

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

APPLICATION OF CAMBRIAN MANAGEMENT, LTD
FOR APPROVAL OF A WATERFLOOD PROJECT,
CHAVEZ COUNT, NEW MEXICO

CASE NO. 14068

JANUARY 24, 2008

1220 South St. Francis
Santa Fe, New Mexico

EXAMINER: DAVID BROOKS

TECHNICAL ADVISOR: Mr. Ezeanyim

ATTORNEY FOR APPLICANT:

James Bruce, Esq.
P.O. Box 1056
Santa Fe, New Mexico 8754

WITNESS: ROBERT LEE

EXHIBITS: 1 - 14

REPORTED BY: Jan Gibson, CCR-RPR-CRR
Paul Baca Court Reporters
500 Fourth Street, NW - Suite 105
Albuquerque, New Mexico 87102

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1 EXAMINER BROOKS: I'm going to start this
2 morning, and I'm going to take a case out of order,
3 so I'm going to start this morning with Case No. 5
4 on Page 3. The reason for that being that this case
5 appears to be of a technical nature and I want to
6 hear it -- I want both examiners to hear it. So at
7 this time I will call Case No. 14068, Application of
8 Cambrian Management, Ltd. for Approval of a Water
9 Flood Project, Chavez County.

10 MR. BRUCE: Jim Bruce of Santa Fe
11 representing the applicant. I have one witness.

12 EXAMINER BROOKS: Very good.

13 THE WITNESS: Robert Lee from Midland,
14 Texas.

15 ROBERT LEE

16 (being duly sworn, testified as follows:)

17 DIRECT EXAMINATION

18 BY MR. BRUCE

19 Q. Would you please state your name for the
20 record?

21 A. Robert Lee.

22 Q. What is your profession?

23 A. I am a consultant engineer.

24 Q. What is your relationship to Cambrian
25 Management, Ltd. in this matter?

1 A. I am a consultant for Cambrian Management.

2 Q. Have you previously testified before the
3 division?

4 A. Yes, I have.

5 Q. And were your credentials as an expert
6 petroleum engineer accepted as a matter of record?

7 A. Yes, they were.

8 Q. Were you hired by Cambrian Management with
9 respect to the water flood application today?

10 A. That is correct.

11 Q. Have you studied the matters necessary to
12 prepare presentation materials for the division?

13 A. Yes, I have.

14 Q. And you are familiar with the application?

15 A. Yes, sir.

16 Q. And the engineering matters related
17 thereto?

18 A. Yes, sir.

19 MR. BRUCE: Mr. Examiner, I tender Mr. Lee
20 as an expert petroleum engineer.

21 EXAMINER BROOKS: Mr. Lee, are you a
22 registered professional engineer?

23 THE WITNESS: In the State of Texas, yes,
24 sir.

25 EXAMINER BROOKS: He is so qualified.

1 Q. (By Mr. Bruce) Mr. Lee, let's start with
2 your Exhibit 1. Can you identify that for the
3 examiner and discuss the land at issue?

4 A. Yes. This is a map showing the project
5 with the proposed injector that Cambrian is planning
6 to convert. It's located in Section 18 Township 8
7 Range 33, and there's a yellow outline around
8 Section 18 designating the area of the project.

9 Q. Now, 18 is all a single federal lease; is
10 that correct?

11 A. That is correct.

12 Q. And that lease also covers the south half
13 of Section 7, does it not?

14 A. Yes, it does.

15 Q. With respect to the water flood project
16 area, would that -- the project area under division
17 rules would cover 200 acres; is that correct?

18 A. That's correct.

19 Q. What acreage would that be?

20 A. It would be the 40 acres surrounding each
21 of the producing San Andres wells and on this map,
22 if you look at Unit Letter B, that would be Well No.
23 4, Unit Letter C, Well No. 3, Unit Letter F, Well
24 No. 1, the proposed injector. Well No. -- Unit No.
25 G, Well No. 6, and to the south, and K would be Well

1 No. 2.

2 Q. Let's move on to your Exhibit 2. Could
3 you discuss basically the geology of the injection
4 zone?

5 A. Yes, this is a structure map on the top of
6 the porosity interval showing a regional dip to the
7 southeast and also showing that the Davis N No. 1,
8 the proposed injection well, to be one of the lowest
9 wells on that feature.

