.

6 Now, this model here was build for the 2nd  
7 Bone Spring, correct, for the Cedar Canyon?

8 A. Yes, correct.

9 **Q. But you don't foresee enough difference between**  
10 **your Bone Spring 1 and your Bone Spring 3 not to be able**  
11 **to apply the same model universally?**

12 A. Yes. I kept the level of properties, especially  
13 porosity and permeability. The porosities are very  
14 similar, 7 percent to 8 percent. The permeability for the  
15 2nd Bone Spring and 3rd Bone Spring, the permeability  
16 values are similar. For the Avalon we expect a little bit  
17 of lower permeability, but the low, the less  
18 communication. So we kind of already have the worst case.

19 **Q. Yeah. So your model is maybe more conservative,**  
20 **I guess, for that formation, essentially, is the thought**  
21 **process.**

22 A. Yes, you are right.

23 **Q. Okay. Now, on your slide on page 95, you talk**  
24 **about the fracture volume gas equivalent in millions of**  
25 **cubic feet.**

1                   Is this -- this here was based upon your  
2 volume calculations that came from the next page, is that  
3 correct, or is that from produced fluid, or not?

4           A.    From produced fluid. Not really to the next  
5 page.

6           Q.    Okay. So then it's not a volume calculation.  
7 This is based upon production history, then.

8           A.    Yes.

9           Q.    Okay. And was any well tests or anything like  
10 that conducted to differentiate between production from  
11 the matrix and production from the fracture?

12          A.    The test? We cannot do this kind of test,  
13 because of subsurface they are all together; however, we  
14 do have some estimation of fracture fault itself, based on  
15 the fracking job. Doing the fracking job, we injected a  
16 lot of water, so based on the water volume we estimated  
17 the fracture volume.

18          Q.    Okay. So does this take into consideration some  
19 of that data, then, or is that not correct?

20          A.    You're right. It took consideration of that  
21 fracking volume -- fracking liquid volume.

22          Q.    Okay. And then this here, uh, is considering  
23 that the pressures are at 1200 pounds at surface, and how  
24 many pounds at bottomhole, I guess.

25          A.    At bottomhole it's about 1600 psi.

1           Q.    Okay.  And is that where your two hundred -- for  
2 instance on the 1H your 291 million cubic feet, it was  
3 derived using the 1200 surface psi essentially, and taking  
4 into account what you experienced during the completions?

5           A.    Yes.  You are perfectly correct.

6           Q.    Okay.

7           A.    If we inject at a high pressure this volume was  
8 even higher, because the higher pressure then the more  
9 volume you can get, the more storage volume.

10          Q.    I'm with you.

11                   Now, out of curiosity, then, like on the 4H  
12 and the 5H, I think it was, that had the 1100 as the  
13 current injection pressure, and yet on this chart here  
14 we're seeing similar numbers.  Are you just thinking that  
15 the -- I guess maybe I'll restate my question.

16                   Is this the amount of volume that you could  
17 inject into it at that pressure, or is this the amount of  
18 volume that exists down there?

19                   The reason I ask, to maybe clarify my  
20 intent a little better, is because of where we're seeing  
21 1100 currently in the 4H and 5H, yet in this chart here it  
22 has similar volume capacity.

23           A.    Yes.  So this shows that that much volume exists  
24 in the reservoir.

25          Q.    Okay.  But then so essentially you won't be able

1 to inject 291 million, it just will build to hold 291  
2 million cubic feet, but this doesn't necessarily take into  
3 account what's currently existing down there, then. Is  
4 that correct?

5 A. So you can -- if you inject for long, long time  
6 at lower rate you can still approach to that volume.

7 Q. Would that be flow into the matrix that's going  
8 to cause that?

9 A. So you would approach that fracture volume  
10 first, and then if you take even longer time, maybe months  
11 to years, then you could approach the production volume.  
12 That's where the majority of that will be in the matrix.

13 Q. Which is where we get into the total produced  
14 gas equivalent, your fourth column there. Correct?

15 A. Correct.

16 Q. Okay. Now, in the model that was built in  
17 Gohfer, was that refined using only like production  
18 history, or is there any sort of microseismic or any  
19 supporting other thing that had allowed you to refine that  
20 model a little better?

21 I understand maybe it wasn't yourself that  
22 built it, but if you have any, uhm -- aware, or any  
23 knowledge of how that model was built, I guess.

24 A. Yes. To my best knowledge the Gohfer model was  
25 built based on the available legitimate (inaudible)

1 properties from past history, and also history mentions  
2 the fracking procedures. Because in doing frack job, when  
3 you inject the water, the propellant, at the first  
4 injectional rate the pressure is off, so the Gohfer model  
5 essentially that pressure is off at specific injection  
6 rate.

7 It's also a history match, about the  
8 fracking procedure history matches.

9 Q. Oh, yeah. Okay. I'm seeing -- I'm seeing what  
10 you're saying. I was going to say there is a different  
11 program that I've used in the past and it -- it wasn't as  
12 sophisticated, I don't think, as Gohfer actually is. And,  
13 see, what my -- some of what my issue, was like always  
14 trying to determine like my leak hole coefficient was,  
15 just simple things like that that maybe could make mass  
16 differences to be able to accurately determine your frack  
17 half length and your height and such like that.

18 A. You have seen plan before?

19 Q. No, it was -- I think it was the Schlumberger  
20 one, but I'm trying to remember what it's called.

21 Halliburton bought Gohfer, I think -- I'm  
22 sorry, what did you say Slumberger was called?

23 A. Mangof (phonetic).

24 Q. I don't remember it being called that. Maybe it  
25 wasn't Sclumberger, then. I was thinking it was. It

1 might be somebody else. But anyway ...

2 Go ahead.

3 A. But I do know that the (inaudible) is very  
4 sensitive, the pressure dimension is very sensitive to the  
5 leak hole coefficient that you mentioned by using the  
6 software that you use.

7 For the Gohfer, I -- hmm, actually I don't  
8 have the knowledge. I just indicate the result of  
9 sensitivity of the leak hole coefficient.

10 But in general they would adjust the  
11 parameters, try to match microseismic results. For this  
12 specific area, Mesa Verde, we don't have microseismic  
13 results but we do have detailed science on a project in  
14 Texas called SCTX2. They validated the Google model by  
15 numerous other method. One is the microseismic, as you  
16 mentioned, and I did check on their microseismic results.  
17 Looked like within reasonable range.

18 Q. Very, very, very good. I'm with you.

19 Yeah. And, see, in theory if, uhm, when  
20 you can actually just input your actual pressures and what  
21 you experienced during your frack, your actual completion,  
22 then theoretically there should be a correlation, a direct  
23 correlation in there between what you experience and  
24 computing your leak uphole vision.

25 So theoretically you have all your log data

1 to get your geomechanics, and then in theoretic....

2 But anyway, moving on.

3 Okay. I was sitting here looking at your  
4 Slide 96 here, and I'm looking at your calculation and it  
5 looks like you multiplied it by the well length, and I  
6 guess I'm trying to figure out, because in theory wouldn't  
7 you be more interested in your fractural width and then  
8 the number of fractures rather than the whole length?

9 Or maybe -- I'm just thinking there might  
10 be something missing from this calculation, I guess.

11 A. Yes. So I can address that.

12 If you are looking at the fracture volume  
13 itself, it will look at the fracture aperture, and the  
14 number of fractures in that well length. And here I think  
15 the NMOCD requires stimulated rock volume, SRV. Usually  
16 when we see SRV we are looking at the whole stimulated  
17 rock volume instead of fracture volume.

18 Q. Okay. I gotcha.

19 But, see, just looking at what you got here  
20 it's like your XH and your XF -- uh, I mean you could sit  
21 here looking at it. So the assumption is here that  
22 there's enough fractures that in between all your  
23 fractures can be considered to be your stimulated volume,  
24 then.

25 Is that essentially what we are saying

1 here?

2 A. Yes. You are correct.

3 Q. Okay. I understand where you're coming from.

4 Okay. I was going to say I understand what the  
5 calculation is coming from. I'm sorry. I was looking at  
6 this as fracture volume, rather than as you got it labeled  
7 SRV, being the stimulated reservoir volume or rock volume.  
8 I'm with you now. Okay. I'm understanding better as to  
9 what you're giving me here.

10 I'm just sitting here looking. I think  
11 that might be all the questions I have. I'm just quickly  
12 looking through my prior questions and making sure there  
13 ain't anything that I want to ask you, as well, on that.

14 I'm not seeing anything, but I guess in  
15 theory if something comes up I'll ask you on the next  
16 case, I guess.

17 Anyway, thanks a lot for your testimony.

18 THE WITNESS: Thank you.

19 EXAMINER BRANCARD: Okay. Any further  
20 questions? Mr. Lamkin?

21 EXAMINER LAMKIN: I don't have any questions.  
22 Thank you.

23 EXAMINER BRANCARD: Mr. Rankin, any redirect?

24 MR. RANKIN: Thank you, Mr. Examiner. I don't  
25 have any redirect for the witness, and if there are no

1 further questions for OXY's three witnesses, I would ask  
2 that the case be taken under advisement. Now, I  
3 understand that there are some outstanding requests for  
4 supplemental information, which we will provide, and I  
5 guess maybe it's the appropriate time to discuss the time  
6 frames for that, but we would endeavor to try to do that  
7 as quickly as we can so that the Division has what it  
8 needs to take under consideration the application.

