

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

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

ORIGINAL

APPLICATION OF CELERO ENERGY II, LP,
TO EXPAND THE WATERFLOOD PROJECT AND
TERTIARY RECOVERY PROJECT FOR THE ROCK
QUEEN UNIT, AND TO QUALIFY THE EXPANDED
PROJECT FOR THE RECOVERED OIL TAX RATE,
CHAVES AND LEA COUNTIES, NEW MEXICO.

Case 14942

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REPORTER'S TRANSCRIPT OF PROCEEDINGS
EXAMINER HEARING

BEFORE: DAVID K. BROOKS, Presiding Examiner
WILLIAM V. JONES, Technical Examiner

December 13, 2012

Santa Fe, New Mexico

This matter came on for hearing before the
New Mexico Oil Conservation Division, DAVID K. BROOKS,
Presiding Examiner, and WILLIAM V. JONES, Technical
Examiner, on Thursday, December 13, 2012, at the New
Mexico Energy, Minerals and Natural Resources Department,
1220 South St. Francis Drive, Room 102, Santa Fe, New
Mexico.

REPORTED BY: Jacqueline R. Lujan, CCR #91
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A P P E A R A N C E S

FOR THE APPLICANT:

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1 EXAMINER BROOKS: At this time we call
2 Case Number 14942, application of Celero Energy II, LP,
3 to expand the waterflood project and tertiary recovery
4 project for the Rock Queen Unit, and to qualify the
5 expanded project for the recovered oil tax rate, Chaves
6 and Lea Counties, New Mexico.

7 Call for appearances.

8 MR. BRUCE: Mr. Examiner, Jim Bruce, of
9 Santa Fe, representing the applicant. I have one
10 witness.

11 EXAMINER BROOKS: Any other appearances?
12 Very good. Will the witness please state your
13 name?

14 MR. PARKHURST: Yeah. David Parkhurst.

15 EXAMINER BROOKS: Please swear the
16 witness.

17 (One witness was sworn.)

18 EXAMINER BROOKS: You may proceed,
19 Mr. Bruce.

20 DAVID PARKHURST

21 Having been first duly sworn, testified as follows:

22 DIRECT EXAMINATION

23 BY MR. BRUCE:

24 Q. Mr. Parkhurst, where do you reside?

25 A. I live in Midland, Texas.

1 Q. Who do you work for, and in what capacity?

2 A. I work for Celero Energy as an engineer.

3 Q. Have you previously testified before the
4 Division?

5 A. Yes, sir, I have.

6 Q. Were your credentials as an expert engineer
7 accepted as a matter of record?

8 A. Yes, sir.

9 Q. Are you familiar with the engineering matters
10 related to this application?

11 A. Yes.

12 MR. BRUCE: Mr. Examiner, I tender
13 Mr. Parkhurst as an expert petroleum engineer.

14 EXAMINER BROOKS: He is so qualified.

15 Q. (By Mr. Bruce) Mr. Parkhurst, could you
16 identify Exhibit 1 for the Examiner?

17 A. Yeah. I've got nine pages as Exhibit 1, and
18 I'll walk through each of those and just kind of give you
19 a little bit of history and then some specifics of the
20 expansion itself.

21 Do you want me to go ahead and walk through
22 them?

23 Q. Yeah. Why don't you start with page 1 and
24 identify that?

25 A. Page 1, I produced a map here I wanted to show

1 you guys. This is the entire Caprock Field. If you'll
2 notice, everything in yellow is owned and operated by
3 Celero. That's the West Cap Unit, the Drickey Queen, and
4 the Rock Queen Unit, which we'll be talking specifically
5 about today.

6 And then the North Caprock Celero Queen Unit
7 is a unit that is still under review, and hopefully we'll
8 have a decision on it fairly quickly.

9 EXAMINER BROOKS: Yeah. There's some
10 confusion about -- that case was continued, and I don't
11 know if it's been taken under advisement.

12 MR. BRUCE: It was heard two weeks ago.
13 The continued cases were heard.

14 EXAMINER BROOKS: Very good. Continue.

15 THE WITNESS: And just in case you want to
16 know what all those horizontal wells are -- I don't know
17 why I left them on the map. There's a lot of activity in
18 the Wolfcamp/Abo that is just right below the units that
19 we own, but in the Caprock Field area.

