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:

APPLICATION OF RB OPERATING COMPANY FOR APPROVAL OF A SALTWATER DISPOSAL WELL, EDDY COUNTY, NEW MEXICO CASE NO. 13,313

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	REPORTER'S TRANSCRIPT OF PROCEEDINGS	
	EXAMINER HEARING	DON SEP
BEFORE:	MICHAEL E. STOGNER, Hearing Examiner	\sim
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	August 19th, 2004	G
	Santa Fe, New Mexico	- 59

This matter came on for hearing before the New Mexico Oil Conservation Division, MICHAEL E. STOGNER, Hearing Examiner, on Thursday, August 19th, 2004, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South Saint Francis Drive, Room 102, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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APPLICANT'S WITNESSES:

<u>MICHAEL K. McGINNIS</u> (Engineer) Direct Examination by Mr. Kellahin Examination by Examiner Stogner

<u>MARTIN EMERY</u> (Geologist) Direct Examination by Mr. Kellahin Examination by Examiner Stogner

REPORTER'S CERTIFICATE

* * *

STEVEN T. BRENNER, CCR (505) 989-9317

ËXHIBITS

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* * *

APPEARANCES

FOR THE APPLICANT:

KELLAHIN & KELLAHIN 117 N. Guadalupe P.O. Box 2265 Santa Fe, New Mexico 87504-2265 By: W. THOMAS KELLAHIN

* * *

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WHEREUPON, the following proceedings were had at 1 2 10:04 a.m.: EXAMINER STOGNER: At this time I'll call Case 3 4 Number 13,313. This is the Application of RB Operating Company for approval of a saltwater disposal well, Eddy 5 County, New Mexico. 6 7 Call for appearances. MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of 8 the Santa Fe law firm of Kellahin and Kellahin, appearing 9 on behalf of the Applicant, and I have two witnesses to be 10 11 sworn. 12 EXAMINER STOGNER: Any other appearances? 13 Will the two witnesses please stand to be sworn at this time? 14 15 (Thereupon, the witnesses were sworn.) MR. KELLAHIN: By way of introduction, Mr. 16 Stogner, I filed this case administratively for RB 17 Operating Company. We sent notice to all the appropriate 18 19 parties for which notice is required. We have obtained a 20 surface use agreement with the surface owner at the site of the injection well. There were no objections received, 21 22 based upon our submittal. 23 However, we did publish notice in the newspaper, 24 and as a result of the newspaper notification there was a 25 timely objection filed by a Mr. W.T. Martin, Jr., an

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attorney in Carlsbad, New Mexico, for four individual
surface owners within the area. Those individuals are
Draper Brantley, Jr.; George Henry Brantley; Henry McDonald
and Johnny Reed.
Yesterday morning, Mr. Martin called me and
suggested that he would have no objection to the Division
approving this Application if my client would agree to take
certain periodic water samples of some water sources in the
area.
We have agreed to do that, and as a consequence,
Mr. Martin and I have a stipulation that he's agreed to,
that we'll present as one of the exhibits, and we would ask
that you incorporate our proposed stipulation within the
context of the order when it's issued.
I have two witnesses, I have Mr. Mike McGinnis.
Mr. McGinnis is a petroleum engineer. He has done
substantially all the engineering work and integrated the
geologic information that he's received from Martin Emery
to support his application. We have Mr. McGinnis to
testify, and then Mr. Emery will be called to reconfirm the
geologic conclusions based upon the cross-sections that we
will initially introduce with Mr. McGinnis.
EXAMINER STOGNER: Mr. Kellahin
MR. KELLAHIN: Yes, sir.
EXAMINER STOGNER: looking at the file on this

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1 and the administrative application, I believe that you were 2 referring to --3 MR. KELLAHIN: Uh-huh. 4 EXAMINER STOGNER: -- it is complete and here in 5 my documentation. And also I have Mr. Jones' letter and it looks 6 7 like Mr. W.T. Martin on Martin and Lara stationery. Yes, sir. 8 MR. KELLAHIN: 9 EXAMINER STOGNER: It looks like it is all here. 10 How do you plan to proceed with this hearing? Do you want to go over the complete application filed administratively, 11 or just address the particular conditions that you have 12 13 agreed to -- I'm sorry, that RB has agreed to with Mr. Martin? 14 15 By the time we realized that Mr. MR. KELLAHIN: 16 Martin was withdrawing their objection my clients were en 17 route. 18 They have made a substantial effort to fully 19 prepare for the case, and to remove any doubt that you 20 might have in looking at the filing we would like to go 21 ahead and make that presentation, and we'll focus on the specific details that you might be concerned about as you 22 23 look at the paperwork. 24 So our plan is to take it from start to finish 25 and at the end we will show you the wells for which Mr.