9 EXAMINER BRANCARD: Thank you.

10 MR. RANKIN: Thank you.

11 EXAMINER BRANCARD: I want to check in with  
12 Mr. McClure and Mr. Rose-Coss to see where they want to go  
13 from here.

14 If OXY provides the information that you  
15 have requested, is that enough to move forward towards  
16 writing the Order, or do you need to meet with OXY again,  
17 do you need to continue this hearing? What's the  
18 preference of the examiners?

19 EXAMINER McCLURE: Do you have a preference,  
20 Dylan?

21 EXAMINER ROSE-COSS: No, you can speak, but it  
22 seems like many of the issues once the additional material  
23 is submitted should be resolvable in our minds.

24 Do you think you need a meeting after this,  
25 Dean?

1                   EXAMINER McCLURE: It depends on what the  
2 amended proposal is for allocation. I mean, if it's  
3 something that we agree with on how they submit it, then  
4 yeah, we're good for it, but I don't know at this juncture  
5 what OXY is going to propose as an alternative allocation  
6 method to a fixed percent and assumption of 100 percent  
7 recovery. So it's difficult for me to have a for-sure  
8 answer on that, I guess.

9                   I don't know what you want to do, Bill.

10                  EXAMINER BRANCARD: I want to move this forward  
11 one way or the other.

12                  EXAMINER McCLURE: We all do.

13                  MR. RANKIN: How about this?

14                         Maybe -- well, I'm just trying to think. I  
15 might need to consult with the client about, you know --  
16 because I'm not sure exactly where they stand in terms  
17 of -- or if they even have had an opportunity themselves  
18 to consider what kind of proposal they will put forward  
19 for allocation.

20                         So without delaying things I wonder if we  
21 could, you know, move on to the next cases, and before the  
22 end of the day we can revisit that question for each of  
23 them.

24                  EXAMINER BRANCARD: So educate me. Are these  
25 cases very similar, not very similar?

1           MR. RANKIN: They are very similar. I believe  
2 that the information that the Division would need to  
3 evaluate them is in the written testimony that was  
4 provided, and the purpose of us recalling these witness  
5 would be simply to confirm they are adopting their  
6 testimony and then admitting each of the exhibits into the  
7 record. I don't think we need to spend much time at this  
8 point reviewing or summarizing the testimony; they are  
9 similar locations and very similar geology, similar  
10 operational parameters, and the same reservoir analysis.  
11 So I don't think we need to spend much time summarizing  
12 each of these other cases.

13           EXAMINER BRANCARD: Do we have the same three  
14 witnesses.

15           MR. RANKIN: Yes. There's one change in the  
16 witness for geology testimony, Mr. Peter Senior, and he  
17 has not yet testified.

18           EXAMINER BRANCARD: Which case will he be  
19 testifying on?

20           MR. RANKIN: He'll be testifying in the next two  
21 cases 22088 and 22089.

22           EXAMINER BRANCARD: So we can go ahead with the  
23 next two cases and then try to summarize what all is  
24 needed, or we can try right now to figure what else we are  
25 expecting from this particular case in terms of

1 documentation.

2 MR. RANKIN: I think, Mr. Examiner, I think that  
3 given the issues raised by the examiners around the  
4 allocation method, and the fact that, frankly, the  
5 allocation issue was not part of the guidelines that were  
6 proposed by the Division so OXY has had to kind of move on  
7 that issue fluidly, you know, during the course of its  
8 meetings with the Division, I think it would be  
9 appropriate for us to, for OXY to have a moment to be able  
10 to confer amongst itself, and we would have to get back to  
11 the examiner on what it would propose to do in terms of  
12 handling allocation.

13 So I guess what I would say is maybe we  
14 keep the record open for the supplementation, pending the  
15 Division's acceptance of whatever OXY proposes.

16 EXAMINER BRANCARD: All right. But today you  
17 were wanting to go ahead with the other two cases?

18 MR. RANKIN: Yes. Because I think whatever OXY  
19 does, the one case will be applicable to all three.

20 THE HEARING OFFICER: I'll go back to  
21 Mr. McClure Are we okay with going ahead with the next  
22 two cases?

23 EXAMINER McCLURE: Yeah, I think so. I agree  
24 with Mr. Rankin that it's going to be very similar,  
25 there's very little difference. I think the only real

1 main difference that I saw is in -- we can just carry on.  
2 I'm sorry. We can just carry on. I think we're good to  
3 go.

4 EXAMINER BRANCARD: Okay. Do we even need the  
5 witnesses to summarize their testimony or can you get  
6 questions off of their written testimony?

7 I'm addressing Mr. McClure.

8 EXAMINER McCLURE: I could do questions off  
9 their written testimony, I think. The only difference  
10 would be just if Mr. Rankin wanted to have them spell out  
11 differences as they saw it, perhaps, between them. That  
12 could be beneficial, just thinking off the cuff, I guess.  
13 Or if there is no differences. Whatever. You know.

14 MR. RANKIN: I believe that Mr. Janacek should  
15 be able to provide a brief overview of some of the  
16 differences, and it's mostly going to be the number of  
17 wells, the target injection wells, but mostly very similar  
18 operationally from one to the other.

19 EXAMINER BRANCARD: All right. Mr. Rose-Coss,  
20 any thoughts?

21 EXAMINER ROSE-COSS: I'm in agreement with what  
22 Mr. Rankin proposed here. It seems like they will be  
23 pretty similar. But, yeah, if Mr. Janacek could briefly  
24 describe any differences, we should be able to move  
25 forward with just the written testimony other than that.

1 EXAMINER BRANCARD: Okay. So why don't we take  
2 a pause here on case -- where are we?

3 MR. RANKIN: We're in 22087.

4 EXAMINER BRANCARD: Case 22087, and then start  
5 up with Case 22088.

6 And we have a missing attorney, Mr. Bruce,  
7 but we think of him.

8 Other than that, are there any appearances  
9 in Case 22088? (Note: Pause.) Hearing none, Mr. Rankin,  
10 if you would like to proceed.

11 You know, we talked about a brief summary  
12 last time and it lasted well over an hour, so maybe this  
13 can really be a really brief summary.

14 EXAMINER BRANCARD: I think the intent, Mr.  
15 Examiner, was to do the first case, because that would lay  
16 out much of the issues. So we won't have to repeat here.

17 Mr. Examiner, at this time I would like to  
18 recall OXY's witness, Mr. Janacek.

19 STEPHEN JANACEK,  
20 previously sworn, testified in Case No. 22088 as follows:

21 DIRECT EXAMINATION

22 BY MR. RANKIN:

23 Q. Mr. Janacek, you have been previously sworn in  
24 and qualified as an expert in petroleum engineering. Have  
25 you prepared Prewritten Prefiled Testimony in this Case

1 22088?

2 A. Yes, I have.

3 Q. And that has that marked as Exhibit B in this  
4 case?

5 A. Yes.

6 Q. Did you also prepare Exhibits B-1 and B-2?

7 A. Yes, I did.

8 Q. And also attached to your affidavit is there an  
9 Exhibit B-3, which is a copy of the Notice packet that  
10 was -- indicates that Notice of this application and  
11 hearing were provided by Holland & Hart?

12 A. Yes.

13 Q. And today Mr. Janacek, do you adopt as your  
14 testimony your Written Testimony that's contained in  
15 Exhibit B?

16 A. Yes, I do.

17 MR. RANKIN: At this time, Mr. Examiner, I would  
18 move the admission of Exhibits B, B-1, B-2 and B-3 into  
19 the record.

20 EXAMINER BRANCARD: Are there any objections.

21 Hearing none, so admitted.

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

23 Q. Mr. Janacek, this case here, and this is sort of  
24 what we will prefer to as the Avogato wells, correct?

25 A. That's correct.

1           Q.    Does your testimony outline the location and  
2 proposed project area in this case?

3           A.    Yes, it does.

4           Q.    In this case is the project area proposed to be  
5 approximately 1,280 acres, more or less?

6           A.    Yes, it is.

7           Q.    Does this proposed project also seek inject  
8 into the Bone Spring Formation?

9           A.    Yes.

10          Q.    And unlike the prior case is this seeking to  
11 inject into just one interval within the Bone Spring?

12          A.    Yes, just one interval.

13          Q.    Which interval is that?

14          A.    This is the Avalon Shale interval.

15          Q.    And instead of six wells are there three wells  
16 proposed to be converted to temporary injection in this  
17 case?

18          A.    That's correct.

19          Q.    And is proposed injection interval range from  
20 approximately 9,300 feet to 9,500 feet? Is that about  
21 right?

22          A.    That is correct.

23          Q.    Otherwise are there any other operational  
24 differences in this case? Let me point out in terms of  
25 operating pressures or any other operational parameters

1 that are going to be different in this case than what was  
2 proposed for the Mesa Verde case.

3 A. No, there are no different operational  
4 parameters for the CLGC project here.

5 Q. One thing I did want to point out is that we  
6 identified in this case that I think we need to make a  
7 point of correction -- and we can file it and submit a  
8 corrected exhibit -- is that on page 39 of the exhibit  
9 packet in Exhibit A to the application, there is a table  
10 showing the different pressures and other calculations  
11 that the Division has requested. In Column OXY has  
12 proposed a maximum injection rate and identifies 2 million  
13 cubic feet per day. Is that a correct estimate of the  
14 injection rates for this project area?