10 Q. In looking at the structure map, are there
11 any faults or faulting in this area?

12 A. No, there's not.

13 Q. Would you identify Exhibit 3 for the
14 examiner.

15 A. Yes. Exhibit 3 is, once again, a picture
16 of the base map with a red line on it that shows the
17 line of cross-section that we have prepared through
18 the wells in this project.

19 Q. Now, before we get to the cross-section,
20 the proposed injector is the Davis No. 1. That is
21 the only initial injection well; is that correct?

22 A. At this time, that is correct.

23 Q. And there would be four offsetting
24 producing wells?

25 A. That is correct.

1 Q. What is that, 2, 3, 4 and 6?

2 A. That's correct.

3 Q. Now, does Cambrian request that if in the
4 future it would like to expand this project that it
5 be allowed to do so administratively?

6 A. Yes.

7 Q. Let's move on to your cross-section.
8 Could you discuss that for the examiner?

9 A. This is a cross-section that's, as I said,
10 shown by the red line on that base map. This map
11 shows the porosity logs across the project. The
12 perforations are designated by these red bars. What
13 I glean from the exhibit is you can see that it's
14 fairly tight porosity ranges from 4 to 11 percent,
15 average porosity about 6 percent.

16 MR. EZEANYIM: Could you repeat that
17 please?

18 A. Yes, sir. This shows where the wells are
19 completed. The red bars are the perforations.
20 These are porosity logs available in this area. The
21 reservoir is fairly tight. It ranges from about 4
22 to 11 percent, average estimated porosity about 6
23 percent.

24 Q. Is the pay zone, the injection zone,
25 continuous across the project area?

1 A. Yes, it is.

2 Q. Do you have anything further on this?

3 A. No, sir.

4 Q. Let's move on to Exhibit 5. Could you
5 discuss the reservoir properties of the San Andres
6 in this area.

7 A. Yes, sir. This is an exhibit listing
8 basic reservoir data. The wells on this lease were
9 discovered in 1975. They produce with depth of
10 about 4400 feet. Bottom hole temperature about 110
11 degrees. The initial pressure was 1340. The
12 current pressure is about 600 pounds. That's based
13 on some fluid levels that were shot. Original oil
14 in place for these five wells that we are looking at
15 in this project is 2,588,000 barrels. 28 degree
16 gravity oil, cumulative production is 257,000
17 barrels, about ten percent of the original oil in
18 place.

19 Q. And what is the drive mechanism in this
20 pool?

21 A. It would be solution gas drive.

22 Q. What is Exhibit 6, Mr. Lee?

23 A. Exhibit 6 shows the reserves of the
24 project. Once again, cumulative production for the
25 wells, 257,000 barrels, 354,000 MMCF, about 10

1 percent of the original in place. There's 3,000
2 barrels of primary reserves left in this project as
3 it is. We expect the incremental water from the
4 reserves to be about 57,000 barrels for the
5 conversion of this one well, which would be about
6 2.2 percent of the original oil in place, which
7 would make the ultimate recovery 317,000 barrels,
8 about 12 percent of the original oil in place, and
9 that gives us a secondary primary ratio for the
10 conversion of No. 1 of .33.

11 Q. Would you move on to Exhibit 7 and discuss
12 production from the wells in the area, in the
13 project area?

14 A. Yes. This is a base map showing the Davis
15 N No. 1 as the proposed injectors. In the red
16 letters we have the cumulative oil and water
17 production for these surrounding wells, and you can
18 see that the bulk of the production out of this area
19 has come out of these five wells that's involved in
20 this project.