20 Now page 2, I thought I'd just give you a
21 little bit of an overview. Since Celero purchased these
22 assets in 2006 --

23 Q. (By Mr. Bruce) Before you get into page 2,
24 Mr. Parkhurst, referring to page 1, you have the Rock
25 Queen Unit, and then inside of that is a dashed blue or

1 purple line. What does that represent?

2 A. That is the pilot area that is currently under
3 CO2 flood.

4 Q. That was approved a couple of years ago by the
5 Division?

6 A. That's correct.

7 Q. And we're here today to expand the pilot
8 project to cover pretty much the entire unit?

9 A. Yes, the entire Rock Queen Unit.

10 Q. Move on to page 2 and discuss the history of
11 the performance of the Rock Queen Unit.

12 EXAMINER BROOKS: A question before you
13 move away from Exhibit 1. What is the dashed blue or
14 purple line within the Rock Queen Unit?

15 THE WITNESS: That's the pilot itself.

16 EXAMINER BROOKS: So the boundaries of the
17 Rock Queen Unit are where?

18 THE WITNESS: If you'll look here, it's
19 just this outline right here. I should have probably
20 given you a different color. But the Rock Queen Unit is
21 right here, the Drickey Unit here, and the West Cap Unit
22 here.

23 EXAMINER BROOKS: There is a line that
24 goes across --

25 THE WITNESS: Right.

1 EXAMINER BROOKS: -- in the south part
2 of -- in the south tier of sections in 1331. And that is
3 then the south boundary of the Rock Queen Unit?

4 THE WITNESS: Yes, sir. This is the south
5 boundary. This boundary here I think is just the
6 township range boundary.

7 EXAMINER BROOKS: So the north boundary
8 then is where?

9 THE WITNESS: It is right between the blue
10 and the yellow.

11 EXAMINER BROOKS: Okay. So that would be
12 the -- more or less along the south boundary line -- or
13 the north boundary line of the third tier from the south
14 of 1331 --

15 THE WITNESS: Yes, sir

16 EXAMINER BROOKS: -- the third tier of
17 sections?

18 THE WITNESS: Yes, sir. I've got a map
19 specifically of the Rock Queen area.

20 EXAMINER BROOKS: Very good. You may
21 continue.

22 THE WITNESS: Okay. Since we've purchased
23 this in 2006, we spent about \$80 million to date. We
24 reactivated and TA'd or PA'd over 130 wells, constructed
25 or improved 10 tank batteries in the related facilities.

1 We've also put in an 18-mile CO2 line. Then we initiated
2 a CO2 pilot in February of 2011 with 17 patterns that you
3 saw on that blue outline, and they're estimating a
4 recovery of about 10 percent of the original oil in
5 place.

6 We've spent about \$3 million on environmental
7 cleanup, which was the nine pits that were out there.
8 They've all been cleaned and look very good, if you go
9 out there and look at them. Of course, we expanded the
10 Drickey Unit to include the Trigg leases and the Federal
11 V leases.

12 Moving forward, what we're going to talk about
13 today is expanding the Rock Queen Unit to add another 17
14 patterns. We're going to double our re-injection
15 capacity by year end. In fact, today we should be
16 starting our compressor up. We've put in some additional
17 compression, and today is the startup for that, so we're
18 excited about it.

19 Our target is to expand to the Dickey Unit by
20 2014 and then to the North Caprock unit by 2016.

21 The next page, page 3, is the Rock Queen Unit
22 area boundary. So that purple line you saw on the first
23 map is now the red line here. The yellow, outside of the
24 red line, is the boundaries of the Rock Queen Unit, and
25 that's what we're asking to expand to.

1 Q. (By Mr. Bruce) And page 4, what does this
2 reflect?

3 A. Page 4, I thought I'd give you a history since
4 we started CO2 injection so you could see how the pilot
5 has performed. You can see we started around a little
6 bit less than 100-barrel a day. We've went up to
7 500-barrel a day or more as of May of this year. That's
8 when we really reached our limit on the compression that
9 we had, and so hence, we put in another compressor.

10 And this is just so -- if you'll see that pink
11 line, see how flat it is? We've had to kind of pinch and
12 shut in our wells to limit our CO2 production, because
13 we're not going to flare. It's too expensive. And we
14 want to re-inject it, so we had to put in the compression
15 to do so. So that took our rate down to about 300-barrel
16 a day.