15 A. No. For this project area, since these are  
16 10,000-foot lateral wells, the maximum rate we would  
17 expect is 3 million a day.

18 Q. Okay. So that number should be three for each  
19 of these wells, and that number should be adjusted in your  
20 testimony affidavit, as well, from 2 to 3. Is that  
21 correct?

22 A. Yes.

23 Q. Thank you. Other than that change, are there  
24 any other differences in terms of the operational  
25 parameters or facilities that are worthwhile pointing out

1 to the examiners so that they can understand the nature of  
2 this proposed project?

3 A. Yes. One thing I'd like to point out is on  
4 these wells in the Avogato project the are in, all of  
5 these wells will have an injection down the casing tubing  
6 annulus. We don't have any wells with injection down the  
7 tubing.

8 Q. And unlike the places -- sorry. Go ahead.

9 A. That is the main difference I would like to  
10 point out.

11 Q. And then unlike the Mesa Verde, does the Avogato  
12 gas collection system have a secondary takeaway ability?

13 A. Let me review my notes. I don't believe it  
14 does. Let me pull up the diagram here and double check my  
15 notes.

16 Yes, that's correct. There is not eye  
17 secondary gas takeaway on Avogato. We just have the  
18 primary gas takeaway, which is DCP.

19 Q. Okay. So Mesa Verde, this project area doesn't  
20 have sort of a backup for a secondary gas purchaser to  
21 take gas offline if the main one goes down?

22 A. That's correct. After that the only options are  
23 to flare or shut in production.

24 Q. Okay. Otherwise, all the other requirements,  
25 except for the geology and reservoir engineering that are

1 required by the Division, are they addressed in your  
2 testimony?

3 A. Yes.

4 Q. Okay. And the same proposal you presented in  
5 this case, same proposal for gas allocation and the data  
6 plan as you did for the Mesa Verde case?

7 A. That is correct. There is one minor difference  
8 with the Data Collection Plan and that's with the listed  
9 CLGC wells and their respective offsets. So that's a new  
10 gunbarrel view, updated gunbarrel view for that project  
11 area, and updated well list for that specific project  
12 area.

13 Q. All right. Very good.

14 So Mr. Janacek, other than those  
15 differences, if there's anything that you want to point  
16 out, I will give you a minute to think about that, and if  
17 there is no other significant differences you can think of  
18 as you sit there right now, I'll ask that Exhibits B, B-1,  
19 B-2 and B-3 be admitted into the record, if I haven't  
20 already done that.

21 EXAMINER BRANCARD: Any objections?

22 I think they were admitted already, but we  
23 will admit them again.

24 So what page do you need to send us a  
25 corrected exhibit on, Mr. Rankin?

1           MR. RANKIN: So I have a couple to send. I  
2 pointed out page 94 in the Mesa Verde. In this case I'll  
3 need to send a corrected exhibit for page 95, as well as  
4 page 39.

5           Mr. Examiner, I don't know if it makes  
6 sense to you, since Mr. Janacek is here, if we  
7 consolidated these case for hearing purposes, would it be  
8 appropriate to just maybe have him do the same review for  
9 the next case, as well, since he's available?

10          EXAMINER BRANCARD: Well, that would confuse me,  
11 but I'm not the one to be confused. So Mr. McClure and  
12 Mr. Rose-Coss, you are the ones to decide whether you want  
13 to hear testimony on the other Case 220 -- is it 91?

14          MR. RANKIN: 89.

15          EXAMINER BRANCARD: 89. So --

16          EXAMINER McCLURE: I was going to say it doesn't  
17 matter to me, I could take it or leave it. However they  
18 would like to present it.

19          MR. RANKIN: Let's keep it simple and not  
20 confusing, so let's wait till we get to that one.

21          EXAMINER BRANCARD: I'm looking at your case  
22 file, and it appears that you have already filed a  
23 corrected page 95.

24          MR. RANKIN: That's correct.

25          EXAMINER BRANCARD: And that document needs to

1 be filed for 2187, right?

2 MR. RANKIN: It's page 94 needs to be filed for  
3 2287. But yes, correct. It's a different page number but  
4 the same document.

5 EXAMINER BRANCARD: I'm just trying to make sure  
6 we know what's been filed. That was filed. Okay.

7 So those two pages have been filed but not  
8 a corrected page 39?

9 MR. RANKIN: Yes, that's correct.

10 EXAMINER BRANCARD: All right. So where are we  
11 at? Questions?

12 MR. RANKIN: Questions. Pass the witness for  
13 questions by the examiners. Thank you, Mr. Examiner.

14 EXAMINER BRANCARD: Mr. McClure?

15 EXAMINER McCLURE: Thank you, Mr. Rankin. Yes,  
16 I do have some questions.

17 CROSS EXAMINATION

18 BY EXAMINER McCLURE:

19 Q. I guess the first, maybe the easiest question,  
20 the easiest thing.

21 Since what we're looking at is currently  
22 the commingling approval that these wells are running  
23 under is currently PLC 596-B, but it looks like the wells  
24 that were included in this application is from two  
25 amendments prior. It has the PLC 596.

1                   I guess a similar line of questioning as  
2 initially from prior case: What is the reasoning for the  
3 discrepancy there?

4           A.    There may have been some updates to the  
5 commingling permits that were concurrent with this project  
6 so therefore we didn't capture the updated amended permit.

7           Q.    I was saying in the amended permit it looks like  
8 you brought a new battery into the project, which is not  
9 included in your infrastructure here, although I presume  
10 that all that gas is going into the same gas lift system  
11 if you applied for a commingling permit. Is that  
12 essentially correct or is it isolated there?

13          A.    I would have to review the details. I can't  
14 tell at this time.

15          Q.    Okay. Please do.

16                   And the only thing I would ask is if that  
17 gas is being commingled prior to your gas lift system, or  
18 can be commingled and put into this as an injection well  
19 regardless of where it's getting commingled, I guess I  
20 just want to make sure we see some sort of gas analysis on  
21 it, just to make sure we are not seeing something  
22 substantially different versus what we have here.

23                   And I suppose I would say on the initial  
24 case, the last case, 87 I believe it was -- yeah 22087  
25 those wells weren't studied yet, if I recall. Is that

1 correct. Is that the thought process, and maybe they are  
2 just now brand-new production?

3 A. I think they are brand-new production, yes.

4 Q. Okay. So the only thing I would point out there  
5 is it's perfectly fine to add it into this after the fact,  
6 but I would just point out that there is a clause that if  
7 the corrosive nature of the source gas can be  
8 considered -- I'm trying to remember the exact  
9 terminology. But if it can essentially make it more  
10 corrosive than the current gas then it would be required  
11 to update your Corrosion Prevention Plan or submit a  
12 statement saying that there's no need, that you have  
13 taking it into account but your current plan is  
14 sufficient.

15 That would be the only thing I would point  
16 out, but it is fine to add it in.

17 Anyway, back to the Case 22088.

18 I guess the other main difference that I  
19 was looking at is that we have a, what I presume all it  
20 is, is a vertical well that is downhole commingled with  
21 the Delaware Mountain Group as well as the Bone Spring. I  
22 guess -- do you have reason to think that there will not  
23 be communication to that well?

24 A. Which well are you referring to?

25 Q. Let me -- I've got three different pieces of

1 paper here.

2 Well, I got the API number for you.

3 Actually, let me look on my computer. I  
4 actually have the name, as well. This is the Mule -- oh,  
5 I don't want to lie to you. It was like 37 or something.  
6 Don't quote me. The name is the Mule Deer 36 State 4.

7 A. Gotcha. Okay. Yes. There are some Mule Deer  
8 wells. Let me look at which well that is.

9 Q. One of them is plugged. This one is not plugged  
10 and still producing. It's closest to you -- it's on the  
11 west side. Well, I guess they are all on the west side,  
12 and it's closest to your Avogato 11H.

13 A. Yes, that Mule Deer No. -- Mule Deer 26 State #4  
14 is currently an active oil well. In the AOR table its  
15 listed as Well No. 35, and this is -- yes, like you  
16 mentioned, it is commingled downhole with the Red Tank  
17 Bone Spring and the Red Tank Delaware West.

18 And let me look at the -- I'm just getting  
19 oriented here, so give me a second.

20 That's Well 35 on the map, and if we look  
21 at the AOR map found on page 57, bottom right, that is to  
22 the west of one of the CLGC wells.

23 So yes.

24 What was your original question?

25 Q. My original question was: Do you have reason or

1 do you not have reason to believe that the well could,  
2 your injection well may communicate with that well, and as  
3 such you would have gas leaving your reservoir, perhaps  
4 other fluids leaving your reservoir and going into a  
5 different reservoir through the wellbore.

6 A. Good question. So upon further review of this  
7 well, of discussion, we reviewed to see which specific  
8 interval it was completed in within the Bone Spring. And  
9 our geologist can talk to this later in their geological  
10 cross section, but we are injecting into the Avalon Shale  
11 and this offset procedure is completed in the Avalon Sand.

12 So we've identified that there is a  
13 geologic barrier between these two zones, and it's not the  
14 same zone as injection, so therefore we don't see any  
15 issues with injection leading to fluids going out of zone.

16 Q. Sounds good, very good. I was going to say my  
17 own review come to very similar conclusions, but I was  
18 making no determination as to whether we had an accurate  
19 barrier, geological barrier between the two formations, I  
20 guess. And I guess once we have your geologist before us,  
21 we can have -- I guess it's him now, confirm that he  
22 agrees with your determination there.