21 Q. And are these wells currently in what used
22 to be called a stripper state?

23 A. Absolutely. Production is one to two
24 barrels a day or less.

25 Q. Now, you put on the volumes of water

1 produced. Currently are the water volumes from the
2 San Andres well quite low?

3 A. Yes, they are.

4 Q. What typical ranges are they?

5 A. The lease produced 50 to 60 barrels of
6 water a day, and the bulk of that water comes from
7 Well No. 7, which is down at the Unit Letter I.
8 It's a Pennsylvanian well, so the other wells are
9 probably in the 10 to 20 barrels a day range for the
10 lease.

11 Q. Would you move on to your Exhibit 8 and
12 discuss your calculations?

13 A. Yes. What I did here was to come up with
14 an estimate of how much fluid has been removed from
15 the reservoir that we're proposing to inject into.
16 I list the wells, the cumulative oil, cumulative
17 water, and then allocate that production to the area
18 that would be affected by the Well No. 1 both
19 injection well. Then allocate out the reservoir
20 volumes. What we see here is that out of this area
21 that would be affected by No. 1 there's been about
22 800,000 reservoir barrels of fluid removed and just,
23 you know, rule of thumb, we would expect to see some
24 sort of response at about 50 percent of fill, which
25 is about 400,000 barrels of water.

1 Q. And in your opinion this portion of the
2 pool is suitable for water flooding, is it not?

3 A. That is correct.

4 Q. What does your Exhibit 9 reflect?

5 A. This is a production curve on the Davis N
6 No. 1 well showing oil in red, gas -- I'm sorry, gas
7 in red, oil in green. In the lower right-hand
8 corner we see that the cumulative gas for the well
9 is about 84,000 barrels. The well produced 208,000
10 barrels of water. In the lower left hand of this
11 curve we see the well made about 77,000 barrels of
12 oil.

13 Q. And although it's not in this exhibit, why
14 did you choose this well for the injection well as
15 opposed to one of the other four wells in the area?

16 A. It's more centrally located. It will give
17 us a better sweep than the offsetting producers.

18 Q. What does Exhibit 10 reflect?

19 A. Exhibit 10 reflects the production on the
20 entire Davis N lease. Once again, oil is in green,
21 gas is in red. Lower right-hand corner gas
22 production from the lease about 350,000 MMCF. Has
23 produced 1.2 million barrels of water. In the lower
24 left-hand corner the cumulative oil is 257,000
25 barrels. The other thing that we can see on this is

1 I made a projection of the remaining reserves, which
2 is 3,000 barrels. We can see unless something is
3 done with the property, it will go uneconomic in
4 2011.

5 Q. And so this water flood project was
6 proposed as a way to extend the life of the pool?

7 A. That is correct.

8 Q. What is Exhibit 12?

9 A. Exhibit 11?

10 Q. Exhibit 11. Yes, excuse me.

11 A. Exhibit 11 is the proposed water flood
12 response showing what we would expect to -- how we
13 would expect to recover the 57,000 barrels out into
14 the future, and the main thing to demonstrate is how
15 we have extended the economic life of the property
16 to gain additional reserves out of the reservoir.

17 Q. When do you think the life will be
18 extended to?

19 A. Probably another -- at least out until
20 2024.

21 Q. That's just for the initial one injection
22 well?

23 A. That is correct.

24 Q. Let's move on to Exhibit 12 and discuss
25 the economics of this phase of the project.

1 A. This is a table showing the economics of
2 the current operations and what we would expect to
3 gain from the proposed incremental proposed flood.
4 Once again, reserves as they are, about 3,000
5 barrels. The project will make about \$20,000
6 discounted at 10 percent would be \$18,000. The
7 reserves, if we do the water flood, hopefully will
8 add another 57,000 barrels for a capital cost of
9 \$95,000 which will yield undiscounted income of \$1.5
10 million with a present value of \$725,000.

11 Q. So in your opinion this phase of the
12 project will be economic?

13 A. That is correct.

14 Q. And do you believe that the project area
15 is so depleted that it's prudent to apply the
16 enhanced recovery program at this time?

