

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

IN THE MATTER OF THE HEARING CALLED BY)
THE OIL CONSERVATION DIVISION FOR THE)
PURPOSE OF CONSIDERING:) CASE NO. 11,663
)
APPLICATION OF GECKO, INC., FOR A)
PRESSURE MAINTENANCE PROJECT AND) ORIGINAL
QUALIFICATION FOR THE RECOVERED OIL)
TAX RATE PURSUANT TO THE "NEW MEXICO)
ENHANCED OIL RECOVERY ACT", LEA COUNTY,)
NEW MEXICO)
_____)

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

November 21st, 1996

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, November 21st, 1996, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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 Examiner Hearing
 CASE NO. 11,663

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A P P E A R A N C E S

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By: W. THOMAS KELLAHIN

* * *

1 WHEREUPON, the following proceedings were had at
2 10:40 a.m.:

3 EXAMINER CATANACH: At this time we'll call Case
4 11,663.

5 MR. CARROLL: Application of GECKO, Inc., for a
6 pressure-maintenance project and qualification for the
7 recovered oil tax rate pursuant to the "New Mexico Enhanced
8 Oil Recovery Act", Lea County, New Mexico.

9 EXAMINER CATANACH: Are there appearances in this
10 case?

11 MR. KELLAHIN: Mr. Examiner, my name is Tom
12 Kellahin. I'm with the Santa Fe law firm of Kellahin and
13 Kellahin. I'm appearing on behalf of the Applicant, and I
14 have one witness to be sworn.

15 EXAMINER CATANACH: Any additional appearances?
16 (Thereupon, the witnesses were sworn.)

17 MR. KELLAHIN: Mr. Examiner, our only witness is
18 Mr. Steve Thomson. Mr. Thomson is a petroleum engineer.
19 He's also the principal with the Applicant.

20 STEVE L. THOMSON,
21 the witness herein, after having been first duly sworn upon
22 his oath, was examined and testified as follows:

23 DIRECT EXAMINATION

24 BY MR. KELLAHIN:

25 Q. For the record, sir, would you please state your

1 name and occupation?

2 A. My name is Steve Thomson. I'm a petroleum
3 engineer and also serve as President of GECKO,
4 Incorporated.

5 Q. On prior occasions, have you testified and
6 qualified as an expert in the field of petroleum
7 engineering before the Division?

8 A. Yes, I have.

9 Q. And pursuant to your technical degree and your
10 employment responsibilities, have you made a study of and
11 are you familiar with the facts surrounding this
12 Application?

13 A. Yes, sir, I am.

14 Q. Based upon your familiarity with these facts, do
15 you now have engineering conclusions and recommendations
16 for the Division Examiner?

17 A. Yes, sir.

18 MR. KELLAHIN: We tender Mr. Thomson as an expert
19 petroleum engineer.

20 EXAMINER CATANACH: He is so qualified.

21 Q. (By Mr. Kellahin) Mr. Thomson, let's take a
22 moment, sir, and perhaps use Exhibit Number 1 as a way to
23 illustrate what you propose to accomplish.

24 First of all, tell us the significance of the
25 various colored dots on Exhibit 1.

1 A. Okay, Exhibit 1 is an enlargement of a commercial
2 landmap. The project area is highlighted in yellow.

3 The control wells are designated by colored dots.
4 There's two colors on the map. The blue wells represent
5 existing and producing Strawn wells. The red dots indicate
6 Strawn penetrations in the immediate area that are
7 dryholes.

8 Q. We're dealing in a portion of Lea County, New
9 Mexico, that the Division has designated to be a part of
10 the Casey-Strawn Oil Pool; is that not true?

11 A. That's correct. Actually on Exhibit 1, the two
12 dots in the highlighted area are in the Casey-Strawn Pool.
13 To the immediate east, the two blue dots are in the Shipp-
14 Strawn Pool.

15 Q. Okay. Are you familiar with all the wells shown
16 as Strawn oil wells on Exhibit 1?

17 A. Yes, sir.

18 Q. You were involved in drilling many if not all of
19 those wells, were you not?

20 A. Yes, sir.

21 Q. The project area is shown in the shaded area in
22 the northeast quarter of Section 35?

23 A. Yes, that's correct.

24 Q. Have you satisfied yourself with regards to the
25 title information that the ownership is common in the

1 northeast corner of Section 35?