23 A. Yes. And Dean, if I may --

24 Q. Go ahead.

25 A. -- add on, Mr. Examiner.

1           We also looked at it through the lens of  
2     the production performance during our hydraulic fracking  
3     operations of the proposed CLGC wells, and upon review of  
4     the well production of this well there was no change in  
5     the produced fluid after our frack operations were  
6     completed on our wells.

7           **Q. I got you. So essentially you have experience**  
8     **of fracking over there is essentially what you're getting**  
9     **at. Correct?**

10          A. Correct. And if we're in the realm -- if I put  
11     on my small-reservoir engineering cap for a second, which  
12     is not that big because it isn't my realm, I would say,  
13     though, that the pressures we experience between our  
14     initial hydraulic fracking operations are significantly  
15     higher than what we are dealing with here with our  
16     proposed gas storage operations.

17                 So if we didn't see any impact there, you  
18     could carry that forward to say we might not see any  
19     impact with our gas storage.

20          **Q. Yeah, you make a good point.**

21          A. But that is something that if you wanted to  
22     discuss it further, we could discuss it with the reservoir  
23     engineer.

24          **Q. Yeah. I agree. If we can just briefly touch**  
25     **upon it just so we can have it in the transcript.**

1           I want to say beyond that the other thing  
2   that I'm looking at, that is -- maybe the other thing that  
3   would be different is your request for the MIT -- or  
4   excuse me, the request for the packer being set above the  
5   Bone Spring. With consideration of this well that's  
6   within the Bone Spring, then we are going to need it to be  
7   lower than that. I guess I don't know what your thoughts  
8   are when it comes to any considerations for your  
9   inclination of the wellbore. I don't know what your  
10  thoughts are there. If you could speak to them, I guess.

11         A. Yes, I would have to look at that specific well,  
12  because this is only offset to one of the CLGC proposed  
13  wells. So I can look into the specifics of where that  
14  packer is currently placed and see if it is currently  
15  placed below, or if we need to look into it and discuss it  
16  further.

17         Q. Very Good. Very good. And I agree we would  
18  only be looking at the Avogato 11H. You know, the other  
19  one should be significantly far away. And then hopefully  
20  I guess your casing below where the tubing packer is, is  
21  in good enough state that we can get a packer set lower if  
22  we need to.

23                 But I guess we could say the same for the  
24  wells that don't have packers in them.

25         A. That's true.

1           EXAMINER McCLURE: Which may not be the case  
2 in this case. But anyway, I'm thinking that there is  
3 nothing else, any other questions that I have for this  
4 witness regarding this case, so I think I'm good here.  
5 Thank you for your time.

6           THE WITNESS: Thank you, Mr. Examiner.

7           EXAMINER BRANCARD: Thank you. Mr. Rose-Coss?

8           EXAMINER ROSE-COSS: I do not have any  
9 additional questions at this time, Mr. Brancard. I thank  
10 you for your testimony, Mr. Janacek.

11          THE WITNESS: Thank you.

12          EXAMINER BRANCARD: Mr. Lamkin, any questions?

13          EXAMINER LAMKIN: I do not have any questions  
14 either. Thank you.

15          EXAMINER BRANCARD: So I have one question.

16                                   CROSS EXAMINATION

17 BY EXAMINER BRANCARD:

18           **Q. In looking at your exhibits, have you filed the**  
19 **same exhibit packet for 22088 and 22089, because your**  
20 **exhibit packet for 22088 covers both the Avogato wells and**  
21 **the Taco Cat, which is the next case.**

22                                   **So is it a merged set of exhibits that we**  
23 **have here?**

24           A. Yes, it's a merged set of exhibits.

25           **Q. Okay. So we have essentially already admitted**

1 the exhibits, then, for 22089.

2 Is this because you're operating them as  
3 one unit? I notice they are not that far away.

4 A. No. It is stemming from -- I think it's best if  
5 I have our counsel answer that question.

6 MR. RANKIN: Yeah. Well, I mean I can just  
7 briefly answer it to say that because there's two  
8 different projects there, they are close together so  
9 obviously put them together as one, but they are really  
10 separate project areas so we decided it should be more  
11 appropriately presented as separate cases.

12 EXAMINER BRANCARD: But we have one set of  
13 exhibits for both cases.

14 MR. RANKIN: That is correct.

15 EXAMINER BRANCARD: All right. Any redirect for  
16 this witness?

17 MR. RANKIN: No redirect.

18 EXAMINER BRANCARD: Your next witness.

19 MR. RANKIN: Thank you very much, Mr. Examiner.

20 At this time I would like to call Mr. Peter  
21 Senior, who is Oxy's witness in this case.

22 Peter, are you on the phone?

23 MR. SENIOR: I'm here. Can you hear me?

24 MR. RANKIN: Thank you very much.

25 Mr. Senior, I don't know if you were

1 initially sworn in. Were you sworn in when the witnesses  
2 were originally sworn?

3 MR. SENIOR: I was not.

4 EXAMINER BRANCARD: Will you please raise your  
5 right hand.

6 PETER SENIOR,  
7 was duly sworn and testified in Case No. 22088 as follows:

8 EXAMINER BRANCARD: All right. Please move  
9 forward.

10 MR. RANKIN: Thank you.

11 DIRECT EXAMINATION

12 BY MR. RANKIN:

13 A. Mr. Senior, will you please state your full name  
14 for the record.

15 A. Peter Senior.

16 Q. Will you please spell it for the benefit of the  
17 court reporter.

18 A. Yes. P-e-t-e-r, S-e-n-i-o-r.

19 Q. And by whom are you employed and in what  
20 capacity?

21 A. I'm employed by OXY as a geologist.

22 Q. And you have not previously testified before the  
23 Division, correct?

24 A. Correct.

25 Q. I'm going to share my screen with you, and when

1    **you see your educational work experience, would you please**  
2    **just briefly review your education and work experience as**  
3    **a petroleum engineer.**

4           A.     Okay.  I see the screen.  Yes.

5                     I have a Bachelor of Science in geology  
6    from Kansas State and a Master of Science in geology from  
7    the University of Kansas.  And for my work experience I've  
8    been employed by OXY since 2012.  From 2012 to 2020 I was  
9    employed in the Texas side of the Permian Basin and since  
10   mid 2020 I've been working in New Mexico.

11           **Q.    And this is a summary of your work and education**  
12    **experience that has been marked as Exhibit C-1 to your**  
13    **affidavit; that correct?**

14           A.     Yes.

15                     MR. RANKIN:  At this time, Mr. Examiner, I would  
16    tender Mr. Senior as an expert in petroleum geology.

17                     EXAMINER BRANCARD:  Any objections.

18                             Hearing none, he will be accepted as an  
19    expert.

20                     MR. RANKIN:  Thank you.

21           **Q.    Mr. Senior, you have prepared an affidavit of**  
22    **your testimony in this case?**

23           A.     Yes.

24           **Q.    And that has been marked as Exhibit C?**

25           A.     Correct.

1           Q.    At this time do you accept and adopt the  
2 testimony in your affidavit as your own in support of  
3 OXY's application in this case?

4           A.    Yes.

5           Q.    Thank you.

6                        At this time, Mr. Examiner, I would go  
7 ahead and move the admission of Exhibit C and C-1 into the  
8 record.

9           EXAMINER BRANCARD:  Any objections?

10                       Hearing none, so admitted.

11           MR. RANKIN:  Thank you.

12           Q.    Just very briefly Mr. Senior, I'm going to move  
13 down to your geologic analysis and just ask you to hit the  
14 very high points, since you have spent a lot of time on --  
15 having spent some time already on the geology of the area.

16                       But in general did you prepare a full  
17 geologic analysis of the geology in the area of the  
18 proposed project?

19           A.    Yes, I did.

20           Q.    And did you find any hydrologic connections  
21 between the proposed injection interval and any sources of  
22 drinking water?

23           A.    I found no such evidence.

24           Q.    Did you prepare an affirmative statement to that  
25 effect that's included in the exhibits at page 86 of your

1 exhibit packet?

2 A. I did.

3 Q. Then looking at your testimony, you prepared an  
4 analysis identifying the proposed injection intervals for  
5 the Avogato case, Case 22088?

6 A. Yes.

7 Q. Did you identify any -- if there are adequate  
8 barriers to contain the injection within the target  
9 interval?

10 A. Yes, I identified adequate confining layers, as  
11 they are labeled on the side, that would provide geologic  
12 containment of the injection gas.

13 Q. In your testimony and in your exhibits, did you  
14 also identify the overlying and underlying productive  
15 zones in the area?

16 A. Yes. They are labeled as the Brushy Canyon, the  
17 Avalon Sand, and 1st Bone Spring Sand.

18 Q. And you prepared a map of cross-section  
19 identifying representative wells that are representative  
20 of the geology in the area?

21 A. Yes. It's this slide. The leases that are  
22 filled in in orange on the slide are OXY leases. It's an  
23 area that we refer to as Tanks, and because the Taco Cat  
24 and Avogato wells are in such close proximity I felt it  
25 was appropriate to use a single set of slides to represent

1 the geology for both projects.