17 A. That is correct.

18 Q. And the water project is technically and
19 economically feasible at this time?

20 A. That is correct.

21 Q. Will the value of the oil and gas
22 recovered by water flood operations exceed project
23 costs plus a reasonable profit?

24 A. Yes, sir.

25 Q. Will the water flood operations result in

1 the recovery of substantially more hydrocarbons from
2 the pool than would otherwise be recovered?

3 A. That is correct.

4 Q. And will the project benefit the interest
5 owners on this lease?

6 A. Yes, it will.

7 Q. Because of the estimated additional
8 production, in your opinion, do the wells qualify
9 for the recovered oil tax rate?

10 A. Yes, sir.

11 Q. Let's move on to the injection application
12 itself. Could you identify Exhibit 13 for the
13 examiner and discuss the injection parameters?

14 A. Yes, sir. This is a C-108 that was
15 prepared for this project. Moving through the
16 exhibits over to Subtitle 7 on the proposed
17 operations, what we would anticipate is an average
18 injection rate of 600 barrels a day with a maximum
19 injection rate of 1,000 a day. The project will be
20 a closed system. We assume that the average
21 injected pressure will be about 600 PSI. The
22 maximum injected pressure will be 850 PSI based on a
23 .2 PSI per foot gradient down to the top perf in the
24 Davis N No. 1.

25 MR. EZEANYIM: Repeat that again, sir?

1 THE WITNESS: I'm sorry. Item 7. I am on
2 the fifth page into the document.

3 Q. So, Mr. Lee, you are not seeking to exceed
4 the standard .2 PSI foot per gradient?

5 A. No, sir.

6 Q. Go ahead.

7 A. Okay. The proposed injection water is
8 going to be produced water. We have a water
9 analysis attached for the San Andres and the pen
10 waters. We didn't do a compatibility study on those
11 waters, but those waters have been co-mingled and
12 injected in other wells in this area without any
13 problem, and the chemical company that did the
14 analysis doesn't see any issues or problems with the
15 mixing of these waters.

16 Q. Are there any sources of ^{Fresh} ~~pressure~~ water in
17 this area?

18 A. There are not. We reviewed the State
19 Engineer website and also had the pumper make a
20 visual inspection of the area looking for any tanks
21 or windmills. ✓

22 Q. Could you move forward a couple pages and
23 discuss the wells in the area of review, please.

24 A. Yes. Item No. 1 in C-108 is a tabulation
25 of the wells within the area of review, and --

1 EXAMINER BROOKS: Which page are you on?

2 MR. BRUCE: Right behind the land plat,
3 Mr. Examiner.

4 EXAMINER BROOKS: Thank you.

5 A. Behind the land plat, about three pages
6 behind the land plat will be a spreadsheet that
7 looks like this. These are the wells within the
8 area of review, and here we present the various
9 casing programs, completion data when the wells were
10 completed, what their location is, API number, IPs,
11 treatments, things of that nature. Tops of cement,
12 whether it was demonstrated by temperature surveys
13 where it will have a TS in parentheses, or whether
14 it was calculated.

15 Q. Are the wells in the area of review
16 properly completed so as to prevent the movement of
17 fluids between zones?

18 A. Yes, they are.

19 Q. In that regard, are there any producing
20 zones above these injection zones?

21 A. There are not.

22 Q. Please continue.

23 A. The next portion of C-108 is the injection
24 well data sheet for the Davis N No. 1, and once
25 again, this is just showing the construction data

1 for the well, showing we have 13 and 3/8 inch casing
2 set at 400 feet with 450 sacks of cement circulated
3 to surface. That it was a string of 8 and 5/8 set
4 to 4820 cemented with 1450 sacks with a top cement
5 at 2100, and that was determined by temperature
6 survey.

7 There's also a liner, a 5 1/2 inch liner
8 that was used to complete the pen, but that liner
9 and all that portion of the well is below a bridge
10 plug right now. It's not open to the San Andres.