2 A. Yes, I am.

3 Q. And in fact, it is common, is it not?

4 A. It is, that's one state lease.

5 Q. Okay. In terms of satisfying the notice
6 requirements, Mr. Thomson, did you within an area scribed
7 by a circle, the radius of which is a half mile, identify
8 all the interest owners involved within that area?

9 A. Yes, we have.

10 Q. Did you cause notification to be sent to all
11 those interest owners?

12 A. Yes, we did.

13 Q. As a result of that notification, are you aware
14 of any objections being filed by any of those parties to
15 which you sent notice?

16 A. No, sir.

17 Q. Describe for us the significance of the
18 difference in the color-code for the well dots.

19 A. Like I said previously, the red dots penetrated
20 the Strawn formation but were either drilled and abandoned
21 or abandoned after marginal or nonexistent production
22 tests. The blue dots are commercial Strawn wells, and in
23 fact they are currently producing.

24 Q. When we look at the north blue dot in the project
25 area, that's the GECKO State 1 well?

1 A. Yes, that's right.

2 Q. It appears to have a symbol on this display to
3 show that that well was deviated or directionally drilled
4 at some point?

5 A. That's correct.

6 Q. Describe for us what happened.

7 A. Okay, the Number 1 well was originally drilled
8 and abandoned at the surface location. It was subsequently
9 plugged back and directionally drilled or kicked
10 approximately 465 feet due south of the surface location
11 where it currently produces.

12 Q. At what current rate does it produce?

13 A. It's approximately 15 to 17 barrels of oil a day
14 and about 150 barrels of water a day.

15 Q. The well to the south of that, the GECKO State
16 Number 2 well, what's the status of that well?

17 A. That well is currently producing. It produces 65
18 to 70 barrels of oil a day and about 100 barrels of water a
19 day.

20 Q. Have you identified sufficient technical data to
21 reach an engineering conclusion as to whether or not these
22 two wells are producing in communication with each other in
23 the same Strawn pool?

24 A. Yes, we have.

25 Q. Have you also satisfied yourself that these two

1 wells are in a separate Strawn reservoir from any of the
2 other penetrations shown on the map?

3 A. Yes, we have.

4 Q. And you have concluded that that is true?

5 A. Yes.

6 Q. All right. What's your plan?

7 A. Our plan is to convert the northernmost well, the
8 Number 1 well, to an injection well to serve as the support
9 for the pressure-maintenance project and continue to keep
10 the Number 2 well as a producing well.

11 Q. Give us a general summary of why you as a
12 petroleum engineer have reached the conclusion that it is
13 both feasible and appropriate to use the GECKO State 1 well
14 as an injection well and correspondingly use the GECKO
15 State 2 as the producing well in order to produce oil that
16 might not otherwise be produced.

17 A. Our conclusions are based on, number one, on the
18 producing rates and decline curves from the two wells, show
19 an immediate communication with the second well, Number 2
20 well was drilled. Our conclusion, I guess, that the wells
21 are in communication, the production data basically
22 supports our mapping and seismic data in the area that the
23 two wells are in direct competition in a single algal-mound
24 pod reservoir.

25 An examination of the production history of the

1 two wells shows an expanding GOR over the life of the
2 wells. We do not show an increase in the water rates from
3 the wells, or we -- our conclusion that it being a solution
4 gas drive reservoir with associated water production is
5 proved over time.

6 And we just believe that type of reservoir
7 responds very favorably to water injection to support
8 pressure.

9 Q. The current rules for the pool provide for 40-
10 acre oil spacing, do they not?

11 A. 80 acres.

12 Q. 80-acre oil spacing

13 A. 80 acres.

14 Q. And so what you've currently done is lay down the
15 two spacing units in the northeast quarter of the section?

16 A. Yes, they're laydown 80s.

17 Q. And what would be the producing allowable, the
18 maximum oil allowable on 80 acres for a well at this depth?

19 A. 445 barrels a day.

20 Q. Are you asking that the standard 80-acre
21 allowable be adopted as the project allowable for the
22 pressure-maintenance project?

23 A. Yes, we are.

24 Q. Are there any special gas-oil ratio issues
25 involved here in this production?

1 A. No, we're currently -- under any GOR limits, and
2 the pressure maintenance should, if anything, increase the
3 GOR.