2 **Q. Thank you. And the next slide, is this the**  
3 **cross section from A to a A-prime that's represented on**  
4 **the prior map?**

5 A. It is, yes. It goes from west to east, and it  
6 labels and shows the locations of the proposed injection  
7 wells in both the Taco Cat and the Avogato areas. And it  
8 shows a pretty consistent dip from west to east and  
9 consistent thickness of all the layers.

10 **Q. And your next exhibit, does this show the**  
11 **structure for the area on top of the Avalon within the**  
12 **Bone Spring Formation?**

13 A. Yes. This shows the top of the structure map  
14 and it shows the aforementioned dip to the east.

15 **Q. What is your takeaway from this exhibit here?**

16 A. There's no aberrations or strange changes in the  
17 dip that would be indicative of faulting.

18 **Q. And your next exhibit here is on page 84. What**  
19 **is this showing?**

20 A. This shows the thickness of the proposed  
21 injection layer-- I should say of the Avalon, and it shows  
22 that there's no large variations in the thickness in the  
23 proposed injection area. And again that indicates to me  
24 there are no faults.

25 **Q. And did you also prepare a more detailed**

1 analysis of the geology in the injection zone and the  
2 overlying/underlying areas?

3 A. Yes.

4 Q. That's page 85 of Exhibit A to the application?

5 A. Correct.

6 Q. Is it your conclusion that the proposed  
7 injection will stay within the Bone Spring Formation?

8 A. Yes. Based on the available geologic evidence  
9 we believe the injection will be contained within the  
10 Avalon Shale.

11 Q. Mr. Senior, did you hear Examiner McClure asking  
12 about the offset well, the Mule Deer -- uh, let me see, I  
13 have it written down here -- the Mule Deer 36 State #4  
14 well?

15 A. Yes.

16 Q. Do you -- were you able to address Mr. McClure's  
17 questions about where that well is actually completed  
18 relative to the -- both the Avogato and 11H well, the well  
19 of interest?

20 A. I believe so. If you will turn to the previous  
21 slide it shows that type log. Yes.

22 So in there you can see marked by a green  
23 circle on the left-hand side of the well log, at  
24 approximately 8800 feet of depth, is what we refer to as  
25 the Avalon Sand. This was a zone that was opened in many

1 of the vertical wells in the area back in the 1990s, and  
2 the zone that we are proposing to store the gas in is what  
3 we refer to as the Avalon Shale, which is several hundred  
4 feet below that Avalon Sand, and that's now the target for  
5 the modern horizontal wells in the area.

6 And as you can see on the log, there is an  
7 interval in between what we call the Avalon Shale and the  
8 Avalon Sand. It is approximately 250 feet thick in this  
9 area, and it's comprised of impermeable limestone of the  
10 Bone Spring Formation.

11 **Q. Is it your opinion that given that low-permeable**  
12 **area between those two zones, that will provide adequate**  
13 **buffer against risk of migration from the injection zone**  
14 **to that offsetting producing well?**

15 A. Yes, that's correct.

16 **Q. Mr. Senior, I think that we touched on**  
17 **everything. Is there anything that I left off with**  
18 **respect to your analysis as to either the -- as to the**  
19 **Avogato project area?**

20 A. I don't believe so. I think the only other  
21 thing that we could maybe mention is that similarly to  
22 what was referenced in the geology testimony this morning  
23 on that other project, that above the Delaware Mountain  
24 Group we have several thousand feet worth of impermeable  
25 salts, gypsums, and anhydrites that should provide an

1 effective geologic separation between the injection zone  
2 and any underground sources of drinking water.

3 MR. RANKIN: Thank you. And with that, at this  
4 time, Mr. Examiner, no further questions for Mr. Senior,  
5 and I pass the witness for questions by the examiners.

6 EXAMINER BRANCARD: Thank you.

7 Mr. McClure.

8 EXAMINER McCLURE: Uhm, Mr. Rankin got my  
9 question answered for me.

10 EXAMINER BRANCARD: Thank you. Mr. Rose-Coss?

11 EXAMINER ROSE-COSS: No questions for me. Thank  
12 you, Mr. Senior.

13 EXAMINER BRANCARD: Mr. Lamkin.

14 EXAMINER LAMKIN: No questions for me, either.  
15 Thank you.

16 EXAMINER BRANCARD: Okay. I guess we can move  
17 to your next witness, Mr. Rankin.

18 MR. RANKIN: Thank you very much. At this time  
19 I would like to call the third witness in this case, Ms.  
20 Xueying Xie

21 MS. XIE: Yes, I'm here.

22 MR. RANKIN: Thank you very much.

23 XUEYING XIE,

24 previously sworn, testified in Case No. 22088 as follows:

25 DIRECT EXAMINATION

1 BY MR. RANKIN:

2 Q. Thank you. Ms. Xie, you testified previously  
3 before the Division, so I'm just going to ask you: Did  
4 you prepare a Prefiled Written Testimony for this case in  
5 22088?

6 A. Yes, I did.

7 Q. Has that been marked as Exhibit D?

8 A. Yes.

9 Q. And did you also prepare a summary of your  
10 education and background that's marked as Exhibit D-1?

11 A. Yes.

12 Q. And do you adopt that testimony as your  
13 testimony in support of this case today?

14 A. Yes.

15 Q. And this shows that the same analysis,  
16 essentially, that you conducted for the Mesa Verde, that  
17 is being presented for this case?

18 A. Yes, the same.

19 Q. Are there any differences of note or that need  
20 to be raised?

21 A. Not really.

22 Q. So the analysis of Cedar Canyon and the model  
23 you built for Cedar Canyon is equally applicable for the  
24 area, geologic area within the Avogato project?

25 A. Yes.



1     **questions.**

2             THE WITNESS: Thank you.

3             EXAMINER BRANCARD: Mr. Rose-Coss?

4             EXAMINER ROSE-COSS: I have no further questions  
5 from me. Thank you.

6             THE WITNESS: Thank you.

7             EXAMINER BRANCARD: Mr. Lamkin.

8             EXAMINER LAMKIN: No questions from me either.  
9 Thank you very much.

10            EXAMINER BRANCARD: Okay. I think we are done  
11 with this witness.

12                    You also had Notice exhibits?

13            MR. RANKIN: Yeah. Those were previously  
14 admitted with Mr. Janacek's testimony as B-3.

15            EXAMINER BRANCARD: Okay. Anything further on  
16 this case?

17            MR. RANKIN: Nothing further on this case.

18            EXAMINER BRANCARD: All right. Do we want to  
19 move to Case 22089?

20            MR. RANKIN: Yes, please.

21            EXAMINER BRANCARD: The Taco Cat well.

22            MR. RANKIN: At this time, Mr. Examiner, I would  
23 like to recall OXY's witness Mr. Stephen Janacek.

24            EXAMINER BRANCARD: So are these identical  
25 exhibits to what we just admitted?

1 MR. RANKIN: The testimony is different. So  
2 Exhibits B, C and D will be different because they address  
3 different aspects or different changes within that overall  
4 Exhibit A that was that attached to the application.

5 EXAMINER BRANCARD: Okay. But all the  
6 attachments are the same; is that correct?

7 MR. RANKIN: Exhibit A to the application is the  
8 same, but the application -- but Exhibit A is a little bit  
9 different because it's a different application.

10 So I guess what I would do is go ahead, Mr.  
11 Examiner, and admit them separately for this case.

12 EXAMINER BRANCARD: Well, I just want  
13 clarification for the record and for the technical  
14 examiners.

15 MR. RANKIN: I understand. And part of the  
16 reason we -- this became, uhm, difficult to unwind the  
17 exhibits, so we kept them together.

18 EXAMINER BRANCARD: Okay. Please go forward.

19 MR. RANKIN: Thank you very much. Mr. Janacek,  
20 can you hear me okay?

21 THE WITNESS: Yes. Can you hear me, as well?

22 MR. RANKIN: Yeah.

23 THE WITNESS: Okay.

24 STEPHEN JANACEK,  
25 previously sworn, testified in Case No. 22089 as follows:

DIRECT EXAMINATION

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BY MR. RANKIN:

Q. You prepared Prefiled Testimony in this case that has been marked as Exhibit B, correct?

A. That's correct. Exhibit B.

Q. And also attachments B-1 and B-2, as well, correct?

A. Correct.

Q. And Exhibit B-3 is a copy of the notice packet that was prepared by our office in this case indicating that the application was -- Notice of the application was provided to the affected parties provided by OXY?

A. That's correct.

Q. And in addition to the Notice and the confirmation of Certified Mailing, there's also an Affidavit of Publication reflecting that we published notice in the newspaper Hobbs News Sun in Lea County where the well project is located, correct?

A. That's correct.

Q. Okay. And at this time do you adopt the testimony that is included in your affidavit as your testimony in support of the case today?

A. Yes, I do.

Q. Mr. Janacek, I would point out that we have the same issue we had in the prior case where reference was

1     made to a 2 million cubic feet per day as the estimate for  
2     the OXY injection rate, and it should be 3 million per  
3     day; is that correct?

4           A.     Yes, it should be corrected to 3 million per  
5     day.

6           Q.     And that correction needs to be applied to the  
7     same page 39 in Exhibit A to the application, correct?

8           A.     That's correct.

9           Q.     So I'll be submitting an amendment to that to  
10    the Division for the record. I appreciate that  
11    clarification.

12                           At this time, then, Mr. Examiner, I think I  
13    have admitted the exhibits, but I'm not sure any more.  
14    It's been a long day. If I haven't already done so, I  
15    move the admission of Exhibits A, B, B-1 to B-3 into the  
16    record.