11 Q. Is the next page the proposed completion
12 for the salt water injector? I should say water
13 injection purposes?

14 A. Yes. And Item 4, you know, asks if it's
15 been completed in anything else, and we list the
16 penn perms and perms up hole, but as I said, those
17 are all below a bridge plug right now but set at
18 4590. The completion of this well is in
19 perforations from 4261 down to 4477.

20 MR. EZEANYIM: Which one are you talking
21 about?

22 THE WITNESS: The Davis N No. 1 in the San
23 Andres.

24 MR. EZEANYIM: In the area of the new
25 wells?

1 THE WITNESS: Yes, that's going to be the
2 proposed injection well.

3 MR. EZEANYIM: The injection well?

4 THE WITNESS: Yes, sir. I have a couple
5 wellbore diagrams of the Davis N No. 1 as it is
6 currently and another diagram of the proposed
7 injection configuration right behind it. There's no
8 plans to add any perfs in the well right now. We
9 are just going to be injecting into the current
10 perforations. As I said, as the wellbore diagram of
11 the current configuration and then the proposed
12 configuration where we expect to set a packer at
13 4170 which will be within 100 feet of the top
14 perforation, and once again, the perforations that
15 are there are what we are going to be injecting
16 into. No perfs to be added.

17 Q. Are there any plugged and abandoned wells
18 in the area of review?

19 A. There are. There's two wells in that area
20 of review.

21 Q. And is information on those wells in
22 looseleaf at the end of Exhibit 13?

23 A. Yes, they are. Right after the wellbore
24 diagrams they have the water analysis and then loose
25 in there is wellbore diagrams and plug-in reports on

1 the Phillips Federal No. 1 and the Davis N No. 5.

2 EXAMINER BROOKS: Are these included in
3 the tabular.

4 THE WITNESS: Yes, sir.

5 MR. EZEANYIM: One was Davis No. 5?

6 THE WITNESS: Yes, sir.

7 MR. EZEANYIM: Do you have those?

8 THE WITNESS: They were not included in
9 the original C-108. I left them out in there. I
10 messed up. But we have the schematics on those
11 plugged wells for the Davis N 5 and the Phillips
12 Federal No. 1.

13 Q. (By Mr. Bruce) And are those wells
14 properly plugged according to division regulations?

15 A. Yes, sir.

16 Q. Do you have anything else you would like
17 to point out on Exhibit 13, Mr. Lee?

18 A. No, sir.

19 Q. I have handed you Exhibit 14. Is that a
20 portion of the C-108 reflecting the one-half mile
21 area of review for the injection well?

22 A. Yes, it is.

23 Q. Did Cambrian examine land around that area
24 to determine the operators or interest owners in the
25 area of review?

1 A. Yes, sir.

2 Q. And I think you previously testified that
3 Section 18 and the south half of 7 is all one single
4 federal lease?

5 A. That is correct.

6 Q. And that lease is owned -- is operated by
7 Cambrian Management?

8 A. That is correct.

9 Q. The blue, is there a producing -- that is
10 a field lease, I believe; is that correct?

11 A. Yes.

12 Q. Who is the operator?

13 A. Dwight Tipton is the operator.

14 Q. There is one producing well in the
15 southeast corner northeast corner of the section,
16 correct?

17 A. That is correct.

18 Q. Finally the south half of Section 13, is
19 that unleased federal land?

20 A. Yes, sir.

21 Q. It shows as Yates Petroleum, but the lease
22 has terminated, has it not?

23 A. Yes, sir.

24 Q. Hasn't been re-leased over the last couple
25 years?

1 A. That's correct.

2 MR. BRUCE: Mr. Examiner, I originally
3 filed this as a water flood. I amended the
4 application to include a EOR tax rate application,
5 and I have given renotified everyone and so I'm
6 going to ask that the case be continued for two
7 weeks so that I can get the proper notice materials
8 back to you at this point.