17 And then of course, here, just in the last
18 couple of weeks, we've jumped back up to 450- to
19 500-barrel a day range. We're really excited to see how
20 the field is going to perform once we can move our
21 produced CO2 line up to the 10 million cubic feet per day
22 range and not be limited here at 3 million a day.

23 Q. What does page 5 reflect?

24 A. Page 5, I just wanted to give you an idea of
25 what our current operations are. We have a number of

1 active producers. There's a number of active injectors
2 both inside and outside the pilot. Our acreage, there's
3 1,360 acres inside the pilot. The expansion will add
4 another 3,560. So we'll have all 4,920 acres of the Rock
5 Queen Unit where we can inject CO2 into.

6 Unit production has been 4- to 500 barrels a
7 day. CO2, 4.4 million. mcf per day for water is about
8 9,000 barrels of water per day inside of the pilot.
9 Outside of the pilot, we make about 50 barrels of oil a
10 day and 5,700 barrels of water per day.

11 Unit injection is 11.4 million cubic feet per
12 day. 8.1 million of that is purchases, and 3.3 million
13 is produced. Average reservoir pressure right now is
14 about 1,600 pounds.

15 Q. And again, these are current conditions?

16 A. That is right. That is current conditions.

17 Now I'm just going to give you a preview of
18 the Rock Queen expansion project.

19 Q. It's page 6?

20 A. Yes, sir, page 6. We have estimated our well
21 work is going to cost about 7.7 million. We're going to
22 convert 17 wells to WAG injection and equipped to flow
23 another 26 producers and drill and replace -- drill six
24 replacement wells for about 2.6 million.

25 Of course, with this number of wells, we're

1 going to have to add some more facilities, so we've got
2 some re-injection compression, additional compression.
3 We're going to add about 2 million; and then your
4 satellites, your flow lines and associated equipment for
5 about another 4 million.

6 And then we've estimated our CO2 purchase cost
7 at 5.6 million for 2013, which is eight and a half
8 million a day. And you can see our current CO2 cost is
9 \$1.79 per mcf.

10 Q. And based on the history of the project to
11 date, the pilot project, is this project technically and
12 economically feasible at this time?

13 A. Yes, it is.

14 So I've given you, just for the expansion work
15 alone, what we've estimated our project economics to be.

16 So we're anticipating a net present value at a
17 10 percent discount rate, right at 50 million; net
18 reserves of about 1.3, 1.4 million barrels of oil. Rate
19 of return is very good at 35 percent. And total
20 cumulative cash flow, about \$79 million.

21 Q. What is page 7?

22 A. Page 7 is just a list of the expansion area
23 wells, so it's everything outside of the pilot area. And
24 we've given API number, the original well names, the
25 location, what well type that we have planned, and also

1 its current well status.

2 Q. Now, you do not have a C-108 here today, do
3 you?

4 A. Not today. I'm waiting on my production
5 engineer to finish the C-108.

6 Q. So what you're asking is to expand the pilot
7 area to cover the entire unit, but you're not asking for
8 injection authority at this point?

9 A. That's correct.

10 Q. And are you requesting that you be allowed to
11 submit the C-108 administratively after this hearing so
12 that the Division can examine that and grant an injection
13 authority?

14 A. Yes, sir. I wish we had it ready today, but
15 he just didn't have it ready.

16 Q. What is page 8?

17 A. Page 8 are those project economics that I just
18 rattled off. This is what we've modeled -- what we think
19 the expansion area will contribute by itself. So you
20 know, starting in 2013, and then you'll see response by
21 2014. We figure peak response will be a little bit over
22 1,100 barrels a day by 2016.

23 Q. So you're projecting about a 20-year project
24 life?

25 A. Yes, sir.

1 Q. That's just for the Rock Queen? That's not
2 counting the Drickey Queen or any future expansion?

3 A. That's correct. This is just the Rock Queen
4 Unit expansion area by itself.

5 Q. I think you've gone over -- you were talking
6 about the CO2. Describe for the record the pipeline that
7 you built to get to this project area.