17                           EXAMINER BRANCARD: Thank you. Any objections?

18   Those exhibits are admitted.

19                           MR. RANKIN: Thank you very much.

20           Q.     At this time, Mr. Janacek, I just want to point  
21    out, if you would -- ask you to point out if there are any  
22    substantial differences between the operational parameters  
23    of the facility and the proposed Taco Cat project area  
24    that is the subject of this case compared to the prior two  
25    cases that we have just discussed.

1           A.    There is some minor difference here that I'd  
2    like to note.  No major differences.

3                         Again here we have a 10,000-foot lateral  
4    horizontal well.  There's only one proposed CLGC well in  
5    this application.  The target geologic formation is the  
6    Avalon Shale, similar to the Avogato, and the injection in  
7    this CLGC well will be down the casing to the annulus.

8                         Those are the major differences.

9                         Sorry, the minor differences I'd like to  
10   note versus the other projects.

11                        One more thing that I would like to add, as  
12   well, is this area is not as developed as the Avogato area  
13   or the Mesa Verde area, so we have not attached a  
14   gunbarrel view for the data collection plan, because there  
15   are no direct offset wells to this proposed CLGC well  
16   within the Avalon Shale Formation.

17                        MR. RANKIN:  I was on mute.

18           **Q.    Your gunbarrel diagram that you're referring to**  
19   **was previously included in your Exhibit B-2 for the other**  
20   **two cases?**

21           A.    That's correct.

22           **Q.    Okay.  Other than those differences, is there**  
23   **anything else you can think of that's worthy of noting for**  
24   **the examiners before I ask for further questioning?**

25           A.    No, nothing else.

1 MR. RANKIN: Thank you very much. At this time,  
2 Mr. Examiner, I'd pass Mr. Janacek for questions by the  
3 examiners.

4 EXAMINER BRANCARD: Thank you.

5 Mr. McClure?

6 EXAMINER McCLURE: I do not think I have any  
7 additional questions at this time.

8 EXAMINER BRANCARD: Thank you. Mr. Rose-Coss?

9 EXAMINER ROSE-COSS: Yeah, I believe all of our  
10 questions were more or less covered in the first case or  
11 so and nothing came up in this one different, but I  
12 suppose it dawned on me: Does it need to be stated that  
13 all of the additional material that we asked for in the  
14 first case apply to all the other two cases? We could  
15 state that now.

16 EXAMINER BRANCARD: Well, I think we'll have a  
17 discussion when we're done here about what all the  
18 materials are, just so we're clear and the Applicant is  
19 clear about what we expect from them.

20 So I hope you've been taking notes.

21 MR. RANKIN: Copious.

22 EXAMINER ROSE-COSS: Copious, yeah.

23 Other than that, no.

24 EXAMINER BRANCARD: Mr. Lamkin, any questions?

25 EXAMINER LAMKIN: I don't have any questions

1 either. Thank you.

2 EXAMINER BRANCARD: Thank you.

3 All right. Mr. Rankin?

4 MR. RANKIN: Thank you very much. I ask that  
5 Mr. Janacek be excused, and then I will call OXY's second  
6 witness in this case, Mr. Peter Senior.

7 EXAMINER BRANCARD: Please proceed.

8 PETER SENIOR,

9 previously sworn, testified in Case No. 22089 as follows:

10 DIRECT EXAMINATION

11 BY MR. RANKIN:

12 Q. Mr. Senior, have you also prepared testimony in  
13 support of this last case of OXY's today, 22089?

14 A. Yes, I have.

15 Q. Has it been marked as Exhibit C and C-1 in this  
16 case?

17 A. It has.

18 Q. Mr. Senior, I'm not going to ask you to  
19 summarize, because it's the same testimony that you  
20 previously gave; is that correct?

21 A. Yes, it's the same.

22 Q. Mr. Senior, as you sit here today, do you adopt  
23 as your testimony the testimony that's been marked as  
24 Exhibit C in this case?

25 A. Yes.

1 MR. RANKIN: Mr. Examiner, at this time I would  
2 move the admission of Exhibits C and C-1 into the record.

3 EXAMINER BRANCARD: Thank you. Any objections?

4 Hearing none, so admitted.

5 MR. RANKIN: At this time, Mr. Senior, I would  
6 pass Mr. Janacek's for questioning by the examiners.

7 EXAMINER BRANCARD: Mr. McClure?

8 EXAMINER McCLURE: No additional questions at  
9 this time. Thank you.

10 EXAMINER BRANCARD: Mr. Rose-Coss?

11 EXAMINER ROSE-COSS: Neither are there any from  
12 me. Thank you.

13 EXAMINER BRANCARD: And Mr. Lamkin?

14 EXAMINER LAMKIN: I don't have any questions  
15 either. Thanks.

16 THE WITNESS: Thank you, gentlemen.

17 EXAMINER BRANCARD: I just have one question.

18 CROSS EXAMINATION

19 BY EXAMINER BRANCARD:

20 Q. I'm looking at the C-102s for these wells. Are  
21 these much more recent wells than the ones that were in  
22 the first case? They look to be -- are they like 2019  
23 wells?

24 A. Yes, I believe they were 2019.

25 Q. So you're already getting significant decline

1 from these 2019 wells?

2 A. Yeah, I think I would defer to Xueying, if she  
3 wants to --

4 Q. Okay. I can ask her that.

5 A. -- answer that. Thank you.

6 EXAMINER BRANCARD: Mr. Rankin.

7 MR. RANKIN: Thank you very much, Mr. Examiner.  
8 At this time I would ask that Mr. Senior be excused and  
9 that we be permitted to call our third and final witness  
10 of the day.

11 EXAMINER BRANCARD: Please Proceed.

12 MR. RANKIN: Ms. Xie, are you available?

13 WITNESS XIE: Yes.

14 DIRECT EXAMINATION

15 BY MR. RANKIN:

16 Q. Ms. Xie, have you prepared Prefiled Written  
17 Testimony in this final case, 22089?

18 A. Yes.

19 Q. It has been marked as Exhibit D and Exhibit D-1?

20 A. Yes.

21 Q. Do you adopt that testimony and your affidavit  
22 as your own today?

23 A. Yes, sir.

24 Q. Ms. Xie, is it the same analysis that you  
25 prepared for the prior cases that we reviewed already

1     **today?**

2           A.    Yes, correct.

3           **Q.    Any significant differences or any differences**  
4 **at all to note for the benefit of the hearing examiners?**

5           A.    Nothing different.

6           MR. RANKIN:  Thank you.

7                    Mr. Examiner, I would move admission of  
8 Exhibits D and D-1 into the record.

9           EXAMINER BRANCARD:  Any objections?  Hearing  
10 none, so admitted.

11           MR. RANKIN:  Thank you very much.  Pass Ms. Xie  
12 for further questions by the examiners.

13           EXAMINER BRANCARD:  Mr. McClure, any questions.

14           EXAMINER McCLURE:  No questions at this time.  
15 Thank you.

16           EXAMINER BRANCARD:  Mr. Rose-Coss?

17           EXAMINER ROSE-COSS:  No questions for me.  
18 Thanks.

19           EXAMINER BRANCARD:  Mr. Lamkin?

20           EXAMINER LAMKIN:  No questions from me.

21           MR. RANKIN:  With that, Mr. Examiner, do you  
22 have subsequent questions?  I'm sorry.

23                                CROSS EXAMINATION

24           BY EXAMINER BRANCARD:

25           **Q.    I just asked that question off the top of my**

1 head about the fact that these wells in this last  
2 application appear to be only two years old and yet you're  
3 willing to use them for storage. Is the decline on these  
4 horizontal horizontal wells that drastic?

5 A. Yes. In general the first year the decline is  
6 70 to 80 percent. It's already two years, actually less  
7 than two years. The rate now has already dropped from  
8 like 15- to 2000 barrels per day to current 150 to, I  
9 think -- 150 to 200 -- to 300 barrels per day-ish. And  
10 some were less than 100.

11 EXAMINER BRANCARD: Thank you. That's the only  
12 question I had.

13 Mr. Rankin, any further evidence? Have we  
14 gotten all the exhibits admitted?

15 MR. RANKIN: I believe we had gotten all  
16 exhibits admitted into the record, and with that we have  
17 no further questions.

18 We understand that the Division has  
19 requested supplementation, and so I guess it would be  
20 helpful just to make sure with respect to each case we  
21 have a list of what is expected of us.

22 I appreciate your wanting to look back and  
23 make sure we have a clear direction for how to proceed.

24 EXAMINER BRANCARD: Okay. I have a few notes,  
25 but I'm not sure I have a complete list of information

1 that was requested.

2 I don't know. Mr. McClure, Mr. Rose-Coss,  
3 do you have a better sense of what you asked for?

4 EXAMINER McCLURE: I tried to keep a summary of  
5 what we asked for. I don't know if we want a list or if  
6 Mr. Rankin has a good list. I don't know how to proceed.

7 MR. RANKIN: I can give a shot at it, and then  
8 Dean and Dylan, if you have something different, I've left  
9 off something, let me know. But I will give it a shot and  
10 I'll try to do it by case, and you can tell me where they  
11 overlap for the others.

12 For Case 22087, which is the Mesa Verde  
13 case, Examiner McClure asked us to double check to see if  
14 the new battery that was subject to (inaudible) is going  
15 to be included in the system for the Mesa Verde project;  
16 and if so, he asked us to include the gas composition  
17 analysis or provide updated gas composition analysis for  
18 that gas.