9 EXAMINER BROOKS: Okay. At the conclusion
10 of the presentation of the evidence we will continue
11 the case for supplementation of the record.

12 Q. (By Mr. Bruce) Mr. Lee, were Exhibits 1
13 through 14 prepared by you under your supervision or
14 compiled from company business records?

15 A. Yes, sir.

16 Q. In your opinion, is the granting of the
17 application in the interests of conservation and the
18 prevention of waste?

19 A. Yes, sir.

20 MR. BRUCE: Mr. Examiner, I move the
21 admission of Cambrian Exhibits 1 through 14.

22 EXAMINER BROOKS: 1 through 14 are
23 admitted.

24 (Note: Cambrian Exhibits 1 through 14
25 admitted into evidence.)

1 MR. BRUCE: I have no further questions of
2 the witness.

3 EXAMINER BROOKS: Okay. Looking at
4 Exhibit 14, it appears that the half mile circle
5 passes right through the northwest corner of Section
6 18. Have you plotted that distance and made certain
7 that no part of Section 12 is included in that half
8 mile radius?

9 A. No, I did not.

10 Q. Okay.

11 EXAMINER BROOKS: Mr. Bruce, would you
12 have him do that or do it yourself and supplement?

13 Because I have done those on a lot of things but I
14 don't feel comfortable with my running a ^{pathagorem (wst)} ~~plethagorym~~
15 theorem on the calculator.

16 MR. BRUCE: We will take care of that. If
17 initial notice is required I will give that notice.

18 EXAMINER BROOKS: Okay. The south half of
19 Section 7 and all of Section 18 constitute one
20 federal lease. You testified to that, correct?

21 THE WITNESS: Yes, sir.

22 EXAMINER BROOKS: And does Cambrian
23 Management the owner of 100 percent of the operating
24 rights in that lease?

25 THE WITNESS: Cambrian Management is the

1 operating entity. The owner of the property is
2 Pyrite Investments.

3 EXAMINER BROOKS: Is the ownership of that
4 lease uniform throughout the section and a half
5 consisting of the south half of 7 and all of 18?

6 THE WITNESS: Yes.

7 EXAMINER BROOKS: Very good. This is in
8 the San Andres formation?

9 THE WITNESS: Yes, sir.

10 EXAMINER BROOKS: Are there other water
11 floods, active water flood projects in the vicinity?

12 THE WITNESS: There's been some water
13 floods put up in the Chavaroo fields to the north.

14 EXAMINER BROOKS: How far?

15 THE WITNESS: The Chavaroo, couple miles
16 to the north here. I'm not sure where the nearest
17 flood is. I think here to the -- about two miles to
18 the northwest. I think there's a water flood unit
19 put in there.

20 EXAMINER BROOKS: Okay. And do you know
21 if that's been successful?

22 THE WITNESS: I have looked over the years
23 at several floods up through this area, and they are
24 pretty marginal. They don't flood nearly as well as
25 the San Andres and ^{grayberg (w-1)} Gray Bird that we have on down

1 towards Loco Hills. Tighter reservoir, dolomite,
2 water break-through issues. That's one reason that
3 our secondary primary ratio is only a .3. That's
4 why I kind of used that. That seemed more in line
5 with what we see in some of the projects here. But
6 it's one of the things Cambrian has seen the
7 potential on for some time, and with oil prices the
8 way they are, if you could go in and convert the
9 well and even just get another 2 percent of the
10 original oil, another 50,000 barrels, it's a very
11 economic project for us to do.

12 EXAMINER BROOKS: I believe you testified
13 you do not contemplate doing any additional
14 perforations, that you are going to flood through
15 the existing perforations?

16 THE WITNESS: That's correct.

17 EXAMINER BROOKS: And you do not
18 contemplate exceeding the standard pressure
19 injection pressure?

20 THE WITNESS: The .2 PSI per foot. If it
21 gets to where they need to have additional pressure
22 they will run tests and make application
23 administratively for that.

24 EXAMINER BROOKS: Very good. What is the
25 ownership of the surface at this site? Is that also

1 federal?