8 A. We did bring a pipeline. Kinder Morgan's main
9 Cortez line runs about 18 miles north of us, so we've put
10 in a 6-inch 18-mile line down to the Caprock Field.
11 That's where we get our supply from.

12 Q. And what is page 9?

13 A. Page 9 is just a type log. This is the
14 unitized interval. I just wanted to show everybody that
15 we've got 3,050 to 3,066 feet, so you've got a 16-foot
16 interval.

17 And this has, I think, already been reviewed
18 in the pilot area, so I didn't show much geology. I
19 think if you go back and look at the case files, there's
20 maps and cross-sections and everything else. I just
21 wanted to remind everybody of what the unitized interval
22 was.

23 Q. Again, as in the North Unit that we were here
24 on a couple of weeks ago, the productive -- although the
25 Queen is relatively thick, the productive interval is

1 quite thin?

2 A. Yes, it is.

3 Q. In your opinion, will the expanded enhanced
4 recovery operations result in the recovery of
5 substantially more hydrocarbons from the pool than would
6 otherwise be recovered?

7 A. Yes, that's correct.

8 Q. And was Exhibit 9 prepared by you or under
9 your supervision?

10 A. Yes, sir, it was.

11 Q. And is the granting of this application in the
12 interest of conservation and prevention of waste?

13 A. Yes.

14 Q. And again, do you request approval to submit a
15 C-108 or perhaps multiple C-108s administratively for
16 injection authority?

17 A. Yes. Hopefully, we'll have these done here
18 fairly quickly.

19 MR. BRUCE: Mr. Examiner, if I may,
20 because of -- we weren't submitting a C-108, I don't know
21 if any notice was actually required.

22 But we did notify -- I submitted as Exhibit 2
23 my Affidavit of Notice. And the parties listed are the
24 four working interest owners other than Celero in the
25 unit: John Owen, Robert Owen, Circle Ridge Production

1 and Manforth Production Company.

2 And then we also notified the other two
3 administrative bodies, the Commissioner of Public Lands
4 and the Bureau of Land Management, regarding this
5 application.

6 Q. (By Mr. Bruce) And Mr. Parkhurst, have you
7 received any comments or objections from anybody who was
8 notified?

9 A. No, not from anybody.

10 MR. BRUCE: Mr. Examiner, I move the
11 admission of Exhibits 1 and 2.

12 EXAMINER BROOKS: Exhibits 1 and 2 are
13 admitted.

14 (Exhibits 1 and 2 were admitted.)

15 MR. BRUCE: I have no further questions of
16 this witness.

17 EXAMINER BROOKS: This is a little bit
18 irregular. We don't have the C-108, and it was not
19 included in the notice. What would be your theory about
20 how we make this comply with the notice requirements?

21 MR. BRUCE: Well, if we are granted
22 permission to administratively file the C-108, the notice
23 will go out at that time to everyone. And there is a
24 substantial notice list for that.

25 EXAMINER BROOKS: Okay. But you have not

1 sent -- this notice list doesn't include all the people
2 that are required to be notified; right?

3 MR. BRUCE: No, I did not.

4 EXAMINER BROOKS: I'm a little bit
5 confused about compliance with the notice requirements
6 here, because --

7 EXAMINER JONES: One thing I can comment
8 on is that the Acid Gas Rule that's going to be presented
9 pretty soon, the only thing that it has anything to do
10 with CO2 floods is the notice requirement.

11 EXAMINER BROOKS: But of course a rule
12 that is not yet adopted would not apply.

13 MR. BRUCE: If you desire notice of this
14 application, which was, you know, like I said a
15 simplified application just to receive the Division's
16 approval to go ahead and seek injection authority, since
17 it is a substantial project, I don't have any objection
18 to giving notice to the offsets. We do have a list of
19 offsets and surface owners because, of course, we did it
20 on the first go-round.

21 EXAMINER BROOKS: What you're saying is
22 that you're applying then just for approval in principle
23 of the project, and then you're going to do everything
24 else by expansion?

25 MR. BRUCE: By administrative application.

1 EXAMINER BROOKS: Yeah. You know, I need
2 to study these rules to be sure this is contemplated. I
3 think probably the best way to do this is to continue
4 this case again until January, by which time you'll have
5 your C-108s filed and your notices sent.