19 EXAMINER McCLURE: That was that was 22088.

20 MR. RANKIN: Oh, 88.

21 EXAMINER McCLURE: Yeah, that was 88.

22 MR. RANKIN: My notes may have gotten out of  
23 order.

24 For all cases the Division has asked us to  
25 reconsider OXY's proposed allocation method and to admit

1 an amended proposal for how to deal with allocation  
2 between injected gas volumes and native gas. That applies  
3 to all cases.

4 EXAMINER McCLURE: Yes, sir.

5 MR. RANKIN: Let's see. I believe I have a note  
6 here, I believe it's in Case 2087, to provide additional  
7 information on corrosion prevention. Is that iron and  
8 manganese monitoring?

9 EXAMINER McCLURE: The reason for that is --  
10 yes, that is correct, but it's only if OXY does not wish  
11 to change their injection profile from going down the  
12 tubing and producing up the casing to injecting into that  
13 casing and producing up the tubing.

14 So that's kind of an additional thought  
15 process there. Essentially either we need to accept that  
16 OXY is going to inject into the casing rather than the  
17 tubing, or else in case they shouldn't do that, we would  
18 want to see those concentrations.

19 MR. RANKIN: Okay. Okay. I just want to  
20 confirm that Mr. Janacek understands that request.

21 MR. JANACEK: So, as I hear it, if we want to  
22 move forward with approval for a CLGC well with injection  
23 down the tubing it would be a conditional requirement to  
24 submit the iron, manganese and residuals results for those  
25 individual wells

1 EXAMINER McCLURE: Yep.

2 Mr. JANACEK: Or as an option convert those to  
3 annular injection.

4 EXAMINER McCLURE: Yes. And that would be  
5 absolutely correct. I also don't want to betray (sic) a  
6 misunderstanding that just by giving those concentrations  
7 you would have automatic approval to continue as-is, I  
8 guess, in your injection and include in the Closed Loop  
9 Gas Capture plan, but we would need to see that in order  
10 for us to consider your request might be the better way to  
11 say it.

12 MR. JANACEK: Understood. Thank you for the  
13 clarification.

14 MR. RANKIN: Examiner McClure, that applies to  
15 all three cases, correct?

16 EXAMINER McCLURE: This is the only case that  
17 had injection down the tubing, but it would have if -- I'm  
18 sorry, go ahead.

19 MR. RANKIN: Yeah, the Mesa Verde case, then.

20 EXAMINER McCLURE: Correct. Mesa Verde, the 87.

21 MR. RANKIN: Then for all cases the Division has  
22 asked us to resubmit the Area of Review maps showing and  
23 including the horizontal wellbore lateral lengths in the  
24 Area of Review.

25 EXAMINER McCLURE: Correct. All cases.

1 MR. RANKIN: And then of course you asked us to  
2 submit the cement bond log for the 5H well, Mesa Verde 5H  
3 well, and identify for us that the 4H well may not be in  
4 the Division's records, so we would file that through the  
5 e-doc system.

6 EXAMINER McCLURE: Correct. That the 5H just  
7 needs to be done prior to injection, so the Order could be  
8 issued and then 5H CBL could be run at a later point. But  
9 as far as 4H, yes. And that's in regards to -- bot of the  
10 them are in regards to the Mesa Verde.

11 MR. RANKIN: Okay. And I think this may be  
12 applicable to all cases, but Examiner McClure asked us to  
13 confirm how many separators there are, how many wells can  
14 continuously -- I mangled that note: Maybe if you know  
15 you can articulate more precisely what you want, because I  
16 think it's actually how many separators there are that can  
17 continuously measure after an event for a period of days.

18 EXAMINER McCLURE: Yes, I think you articulated  
19 it better than I did. That was essentially what I was  
20 trying to get at.

21 And it goes -- I guess the thing I didn't  
22 include before is you should likely take that into  
23 consideration in your allocation proposal with the  
24 consideration that you may not have the ability to  
25 constantly meter your production directly after an event

1 for all included wells, so we will likely want to see that  
2 condition that if you're not able to meet it, how are you  
3 going to handle allocation in that situation.

4 They are kind of a linked subject, I guess,  
5 if that makes sense.

6 Probably muddied it on you, didn't I.

7 MR. RANKIN: I think, Mr. Janacek, did you  
8 understand that request?

9 MR. JANACEK: If you could go through that  
10 again, Dean, that would be beneficial.

11 EXAMINER McCLURE: Okay. Essentially what I'm  
12 hoping to grasp out of it is how Mr. Rankin had initially  
13 articulated it, in that I wanted to know how many wells  
14 could be constantly metered directly after an event, and  
15 in addition to that take those, that document that you're  
16 submitting, and consider that in your proposal to how  
17 you're going to allocate. Because you're going to need  
18 those calculations to be able to allocate, depending upon  
19 your proposal for allocation

20 Does that make more sense to you?

21 MR. JANACEK: Yeah, it does. Thank you.

22 EXAMINER McCLURE: Okay. Then maybe your  
23 proposal to allocate, maybe it's not going to matter, but  
24 imagining that what we'll end up needing is going to be  
25 those numbers somehow. So...

1 MR. JANACEK: And the numbers you're referring  
2 to are the number of separators?

3 EXAMINER McCLURE: The production. Your  
4 production values on your injection wells when you start  
5 producing them, because I'm not surely how else you're  
6 going to determine your recovery without knowing what  
7 you're actually taking out of that well.

8 MR. JANACEK: Yes.

9 EXAMINER McCLURE: You see where I'm coming from  
10 there? Other than the fixed percentage that you had  
11 already proposed.

12 MR. JANACEK: Okay.

13 EXAMINER McCLURE: So they are kind of a linked  
14 topic, I guess.

15 MR. RANKIN: As I understand it, that would be  
16 applicable to all cases, correct?

17 EXAMINER McCLURE: Correct.

18 MR. RANKIN: And then the other one, I think  
19 there are two applicable to our Avogato Case 2088, are to  
20 confirm that the new value that is included in the updated  
21 Commingling Order, TLC 596-B, whether or not the gas can  
22 be included or intends to be included in the reinjection  
23 system here and not for the Avogato project.

24 EXAMINER McCLURE: Correct. And just submit a  
25 gas analysis to us if that gas would potentially be a

1 source that would be injected.

2 MR. RANKIN: Okay. And if that gas composition  
3 requires different or updated corrosion plan, submit that,  
4 as well.

5 EXAMINER McCLURE: Yeah, that would be -- I  
6 didn't include that, but yes, that would be absolutely  
7 correct. If it would require admission to a change in the  
8 corrosion plan, then absolutely.

9 MR. RANKIN: The last thing I think on my list  
10 was -- also with respect Case 2088 was to confirm the  
11 location for the progress setting within the Avogato well  
12 range.

13 EXAMINER McCLURE: Correct.

14 MR. RANKIN: Confirm what depths would be  
15 achievable in that well.

16 EXAMINER McCLURE: And see where it's currently  
17 set at.

18 Yeah, I guess it might in the well diagram,  
19 I'm not sure, but I think you guys were going to get back  
20 to us on that.

21 The only other thing I had on my list was  
22 actually something that Dylan had requested, and that was  
23 the priority of injected wells pertaining to 22087, as to  
24 which ones would be utilized first.

25 EXAMINER ROSE-COSS: That request was one I had

1 hoped could extend to all three cases.

2 EXAMINER McCLURE: Oh, okay.

3 EXAMINER ROSE-COSS: Thank you.

4 EXAMINER McCLURE: You're welcome.

5 WITNESS XIE: Can I address that request?

6 EXAMINER BRANCARD: Please do. Go ahead.

7 WITNESS XIE: Oh, okay.

8 So among the candidates for injectors, we  
9 were varied (phonetic) to the bottomhole pressure of the  
10 wells and the production and rate of the well to see how  
11 much loss on the well. So we will balance this to choose  
12 in general the low bottomhole pressure and the low  
13 production rates where has the high priority to be  
14 converted to injector.

15 EXAMINER ROSE-COSS: Okay. Well, that makes  
16 sense.

17 And I suppose just a statement in the  
18 testimony stating that would be helpful.

19 Is that something that will vary on a  
20 day-to-day? So, like, there will always be a priority  
21 No. 1 for injection, it will be evaluated kind of as  
22 necessary?

23 WITNESS XIE: Yes, you are correct.

24 So you gave us the two years of injection,  
25 and also in the next two years if something happen at the

1 time, we will see which well will be the high priority for  
2 converting to injector. And as time goes on the  
3 production is different, the BHP (phonetic) behavior  
4 different, it could change.

5 EXAMINER ROSE-COSS: Okay. So maybe there won't  
6 be, you know at this moment this would be a No. 1  
7 injector, but just something in writing saying how that  
8 would happen, how they would be prioritized.

9 WITNESS XIE: Okay.

10 EXAMINER McCLURE: Then the only other thing, I  
11 had mentioned it prior because I think I have a pretty  
12 good idea of how this, OXY'S infrastructure is set up in  
13 these fields and locations, but I'll ask Dylan whether he  
14 wants to see it or not, and that is a map of the  
15 infrastructure like we had submitted during the prior  
16 Closed Loop Gas Capture.