4 Q. So you utilize in this pool the standard 2000-to-
5 1 gas-oil ratio?

6 A. Yes, that would be fine.

7 Q. Let's look at the size and shape of the
8 reservoir. If you'll turn to Exhibit Number 2, describe
9 for us first of all what we're seeing, second, how it was
10 prepared, and then third, your conclusions about the size
11 and the shape.

12 A. Okay. Exhibit 2 is -- at this point in time is
13 an integrated subsurface seismic isopach map, if you will.
14 The mapping was actually prepared prior to drilling the
15 five wells that we have drilled in the area. The drilling
16 did not cause us any reasons to change our mapping at all.

17 The control points, you can probably see, is the
18 unfilled circles running north, south, and east and west
19 across the map.

20 Basically what we've identified in this area is
21 four separate reservoir targets, the four of which we have
22 drilled. Two of them are in Section 36, one of them is in
23 Section 35, which is the project that we're talking about
24 today, and the other one is in Section 26.

25 Q. How have you satisfied yourself about the

1 northern boundary of the Strawn pod which would cover the
2 project area? How do we know that that represents the
3 northern edge?

4 A. I'm satisfied the reservoir is closed to the
5 north, principally by the Number 1 well that we originally
6 drilled as a dryhole from the surface location. The well
7 had no porosity and essentially did not penetrate the mound
8 at all at that location.

9 Deviating the well just 465 feet to the south and
10 making a commercial well confirms to me that that pod, if
11 you will, is closed to the north, exactly like it's mapped.

12 Q. Let's refer now to the production histories from
13 the two wells. If you'll take Exhibit 3 and Exhibit 4,
14 let's identify each, and then let me ask you some
15 questions.

16 A. Okay, Exhibit 3 is a production history from the
17 Number 1 well. Oil is in green, water is in blue, gas is
18 in red. What's added to the production history is a -- It
19 appears as a stairstep due to the computer plotting, but
20 basically what it is is a decline-curve projection of the
21 oil and gas from the well.

22 The projection is put into an economic
23 calculation that basically terminates the production at the
24 economic limit of the well.

25 Q. Exhibit 4 is what, sir?

1 A. Exhibit 4 is the same presentation from the
2 Number 2 well.

3 Q. And again, the stairstep shown on the computer
4 plot from 1996 up through the year 2000 is simply a
5 limitation of the computer drawing the line and does not
6 accurately reflect what you forecast to be a stairstep
7 production rate?

8 A. That's correct, it's actually plotted -- the
9 midpoint is plotted as constant for the entire year.

10 Q. All right, let's take Exhibit 3, and then
11 position Exhibit 4 below it. Exhibit 3 represents the
12 first well, and we're going to have to slide our display,
13 the bottom display, Exhibit 4, over one year, so we can
14 line these up; is that not true?

15 A. That's correct, you just match 1995 to 1995.
16 What you can see is, when the Number 2 well was completed
17 and brought on production, you can see almost immediate
18 response and a drop in the production rate from the Number
19 1 well.

20 Q. Okay, we look at Exhibit 3, then, it started
21 producing in 1994. By the spring of 1995, then, when the
22 Number 2 well comes on, you see a pretty steep drop in the
23 production rate for the Number 1 well?

24 A. Yes, that's correct.

25 Q. Any other evidence to the contrary in this area

1 to show that these wells, in fact, are not communicating
2 with each other?

3 A. No.

4 Q. No other explanation for the drop in the Number
5 1, but for the production in Number 2?

6 A. That's correct.

7 Q. Okay. Let's look at the reservoir in a geologic
8 sense. If you'll take the cross-section map, which is
9 marked Exhibit 5, let's look at the geologic relationship
10 as displayed on the log for these two wells and have you
11 describe for us what you see.

12 A. Exhibit 5 is just a two-well cross-section that
13 shows the two producing wells. It's flattened on depth
14 just because the structure -- The wells are essentially
15 structural equivalents, so the depth just serves also as a
16 structural hang point for the cross-section.

17 The Strawn in these two wells is developed very
18 similarly. The porosity in the Number 1 well ranges --
19 it's color-coded here at 2 percent, it averages 5 to 6
20 percent. The porosity in the Number 2 well is quite a bit
21 better than that. It probably averages 6 to 7 percent, a
22 little bit better porosity development.

23 Other than that, the -- As the logs would
24 indicate, it's very similar and pretty much, I guess,
25 confirms that the wells are in the same reservoir and in

1 direct competition with each other.

2 Q. Have both wells been perforated in such a fashion
3 that the entire productive Strawn interval in each well is
4 open to production?