6 MR. BRUCE: Sure.

7 EXAMINER BROOKS: I think that would
8 probably be the most orderly way to do it. Otherwise,
9 I'll have to study the rules and see if we're permitted
10 to operate in this way.

11 We routinely do approve projects with just a
12 few injection wells, and maybe even one, and then expand
13 them later. But I don't recall when we've approved a
14 project without any injection wells being approved.

15 MR. BRUCE: Our thinking was that since we
16 had the initial -- you know, the pilot approved. But a
17 continuance is fine.

18 EXAMINER BROOKS: It may be okay. If I
19 studied it, I might conclude that it was in accordance
20 with the way we've done things before and our rules. But
21 I think the most orderly way to do it, if there's not
22 some rush situation that requires doing something else,
23 is just to defer it until the next hearing for the
24 C-108s.

25 MR. BRUCE: Sure.

1 EXAMINER BROOKS: You have questions,
2 Mr. Jones?

3 EXAMINER JONES: Yeah. One more comment
4 on this new acid gas rule. They're contemplating that
5 all CO2 projects would be pressure maintenance projects
6 that were -- CO2 was added to them. So if this is
7 classified as a waterflood, we might could just
8 reclassify it, or you could ask for it to be
9 reclassified.

10 MR. BRUCE: Well, I mean it's not just a
11 waterflood.

12 EXAMINER JONES: It's an EUR project?

13 MR. BRUCE: Yes.

14 EXAMINER JONES: Okay. Well, I have to
15 defer to you legal minds on that. But I was just
16 bringing that up.

17 EXAMINER BROOKS: Of course, the legal and
18 the engineering get a little confused here. Because what
19 engineers tell me is that the distinction between
20 waterflood and pressure maintenance projects that appears
21 in our rules is not really a valid engineering
22 distinction. So I don't know quite how to apply it under
23 those circumstances.

24 MR. BRUCE: I think the only difference,
25 going way back when, which people have ignored, is that

1 if it was a waterflood, it was stripper production. And
2 nobody uses that term much anymore.

3 EXAMINER BROOKS: That's what it says.
4 And all the rest of the rules appear to be identical.

5 EXAMINER JONES: But the pressure
6 maintenance still has the depth bracket allowable in it,
7 unless you ask for something different, ask for a
8 different depth bracket allowable.

9 EXAMINER BROOKS: What the engineers tell
10 me is that it actually is appropriate to begin water
11 flooding prior to potential depletion, while our rules
12 say that if you're going to approve a waterflood project,
13 you have to have a finding that the field is
14 substantially depleted.

15 But go ahead with your questions, Mr. Jones.

16 EXAMINATION

17 BY EXAMINER JONES:

18 Q. I guess, most pertinently, the water curtain
19 that you have surrounding the pilot, are you jumping over
20 that here?

21 A. The water curtain that currently exists all
22 the way around the red area, what we'll do as part of the
23 expansion is just convert those wells to either a
24 producer or an injector.

25 Q. Okay. So basically the proposal is to jump

1 from the pilot inside the Rock Queen Unit to the entire
2 Rock Queen Unit as the project area?

3 A. Yeah. If you look at these the symbols here,
4 the producers and the injectors, that's really what we're
5 targeting right now, is to go one more pattern outside of
6 our pilot. But while we were here, we'd just like to
7 have the authority to eventually go all the way to the
8 edges, if it's economically feasible.

9 Q. So you're still hedging your bets on that a
10 little bit? You want to just keep moving?

11 A. Kind of walk out and see the -- you know,
12 under waterflood, they were pretty much established, you
13 know, what the oil/water contacts were or gas/oil
14 contacts were. Because you have a water leg and then a
15 hydrocarbon, and then of course you've got a gas cap. So
16 you always want to test those boundaries.

17 Because you know, back in '60s, if you had a
18 50 percent oil cut, well, maybe that wasn't good enough
19 because oil was \$5 a barrel. But at \$80 a barrel, it may
20 make sense to go get more additional barrels.

21 Q. Do you have a residual zone or a transition
22 oil/water -- yeah, a transition oil/water contact here?

23 A. Not really in this 16-foot sand. We don't see
24 one. It's pretty constant water saturation.

25 Q. And below that, there's no oil saturation?

1 A. There could be, but there's not much reservoir
2 quality. You have this sand that just sticks out with 20
3 percent porosity anywhere from 50 to 500 millidarcy rock.
4 And then below that, you've got stringers. But they're
5 just near the reservoir quality, so we just never
6 completed them.