2 MR. BRUCE: It is federal, Mr. Examiner.
3 I checked the BLM and it is federal.

4 EXAMINER BROOKS: Very good. I believe
5 that's all of the questions. Mr. Ezeanyim?

6 MR. EZEANYIM: Let me -- Robert Lee,
7 right?

8 THE WITNESS: Yes, sir.

9 MR. EZEANYIM: I think you gave very good
10 testimony here. And that cut down on some of my
11 questions. However, I have some for you.

12 THE WITNESS: Okay.

13 MR. EZEANYIM: First of all, are you going
14 to use five spot injection?

15 THE WITNESS: Because of the limited
16 number of wells, you really kind of not going to be
17 able to do that unless they were to convert all of
18 the wells and drill an ^{fill}in~~fra~~well on ~~20~~ acre spacing.
19 What I would envision is that once we convert the
20 No. 1 and see some response and get an idea of how
21 good it's going to be, I would suggest converting
22 the Well No. 4, which is located in Unit Letter B,
23 and it will provide pressure and sweep from the
24 opposite direction. Once again, supporting Well No.
25 3 and Well No. 6. Well No. 2, it's kind of sitting

1 out there by itself. There's not a whole lot we can
2 do about that, other than seeing what kind of
3 response it gets from Well No. 1. If it works. I
4 would suggest to Cambrian they convert Well No. 1
5 but you can't put a five spot pattern in because
6 they only have five wells and --

7 MR. EZEANYIM: Do you work for Cambrian?

8 THE WITNESS: I am a consultant for
9 Cambrian.

10 MR. EZEANYIM: They have an engineer who
11 works for them?

12 THE WITNESS: Yes, sir.

13 MR. EZEANYIM: Maybe I found the area of
14 review. First of all, you said there is no drinking
15 water in the area?

16 THE WITNESS: None to my knowledge. I
17 looked at the State Engineer website, didn't find
18 any fresh water wells listed there, and the Cambrian
19 had their pumper do a visual inspection of the area.
20 So as far as we know, there's no fresh water in the
21 area.

22 MR. EZEANYIM: You say you have the water
23 analysis on the water you are injecting, right? You
24 have water analysis, right?

25 THE WITNESS: Yes, it's included in the

1 C-108. There are two analyses. One for San Andres
2 and one for Pennwater, because there's Penn
3 production and San Andres production in the area.

4 MR. EZEANYIM: What are the results of the
5 makeup water? You have to have the makeup water
6 because the produced water is not going to be
7 enough?

8 THE WITNESS: Exactly.

9 MR. EZEANYIM: Where are you going to get
10 it, the makeup water?

11 THE WITNESS: Cambrian will be seeking out
12 water from other companies in the area. They are
13 exploring the possibility of maybe trying to do a
14 recompletion in something where they can get
15 additional water, but that will be one of the
16 hurdles for the project is to come up with some
17 makeup water and they are working on that now,
18 trying to find additional water to put in the ground
19 now.

20 MR. EZEANYIM: So we don't have an
21 analysis on the makeup water?

22 THE WITNESS: No, not specifically. But
23 in this area, the San Andres and the Penn is the
24 producing intervals, and we have the analysis on the
25 San Andres water and all the of the Penn waters.

1 MR. EZEANYIM: So when are we going to
2 know where the source of makeup water is going to
3 be? We want to know where the source of the makeup
4 water will be because I want to know what you are
5 injecting there. I can look at the water and the
6 produced water, but the makeup water is what we want
7 to look at.

8 THE WITNESS: Well, the makeup water will
9 be produced water from San Andres water and
10 Pennsylvanian wells in the area. They don't know
11 where they will get the water from at this point in
12 time. Once they get approval for the project they
13 will contact additional people in the area trying to
14 get additional water coming into their lease. Like
15 I say, they need quite a bit of makeup water to get
16 to the 4- to 600 barrels a day that we want to
17 inject.