5 A. Yes, there's -- The bottom 10 feet of porosity in
6 each well is not perforated at this time.

7 Q. No indication that the water production in the
8 Strawn is confined to the lower portion of the Strawn, is
9 there, Mr. Thomson?

10 A. No, there's no evidence at all.

11 Q. Have you taken this information and for
12 illustration purposes provided a structure map to show the
13 relationship of these wells in the project area?

14 A. Yes, that structure map is Exhibit Number 6,
15 showing the structure at the top of the Strawn. And the
16 conclusion from the mapping is, the two wells are
17 structurally very equivalent. This being a stratigraphic
18 trap, the actual structure is not important.

19 Q. Why did you choose the GECKO State 1 well as the
20 proposed injection well?

21 A. We chose it for a couple of reasons, number one
22 being that it was at the lower producing rate and had the
23 least favorable economics.

24 The second reason we chose it is because of the
25 nature of the well being kicked, it deviated, it's a little

1 bit harder -- I say a little bit. It's quite a bit harder
2 to produce. These wells produce by rod pump. It's quite a
3 bit harder to produce the well by artificial lift, because
4 the deviated wellbore makes it a better candidate to be the
5 injection well and the Number 2 well a better candidate to
6 be the producing well.

7 Q. And again, the northeast quarter, the 160 acres
8 for the project area in Section 35, is part of the same
9 common lease, and therefore there's no need to form a unit
10 or some other contractual mechanism to consolidate this on
11 a project basis?

12 A. That's correct.

13 Q. Let's turn to the isopach. If you'll look at
14 Exhibit 7, identify and describe that display.

15 A. Exhibit 7, the base is the same structure map
16 that we saw in Exhibit 6, and what has been superimposed on
17 the structure map is an isopach map.

18 The isopach map is a lot smoother than the
19 isopach map we presented earlier. This is basically just
20 contouring the log character and not totally relying on the
21 seismic mapping.

22 But again, it shows -- The conclusion from the
23 isopach as well as the structure map is, both wells are
24 very favorably positioned within the reservoir and should
25 respond very well to the water injection.

1 Q. Can you estimate for us what has been the current
2 cumulative oil recovery for the two wells in the project
3 area, as to some point in time?

4 A. In preparing the Application, our cutoff was July
5 1st of 1996, and cumulative production from the two wells
6 was doing 141,000 barrels of oil.

7 Q. If nothing is done, what do you forecast to be
8 the remaining recoverable oil using primary recovery means?

9 A. We have forecasted 93,000 barrels of oil
10 additional, by primary.

11 Q. Do you have engineering estimates of what you
12 would forecast to be an estimate, additional incremental
13 oil to be recovered if the Division approves your project?

14 A. We have estimated 46,840 barrels as additional
15 recoverable oil under the pressure-maintenance program.

16 Q. Let's turn to the topic of the underground
17 injection control regulations and the Division Form C-108.
18 Are you familiar with that form, Mr. Thomson?

19 A. Yes, I am.

20 Q. In fact, you caused that form to be prepared, and
21 you certified it when you signed and filed it back in
22 October?

23 A. Yes, I did.

24 Q. As part of your efforts to compile and report the
25 information necessary on that form, did you make an area

1 study of the wellbore integrity of those wellbores that had
2 been drilled to or through the Strawn formation?

3 A. Yes, I did.

4 Q. If you'll turn to Exhibit 8, which is the C-108,
5 and turn to that portion behind the schematic for the
6 injection, and we have a tabulation of wellbore status,
7 you've included more wells on that tabulation than are
8 contained within the half-mile radius of review, have you
9 not, sir?

10 A. Yes, the tabulation is actually the two-mile
11 radius, not the half-mile.

12 Q. All right. Let's identify for the Division
13 Examiner very quickly those wells which would be within the
14 half-mile area of review. Go ahead and just go down the
15 list and show him which ones they are.

16 A. Okay, if we were numbering them, the first well
17 would be number 4 on the list, which is the Mesa West
18 Knowles Number 6.