7 Q. Reservoir quality for the wells they're
8 drilling horizontal now just doesn't seem very good to
9 me, either. But they're drilling those horizontals to
10 contact more.

11 A. Absolutely. We've already drilled all the
12 good rock for the last seven years. Now we're going
13 after the poor rock.

14 Q. Why did you start here, versus any of these
15 other Queen, for CO2?

16 A. If you look at the cumulative production, the
17 Rock Queen was by far one of the best producers. So it
18 made sense to -- "Okay. Let's go in here and try it,"
19 the best reservoir quality.

20 Although when you go outside of there, you're
21 talking a difference between 4- and 500,000 barrels per
22 well, versus 2- or 300,000 barrels per well. So this was
23 just a really good area.

24 There's another very good area in the Drickey.
25 But even as you go throughout the Caprock Field, they're

1 very prolific wells there at 3,000 feet.

2 Q. So you've got your admissible at that depth?

3 A. Yes, sir. The minimum admissibility test is
4 1,069.

5 Q. So you're 1,600 pounds, so you're okay?

6 A. Yes, sir. We've got a mass window to keep our
7 minimum admissibility pressure up and flood in between
8 the pressures.

9 Q. Do your other surrounding floods have lower
10 than 1,600-pound pressure?

11 A. Yes. Even the Rock Queen, when we started --
12 you know, we spent several years putting water in and
13 just bringing the pressure back up before we started our
14 CO2 flood, because that CO2 is very expensive. So when
15 when we start flooding, we like to be above the minimum
16 admissibility pressure and not use high-cost CO2 to bring
17 the pressure up.

18 Q. What kind of injection withdrawal ratio do you
19 see out here?

20 A. I try to maintain a one-to-one. Now, you're
21 going to get everything in between, depending on your
22 offset injectors. You may have one injector that likes
23 this producer and likes to send it over here, so you have
24 to adjust other patterns.

25 Q. So you guys work on your patterns quite a bit?

1 A. Yes, sir, we do.

2 Q. Do you see iron problems here?

3 A. I hadn't seen any iron. We had a little bit
4 of asphaltenes, you know, that will start plugging up
5 your tubing. But they're pretty easy to clean out, kind
6 of a paraffin asphaltene.

7 Q. This might be different, but the Queen I
8 looked at years ago was responsive to higher pressures on
9 the injection waterflooding. You back off on your
10 injection pressure, and you'll start losing your oil
11 production. I don't know if this is the same way.

12 A. I don't know. This one is -- when you look at
13 most of your Queen producers in southeastern New Mexico,
14 it's a fairly large interval with very stringerized pay,
15 over 200 feet. This is the anomaly where you come in,
16 and you've got a nice 14-, 15-foot single sand that's
17 just very prolific, 75-million-barrel cum in this field.

18 Q. Okay. So did you look somewhere like Wyoming
19 for your analogy for this? You guys are the first ~~clean~~
20 CO2 flooders --

21 A. That's correct.

22 Q. -- in the state that I know of.

23 A. I was involved in the Postle CO2 flood, which
24 is over in Oklahoma. It's a sandstone, very similar
25 reservoir properties to what we have here.

1 So most of what I used as predictions, you
2 know, came out of that Postle flood because they were
3 similar in their reservoir qualities, not necessarily the
4 depth. That was about a 7,500-foot, and this being
5 3,000.

6 But you always go back and look at your
7 waterflood performance, and both were like textbook. So
8 you would anticipate this to be a textbook CO2 flood, as
9 well.

10 Q. You've got a pretty aggressive oil on your
11 Exhibit 8. Do you think that's -- is that based on just
12 the performance to date plus a simulator, or --

13 A. Really, I used the michaelis curve. I don't
14 know if you're familiar with it.

15 Q. Times zero curves, or --

16 A. No. These are -- for CO2, it's kind of
17 your -- it's your ^{TYPE} tight curve for CO2 floods. And
18 basically what it says is for the amount of CO2 put in,
19 how much oil did you get out? But it's done on a
20 hydrocarbon pore volume basis and a percentage basis.