18 MR. EZEANYIM: I would suggest we get the
19 analysis of the water whenever you get them.
20 Whenever you get the makeup water we want an
21 analysis. We want to compile what you currently
22 have and see how compatible it is.

23 THE WITNESS: Okay.

24 MR. EZEANYIM: You said it's going to be a
25 closed system?

1 THE WITNESS: That is correct.

2 MR. EZEANYIM: Go back to the area of
3 review west now. Half mile area of review. All of
4 the wells in that half mile is this date?

5 THE WITNESS: Yes.

6 MR. EZEANYIM: What I'm going to do is
7 conduct my own aerial review and make sure what you
8 have. I am not doubting you.

9 THE WITNESS: I don't blame you.

10 MR. EZEANYIM: Currently what you have is
11 some -- most of the area of review wells are all
12 producing currently?

13 THE WITNESS: That's correct.

14 MR. EZEANYIM: The only two wells that are
15 plugged is No. 5, Federal No. 1?

16 THE WITNESS: That's correct. Davis N 5
17 and Phillips Federal No. 1.

18 MR. EZEANYIM: I have the schematics right
19 here.

20 THE WITNESS: Yes, sir, and the plug-in
21 reports. I included that also.

22 MR. EZEANYIM: Very good. You talked
23 about the balance of water you will be injecting.

24 THE WITNESS: That's correct.

25 MR. EZEANYIM: And it currently exceeds .2

1 PSI?

2 THE WITNESS: .2 PSI, yes, sir.

3 MR. EZEANYIM: Did you suggest that after
4 you started injection and you could come in for
5 additional approvals? Maybe I misheard that?

6 THE WITNESS: That's correct. If they
7 find that they needed additional injection pressure,
8 you know, they will run a step rate test and submit
9 that for approval to get increased injection
10 pressure.

11 MR. EZEANYIM: Well, like I said, we would
12 like to have that water analysis of the makeup
13 water. If you could get it before we finalize the
14 order. And in this case I suggest if you want it to
15 be continued for the next two weeks -- I am talking
16 to you now -- what do you intend to do in the next
17 two weeks?

18 MR. BRUCE: That's for notice purposes.
19 If I have to notify Section 12 of the next township
20 over, then I will ask another continuance just to
21 make sure we have notice taken care of.

22 MR. EZEANYIM: So it's my understanding
23 that at that time we might hear the case on that?
24 Right?

25 EXAMINER BROOKS: Yes, that was my

1 understanding, that in the absence of somebody
2 filing a protest there would be no need for further
3 hearing. Just to file the additional notice,
4 supplemental notice affidavit.

5 MR. BRUCE: That's correct.

6 EXAMINER BROOKS: Very good.

7 MR. EZEANYIM: Mr. Lee, could you talk to
8 me about the economics of the project again? Here
9 you are asking for tax incentives and go to 12.

10 THE WITNESS: Yes, sir.

11 MR. EZEANYIM: That's the economics
12 assessment?

13 THE WITNESS: Yes, sir.

14 MR. EZEANYIM: And then what is the 55?

15 THE WITNESS: \$55 a barrel and \$6 for gas
16 for conservative analysis.

17 MR. EZEANYIM: The project was 200 acres?

18 THE WITNESS: Yes, sir, five wells with
19 40-acre space.

20 MR. EZEANYIM: Okay. That's all I have?

21 THE WITNESS: Thank you, sir.

22 EXAMINER BROOKS: Very good. Thank you.

23 And case No. 14063 -- I'm sorry, 14068 will be (215e)
24 continued until March 7th. I'm sorry, February 7th,
25 the examiner hearing for the purposes of

1 supplementing the record.

2 MR. BRUCE: Thank you. We will take a
3 ten-minute break.

4 (Note: The hearing was concluded.)

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I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. _____
heard by me on _____
_____, Examiner
Oil Conservation Division

REPORTER'S CERTIFICATE

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

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



JAN GIBSON, CCR-RPR-CRR
New Mexico CCR No. 194
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