19 Q. And that well is only 8600 feet, so it's too
20 shallow to hit the Strawn?

21 A. Yes, that's right. It was a Drinkard test and
22 did not penetrate the Strawn.

23 Q. All right. We go down the tabulation and we get
24 to the Lynn Durham well?

25 A. Actually, the one immediately preceding that, the

1 GECKO State 36 Number 2 --

2 Q. Okay.

3 A. -- which is currently a Strawn producer.

4 Q. And that's a well that you operate?

5 A. Yes.

6 Q. And you've satisfied yourself that there's --

7 That well is a recent well, is it not?

8 A. Yes.

9 Q. Drilled pursuant to modern technology --

10 A. Right.

11 Q. -- and has adequate casing and cement?

12 A. Yes, sir.

13 Q. All right, let's go down, then, to the Lynn

14 Durham well, the State 1.

15 A. That's the next one on the list, drilled and

16 abandoned at 5080 feet, did not penetrate the Strawn.

17 Q. Okay, then the well below that is the GECKO State

18 26-1?

19 A. 26-1, which was a well that was drilled and

20 abandoned, but did penetrate the Strawn.

21 Q. And this is a well that you drilled and

22 abandoned?

23 A. Yes.

24 Q. And what's the approximate vintage of this well?

25 When was this done?

1 A. 1995.

2 Q. Okay, so a modern well with modern drilling and
3 plugging procedures?

4 A. Yes, correct.

5 Q. Plugged pursuant to Division rules so that it
6 would not provide a source or a conduit to let injection
7 fluids migrate out of the Strawn reservoir?

8 A. That's correct.

9 Q. All right. Turn the page, then, and do we have
10 any other wells?

11 A. Yes, the last two -- or the -- all the wells on
12 this last page, actually, there's one well and a re-drill
13 of that well. Both wells' depth was 9217 and did not
14 penetrate the Strawn.

15 Q. Again, do you find any problem with either of
16 these wells?

17 A. No, sir, I don't.

18 Q. In addition, since preparing this information,
19 there has been another well drilled in the half-mile area
20 that is now about to be or has been plugged?

21 A. It has been plugged. It was drilled and
22 abandoned. That well --

23 Q. Let's go back to Exhibit 1 and have you spot it
24 for us.

25 A. Okay, that well is in the northeast of the

1 northwest quarter of Section 35, a well drilled by -- I
2 think it was permitted under Dalen's name and actually
3 drilled under Enserch's name.

4 Q. That well has now been abandoned?

5 A. Yes.

6 MR. KELLAHIN: Mr. Examiner, with your permission
7 Mr. Thomson will, subsequent to the hearing, provide you
8 data on that well so that you can update your tabulation,
9 because it's now not currently on the list.

10 EXAMINER CATANACH: Okay.

11 Q. (By Mr. Kellahin) Any problem with the well that
12 -- with the way that well was plugged and abandoned, Mr.
13 Thomson, to the best of your knowledge?

14 A. Not that I'm aware of. It was a Strawn test that
15 was drilled and abandoned.

16 Q. While we're directing our attention back to
17 Exhibit 1, I assume you've been on the surface of this area
18 on numbers of occasions as you've drilled and produced
19 these various wells?

20 A. Yes, I have.

21 Q. Where would we find the closest known freshwater
22 source, and where is it located?

23 A. The closest known freshwater source would be --
24 that would be in the northwest quarter of the southeast
25 quarter of Section 35. It's a well currently being used --

1 It's a well that's pumped by a windmill. It's currently
2 being used for ranching purposes.

3 Q. How are you familiar with that well, the
4 windmill?

5 A. I've used that water source on three occasions to
6 drill wells in the area.

7 Q. When the Examiner looks on the C-108, there's a
8 water analysis of a freshwater source?

9 A. That's correct.

10 Q. Does that water analysis refer to this windmill?

11 A. Yes, it does.

12 Q. What's the approximate depth of that water well?

13 A. That particular well is probably about 100 to 110
14 feet deep. My experience with that well has only been down
15 to about 90 feet, is as far as I've been into it, and have
16 not attempted to find the total depth of that well.

17 Q. It's an Ogallala freshwater source?

18 A. Yes.

19 Q. Are all the wells in this area cased and cemented
20 in such a way to protect the Ogallala?

21 A. Yes, sir.

22 Q. And so the approval of this project would not be
23 a source for a problem for the windmill?

24 A. No, sir.

25 Q. What will be the source of the water that's used

1 for the injection well?

2 A. The source of the water will be the water that's
3 produced by the wells that GECKO operates in Sections 35
4 and 36.

5 Q. Do you have an estimate or a forecast of the
6 volume of produced Strawn water that you would put into the
7 injection well?