17 I'm not sure how interested you are in  
18 seeing that, Dylan, or if considering this infrastructure  
19 is much simpler than that one, what your thoughts are  
20 there.

21 EXAMINER ROSE-COSS: I suppose it didn't strike  
22 me as much this time because of the kind of simplicity,  
23 relative simplicity of the cases and that some of the maps  
24 had been broken out in the level of detail that we were  
25 concerned with.

1                   So that wouldn't be a request in this case,  
2 in these cases.

3                   EXAMINER McCLURE:   Sounds good.

4                   Then I also have all the files that show  
5 the commingled, all the infrastructure in these cases, as  
6 well.

7                   MR. ROSE-COSS:   Okay.   Perfect.

8                   MR. RANKIN:   So I guess with that I think that  
9 covers everything that was on my list that I took down, so  
10 unless I missed anything, Mr. Examiner I think we have a  
11 list of item for us to evaluate and to submit as a  
12 follow-up to the Division for each case.

13                   EXAMINER BRANCARD:   Thank you.   I mean, my notes  
14 I just have a few other matters here.

15                   I don't know what you wanted on this, Mr.  
16 McClure, but there was something in there on Case 22087  
17 about what you thought the divide -- OXY thought the  
18 dividing line was being between the tubing and casing  
19 methods.

20                   EXAMINER McCLURE:   Oh, that there is referring  
21 to the tubing versus the casing injection.   And, you know,  
22 you are right, I guess I did kind of request that as a  
23 part of a sub topic of whether they would be willing to  
24 switch it over.   The problem is it may be difficult for  
25 them to provide us very much detail because it's going to

1 be an oil-cut (phonetic) consideration and such.

2 So I'll withdraw that request at this time.

3 EXAMINER BRANCARD: Okay. Case 22088, there was  
4 a question about the packer and whether it was at the  
5 correct depth for Well 11H.

6 Mr. McClure.

7 EXAMINER McCLURE: Again, Mr. Rankin said that  
8 they are going to submit that for the 11H. He had  
9 included that in his list, he already has it.

10 EXAMINER BRANCARD: Excellent.

11 EXAMINER McCLURE: You can confirm, though,  
12 right, Adam?

13 MR. RANKIN: My understanding is we'd take a  
14 look at that and identify the depths and whether or not it  
15 can be located -- I think the question is whether you  
16 could locate beneath the offsetting Mule Deer well.

17 EXAMINER McCLURE: Actually that is essentially  
18 the juxt of it, yeah. That's the end goal, for sure.

19 EXAMINER BRANCARD: The only other thing, then,  
20 I think we already covered it, is for both 88 and 89 you  
21 need to submit a corrected page 39 on your exhibits.

22 WITNESS JANOCEK. Yes.

23 EXAMINER BRANCARD: Mr. Rankin, any idea about  
24 when you might be able to get back to us with this  
25 information?

1           MR. RANKIN: I don't, because I have not yet had  
2 a chance to confer with the folks at OXY about it. But  
3 I'll say this, I think it may make sense for us to provide  
4 the information as it becomes ready rather than wait for  
5 it to be all ready at once. So I think what we would do  
6 is provide it as we can, and do so by email so it can be  
7 included as part of the record.

8           EXAMINER BRANCARD: Okay. Would that work,  
9 Mr. McClure, or do you want it all in one big, nice  
10 package?

11           EXAMINER McCLURE: It would be more convenient if  
12 it's in one nice big package, but in interests of time it  
13 could potentially go faster if it's piecemealed out. I  
14 could go either way. I would say it would be more  
15 convenient and easier not to lose it. I guess I wouldn't  
16 lose anything anyway because its email. I'll leave it  
17 east to your discretion, Bill, what to do. I can work  
18 either way.

19           EXAMINER BRANCARD: I'm not worried about losing  
20 things. I'm more concerned that we keep track of where we  
21 are in terms of all the requests, and, more importantly,  
22 when we're done.

23           EXAMINER McCLURE: Are you planning on giving  
24 them a final deadline, or what is your thoughts?

25           EXAMINER BRANCARD: I'd like to have some sort

1 of time frame that we can agree on. That's all. I'm not  
2 trying to, you know, be unreasonable to OXY. It's more  
3 when they can provide the information and then we have --  
4 and then the examiners have a sense of when it may come.

5 MR. RANKIN: Mr. Examiner, I'm being advised  
6 that we think we can do the information requested within  
7 about two weeks, so I think two weeks from today is a  
8 reasonable time frame. Then if there is some unforeseen  
9 delay, I would ask for the ability to request a short  
10 extension. But as we here, I think two weeks from today  
11 would put us at the 19th. So maybe that's the next  
12 hearing date, so maybe if we could push it back to the  
13 20th of August just to give us a little buffer, that would  
14 be much appreciated.

15 EXAMINER BRANCARD: That's fine. That's great.  
16 Just so we have some sort of time frame, so we will know  
17 we've gone past it, and you will know. I mean, asking for  
18 an extension is not a problem either.

19 All right. Any further questions on these  
20 cases? Mr. McClure?

21 EXAMINER McCLURE: No other questions. I guess  
22 I wasn't sure if you planned on taking it under advisement  
23 with leaving the record open, or what you wanted to do  
24 there, but I have no questions.

25 EXAMINER BRANCARD: Well, I think we're going to

1 leave the record open, and then we'll get the information  
2 we have, we can take it under advisement and prepare an  
3 Order. I mean, unless there's something that comes up  
4 that the examiners think that they want to go back to a  
5 hearing to ask more questions, at this point I think it  
6 looks like, from what I'm hearing from the examiners, that  
7 you're hoping that there's enough information to go  
8 forward with drafting an Order.

9 Is that correct?

10 EXAMINER McCLURE: It's all going to be  
11 dependent -- like I said before, dependent on the  
12 allocation plan. But, yeah, hopefully it's easy to meet  
13 our concerns and OXY's operational -- operations in the  
14 area, and the two meet, I'm hoping.

15 EXAMINER BRANCARD: All right. And this is --  
16 you know, this is a case here not involving a lot of other  
17 parties so, you know, if there might be help with some  
18 conversations on the side, that could be helpful, too, to  
19 move this forward, if there are questions that need to be  
20 asked and answered.

21 EXAMINER McCLURE: Taking that into  
22 consideration, then I would think we could probably just  
23 plan on once we're done then just taking it under  
24 advisement at that point without the concern to go back to  
25 hearing, unless something drastically changes.

1           EXAMINER BRANCARD: Right. And at that point if  
2 you want to have further conversation and questions of the  
3 OXY witnesses about some totally new proposal that was not  
4 part of original proposal, we can do.

5           EXAMINER McCLURE: Sounds good.

6           EXAMINER BRANCARD: All right, Mr. Rankin?

7           MR. RANKIN: Mr. Examiner, I appreciate  
8 everyone's committed attention during these complex  
9 proceedings and presentation, I know it's a lot of  
10 material, a lot of material to take in, so we do  
11 appreciate the Division's attention and the fact that they  
12 reviewed these materials so carefully. We appreciate the  
13 opportunity to be heard and look forward to presenting  
14 additional information shortly.

15           EXAMINER BRANCARD: All right. You know this is  
16 a case the we will move forward with the case file, so  
17 whatever information you have, please submit it, you know,  
18 formally through the portal so we can have it as part of  
19 the evidence in this case.

20           MR. RANKIN: Will do so, and make sure Mr.  
21 Janacek's is included as to the one case.

22           EXAMINER BRANCARD: Correct. Thank you.

23           EXAMINER McCLURE: You were going to email in  
24 addition to that, or just let us know when you do submit  
25 it so we know it's been submitted?

1 MR. RANKIN: I'm happy to do whatever the  
2 Division prefers.

3 EXAMINER McCLURE: Even if you let us know when  
4 you submit it, if it's going to go within the case file,  
5 then you don't have to do multiple attachments.

6 EXAMINER BRANCARD: That's a good idea, so  
7 submit it into the portal and then send an email to the  
8 examiners letting them know that it's been submitted.

9 MR. RANKIN: Will do so.

10 EXAMINER BRANCARD: Excellent.

11 All right. With that, are there any other  
12 matters before us?

13 Hearing none, I appreciate it.

14 EXAMINER McCLURE: Wasn't there a case at the  
15 end of the docket, that was after this, that was weird?

16 EXAMINER BRANCARD: Yeah. And, you know, if you  
17 had been here at the beginning, Mr. McClure, you would  
18 have known that the case was continued.

19 EXAMINER McCLURE: Oh, okay. Okay. I see how  
20 it is. Okay.

21 EXAMINER BRANCARD: All right. Thank you. I  
22 think we are done for today. Appreciate it. This hearing  
23 is over.

24 (Time noted 4:09 p.m.)

25

1 STATE OF NEW MEXICO )  
2 : SS  
3 COUNTY OF TAOS )

4  
5 REPORTER'S CERTIFICATE

6 I, MARY THERESE MACFARLANE, New Mexico Reporter  
7 CCR No. 122, DO HEREBY CERTIFY that on Thursday, August 5,  
8 2021, the proceedings in the above-captioned matter were  
9 taken before me; that I did report in stenographic  
10 shorthand the proceedings set forth herein, and the  
11 foregoing pages are a true and correct transcription to  
12 the best of my ability and control.

13 I FURTHER CERTIFY that I am neither employed by  
14 nor related to nor contracted with (unless excepted by the  
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18 /s/ Mary Macfarlane  
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