21 So in other words, if I put in 60 percent of
22 the hydrocarbon pore volume of CO2, how much oil did I
23 get out? So we look at those.

24 So I can go back and look at all these old CO2
25 floods that have already got a nice type curve. And you

1 can find a type curve that fits your reservoir qualities
2 here, which Postle did, and that gives us a way to
3 predict what the recoveries are going to be.

4 Q. So your purchased CO2 will go down over time?
5 Is that -- that's all built in, I guess?

6 A. Yes, sir. That's just the incremental piece
7 for the expansion area. But we do have a CO2 contract
8 for everything you see on the map, which is great. I'm
9 glad we got it early. There's not much CO2 available
10 now.

11 Q. Does that price include the tariff?

12 A. Yes, sir. It includes about a -- I think it's
13 right at a 22 cent tariff they charge on the Cortez
14 pipeline.

15 Q. I think that was the way it was years ago.

16 A. And now the price of CO2 is indexed to the
17 price of oil. So as oil goes up, CO2 goes up.

18 Q. So are you guys calling this -- it would be
19 Phase 2 or just a pilot plus the project, likes Oxy does
20 their Phase 1 and Phase 2?

21 A. Most pilots are pretty small. We put in a big
22 pilot. You can really call it whatever you want. We
23 just call it expansion of the Rock Queen Unit. And of
24 course, then we've got the Drickey Unit and the West Cap
25 and the North Cap. We've got several phases behind that,

1 what we would call our different phases.

2 Q. Are you going to WAG these wells?

3 A. Yes, sir. We try to usually put in about 15
4 percent of the hydrocarbon pore volume of CO2 before we
5 start our WAG process, which is just water. Then we'll
6 alternate the gas or the CO2 and the water.

7 Q. Is the reservoir sour?

8 A. Just a little bit.

9 Q. So it will continuously get sourer, then, as
10 you go on if you recycle your gas?

11 A. It could. But there's such a small amount,
12 it's barely measurable. But it is -- it doesn't look
13 like it will be a problem as you re-inject more and more
14 and more because this was an undersaturated reservoir.
15 There's just no gas in this reservoir. Usually, that's
16 how you build up your sour gas. As you continue to
17 recycle more and more, that component for sour gas will
18 build up.

19 But we just don't have it in this reservoir.
20 There was never hardly any, just very little. That's why
21 on primary, you had decent 8 to 9 percent recovery. But
22 when you put water in via energy, this thing just
23 responded beautifully.

24 Q. And you did haven't to change your pumps out
25 so much?

1 A. That's correct. They was just never -- just a
2 very, very small amount of gas initially.

3 Q. The gas is uphole somewhere?

4 A. There's a structure map that shows a water --
5 the oil zone, and there is a gas cap over here. And we
6 do have several wells, I think six wells, that produce
7 out of that gas cap. That's very low BTU, about 450,
8 high nitrogen. It's indicative of a very shallow
9 depositional environment.

10 EXAMINER JONES: Okay. Thank you very
11 much.

12 THE WITNESS: You're certainly welcome.

13 EXAMINER BROOKS: Thank you.

14 If there's nothing further, then Case Number
15 14942 will be continued until January 24th for purposes
16 of supplementing the record.

17 And we will take a 10-minute recess before
18 continuing.

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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. 14942
heard by me on 12-13-12.

Donald K. Brooks, Examiner
Oil Conservation Division

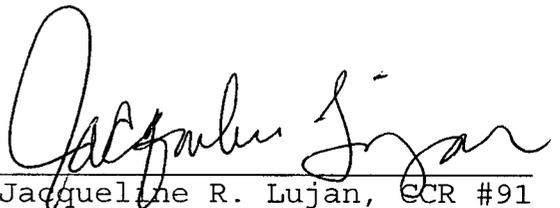
REPORTER'S CERTIFICATE

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I, JACQUELINE R. LUJAN, New Mexico CCR #91, DO
HEREBY CERTIFY that on December 13, 2012, proceedings in
the above captioned case were taken before me and that I
did report in stenographic shorthand the proceedings set
forth herein, and the foregoing pages are a true and
correct transcription to the best of my ability.

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

WITNESS MY HAND this 24th day of December,
2012.


Jacqueline R. Lujan, CCR #91
Expires: 12/31/2012