8 A. Well, we're basing it on about 300 barrels a day
9 of water that's available to us from the producing wells.

10 Q. At this time, do you plan to use any freshwater
11 as make-up water for the injection well?

12 A. No, sir, we don't.

13 Q. Let's go back to the schematic of the injection
14 well, which is the third page into the C-108, and describe
15 for us how you're going to set up and operate the GECKO
16 State 1 as an injection well.

17 A. Okay, the current perforations in the well are
18 11,583 to 11,640.

19 What we plan to do is pull the tubing out of the
20 well. What we'll do is, we'll inspect it and plastic-coat
21 the tubing. We'll purchase a packer and plastic coat the
22 packer.

23 We will acid-wash the perforations, just to make
24 sure they're nice and clean, and then we will run the
25 plastic-coated tubing and packer back in the hole to

1 approximately 50 feet above the perforations, set the
2 packer.

3 We will load the annulus with packer fluid that
4 will be corrosion-resistant and basically pickle the tubing
5 casing annulus, and pressure-test the annulus and maintain
6 a monitor on that annulus pressure.

7 Q. To commence injection, you'll use existing
8 perforations, then? You won't add additional perforations
9 to the well?

10 A. No, sir.

11 Q. And you have a means at the surface to detect for
12 leaks in your tubing?

13 A. Yes.

14 Q. And any mechanical integrity failures on the
15 casing?

16 A. Yes, any pressure communication of any kind.

17 Q. All right. In your opinion, Mr. Thomson, would
18 approval of this Application be in the best interests of
19 the prevention of waste and the protection of correlative
20 rights?

21 A. Yes, it would.

22 Q. Would it afford you and the interest owners in
23 the project area an opportunity to produce oil that might
24 not otherwise be recovered?

25 A. Yes, it will.

1 Q. And in your opinion, will you be able to do so
2 without violating the correlative rights of any offsetting
3 operator or interest owner?

4 A. Yes, we will?

5 MR. KELLAHIN: Mr. Examiner, that concludes my
6 examination of Mr. Thomson.

7 The last exhibit is my certificate of mailing.
8 It's Exhibit Number 9, in which we have sent notice of this
9 hearing to the parties identified to me by Mr. Thomson. I
10 have received no objection.

11 We move the introduction of Exhibits 1 through 9.

12 EXAMINER CATANACH: Exhibits 1 through 9 will be
13 admitted as evidence.

14 EXAMINATION

15 BY EXAMINER CATANACH:

16 Q. Mr. Thomson, I guess I've not seen one of these
17 pods waterflooded, or that had injected water into it.
18 I've seen one where they injected gas, but this is a little
19 different.

20 Does this reservoir have any water drive
21 associated with it?

22 A. Not in our opinion, it does not.

23 Q. It's all solution gas drive?

24 A. Yes.

25 Your observation is correct, and I don't know of

1 any either. In fact, I know of very few Strawn-age
2 waterfloods. The ones I do know about are not this
3 stratigraphy.

4 I know the gas injection project you're referring
5 to. I also know of another project that is being
6 initiated, but it's in the Paradox Basin, and that
7 particular project is going to straight CO₂, skipping the
8 water phase.

9 Q. What makes you think this is going to work?

10 A. Basically, it's analogous in a rock sense to
11 Pennsylvanian-age carbonates in the Permian Basin. It's a
12 solution gas drive reservoir that -- very, very few
13 failures where you've had porosity and permeability, very
14 few times has a solution gas drive reservoir failed to
15 respond to water injection.

16 The connectivity of the two wells is excellent.
17 The porosity and permeability, both horizontal and
18 vertical, within these mounds is excellent.

19 So it -- I guess based on borrowing some
20 stratigraphic conclusions from other similar reservoirs, I
21 believe it will work.

22 Q. With such good horizontal communication, are you
23 afraid that you might have some water breakthrough?

24 A. Yes.

25 Q. So that could be a problem?

1 A. It could be a problem.

2 I think really what is a positive on that subject
3 is because the vertical permeability is so good that you
4 could actually -- You know, instead of just having a
5 lateral fingering and breakthrough, so to speak, you should
6 be able to have more of a fill-up vertically and
7 horizontally, which if you've got anything going for you,
8 you actually could create a floating effect, as well as a
9 push effect.

10 Q. What are you guys currently doing with your
11 water?

12 A. We -- Referring to Exhibit 1, if you have it
13 handy there --

14 Q. Yes.

15 A. -- there's a well in the northeast of Section 26
16 that's, I guess, designated on the map as an Apache drilled
17 and abandoned well. That is a saltwater disposal well
18 operated by Yates that we are transferring our water to.

19 Q. Have you -- Well, let's see. You've calculated
20 remaining reserves at 93,000 barrels of oil. Did you break
21 that down between the two wells?

22 A. Yes, I did.

23 Q. What does the Number 1 have remaining, primary?

24 A. July 1st, about 6000 barrels.

25 Q. Okay, so the Number 2 is the one that has the

1 vast majority of the remaining primary?

2 A. That's correct.

3 Q. At this rate, at its current rate of production
4 on the Number 1 well, when do you see that as being -- when
5 would you necessarily have to quite producing that well?

6 A. I guess on my calculations, it would have between
7 11 and 13 months of life left. At July 1st, it showed a
8 year and a half of economic life left.

9 Q. Okay. So your calculations show that by
10 instituting this pressure-maintenance project, you'll
11 recover the 93,000 barrels plus an additional 46,840
12 barrels?

13 A. Yes, sir.

14 Q. How did you arrive at that calculation or that
15 number?

16 A. Again, by reviewing all the Pennsylvanian and
17 relying a lot too on Permian age to carbonate waterfloods
18 in the Permian Basin.

19 Again, I did not find one that was a solution gas
20 drive that did not work where there was significant
21 porosity and permeability. And the ones that worked, the
22 worst case I could find was a .25-to-1 secondary-to-primary
23 ratio.

24 So for purposes of this Application, I used the
25 .25 to 1 basically as a worst case.

1 I don't feel comfortable using a real optimistic
2 case, a), because of the lack of analogies and, b), because
3 of the depth of this project.

4 Q. Okay. I notice that pod that's in Section 36
5 extends into Section 35. You don't plan to drill any more
6 wells in that northeast quarter, do you?

7 A. We have not planned on drilling any more wells.
8 If this project worked gangbusters, that might renew
9 interest in that particular location.

10 Q. But it's your opinion that those two pods are not
11 in communication?

12 A. Absolutely. I did not see any interference at
13 all in Section 36 from drilling the second well in 35. And
14 the second well in 35 was the last well drilled out there.

15 Q. Okay, and this is a common single state lease; is
16 that correct?

17 A. The northeast quarter of 35?

18 Q. Yes.

19 A. Yes, sir.

20 Q. And GECKO is the only interest owner?

21 A. No, sir, we have three other partners in the
22 well.

23 Q. Okay, and they're -- All your partners are in
24 agreement to institute this project?

25 A. Yes, sir.

1 Q. Okay. The directionally drilled -- The Number 1
2 well was directionally drilled. You anticipate no problems
3 as far as using that for an injection well, due to the fact
4 that it's a directionally drilled well?

5 A. No, I've had -- I've had packer in, now, that
6 well, completing the well, and I don't see any problem with
7 running the packer in and getting it set, you know, having
8 good mechanical integrity.

9 Q. Do you think you've got a good cement job on that
10 well?

11 A. Yes, sir. There's approximately 5000 feet of
12 cement on top of the perforations.

13 EXAMINER CATANACH: I believe that's all I have,
14 Mr. Kellahin.

15 MR. KELLAHIN: All right, sir.

16 EXAMINER CATANACH: Anything further that you
17 have?

18 MR. KELLAHIN: Just the submittal of the missing
19 data on that insert, the P-and-A'd well, if you'd like us
20 to submit it to you.

21 EXAMINER CATANACH: And it was drilled under
22 Enserch?

23 MR. KELLAHIN: We think so. At least it was
24 plugged by Enserch.

25 EXAMINER CATANACH: Okay, and you'll submit

1 that --

2 MR. KELLAHIN: Yes, sir.

3 EXAMINER CATANACH: -- as soon as you get it?

4 Okay, there being nothing further in this case,
5 Case 11,663 will be taken under advisement.

6 (Thereupon, these proceedings were concluded at
7 11:15 a.m.)

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CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) SS.
 COUNTY OF SANTA FE)

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL November 28th, 1996.

[Handwritten signature]
 STEVEN T. BRENNER
 CCR No. 7

My commission expires: October 14, 1998

[Handwritten signature] 11/6/96
 November 21 96
[Handwritten signature]

STEVEN T. BRENNER, CCR
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