1	Martin would like us to take additional samples on a
2	periodic basis.
3	And I think it would be an informative way for
4	you to have a complete picture of our activity here.
5	EXAMINER STOGNER: I concur with you on that, and
6	also I think it's probably a wise choice on RB's decision
7	to have a public record on file as we proceed on through
8	the brave new environmental world. This may set some
9	precedents, it may not, but yet I think that's a wise
10	choice for RB.
11	So at this time, Mr. Kellahin, you may proceed.
12	MR. KELLAHIN: Thank you, Mr. Examiner.
13	We have distributed a package of exhibits, Mr.
14	Examiner. We've taken some of the information in the
15	original C-108 filing and have further refined the displays
16	to make them more visually appropriate.
17	In addition, we have taken the C-108 itself and
18	duplicated it and subdivided into two portions. There's
19	the notice portion, and then there will be the technical
20	part of that.
21	In addition, we've supplemented the filings with
22	exhibits today that Mr. Emery has prepared, which are the
23	geologic displays.
24	And with your permission, we'll start with Mr.
25	McGinnis.

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1	MICHAEL K. MCGINNIS,
2	the witness herein, after having been first duly sworn upon
3	his oath, was examined and testified as follows:
4	DIRECT EXAMINATION
5	BY MR. KELLAHIN:
6	Q. For the record, sir, would you please state your
7	name and occupation?
8	A. Michael K. McGinnis, district engineer.
9	Q. Where do you reside, sir?
10	A. In Fort Worth, Texas.
11	Q. And what is your occupation?
12	A. I'm the district engineer for Range Resources,
13	the parent company of RB Operating.
14	Q. And how long have you been employed in that
15	capacity?
16	A. I've been employed by Range for four years.
17	Q. When and where did you obtain your engineering
18	degree?
19	A. I obtained my engineering degree from Penn State
20	University. The degree is in petroleum and natural gas
21	engineering. I graduated in 1982.
22	Q. Subsequent to graduation, would you summarize
23	your employment as a petroleum engineer?
24	A. I've worked pretty much continuously in that
25	capacity, initially with Tenneco Oil Company, then Union

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9 Pacific Resources, then Range Resources. 1 2 0. Are you able to explain to us the relationship 3 between Range Resources and the Applicant, which is RB **Operating?** 4 5 Α. Yes, sir. 6 Q. What is that? 7 RB Operating was acquired -- 100 percent of RB Α. Operating stock was acquired from Range Resources, from Ram 8 Energy, in April of 2004. So RB is now being operated as a 9 wholly owned subsidiary of Range Resources Corporation. 10 So in the OCD filings when we're designating 11 0. operators and obtaining approvals for the company, it is 12 for the RB Operating entity? 13 Yes, sir. 14 Α. 15 ο. Have you been the employee of RB Operating that's been responsible for viewing and preparing the C-108? 16 Yes, I have. 17 Α. And have you done that? 18 0. 19 Α. Yes, sir. 20 Q. Based on your study of the details, do you now 21 have certain engineering opinions with regards to this 22 Application? 23 Α. Yes, sir, I do. 24 Q. And have you prepared in association with Mr. Emery the technical presentation to Mr. Stogner this 25

1 morning? 2 Α. Yes, we have. 3 MR. KELLAHIN: We tender Mr. McGinnis as an 4 expert petroleum engineer. 5 EXAMINER STOGNER: Mr. McGinnis is so qualified. 6 Mr. McGinnis, on your history from Tenneco to 7 Union, was that a job change or just a name change of the 8 company? That was a job change, sir. 9 THE WITNESS: 10 EXAMINER STOGNER: Oh, okay. Now how about from 11 Union to Range? THE WITNESS: That was also a job change. 12 EXAMINER STOGNER: Okay, I was trying to see if 13 14 there was --THE WITNESS: Yes, sir. 15 EXAMINER STOGNER: -- a correlation there. 16 Thank you for that. 17 18 THE WITNESS: Two downturns in the industry. EXAMINER STOGNER: Well, 1982 and working full --19 20 Yup, I know how that is. 21 Okay, so qualified. 22 Mr. Kellahin? 23 Q. (By Mr. Kellahin) Mr. McGinnis, let's turn to what we've marked as Exhibit Number 1. 24 Yes, sir. 25 Α.

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Identify that plat for us. 1 Q. This plat is a map showing the half-mile radius 2 Α. of review around the Candelario 24 Number 1 in the center. 3 This also indicates on the legend the current oil wells, a 4 5 single gas well, and there are currently no plugged and abandoned wells within there. 6 7 The red diamonds are the tank batteries for the 8 individual leases, and the blue dots are the water wells 9 that we obtained from the State Engineer's website. 10 0. Let's start with the water wells. The indication on the display is that blue dots are water wells, and you 11 12 received that information how? It was obtained from the State Engineer's website 13 Α. in a search of the history -- or the water wells within the 14 surrounding sections to Section 24. 15 16 Subsequently, have you made a personal field Q. 17 inspection of this area? Yes, sir, I have. 18 Α. Have you determined to your own satisfaction that 19 Q. certain of these water well locations are mislocated on the 20 State Engineer's database? 21 22 Α. Yes, sir, I have. 23 We'll show Mr. Stogner in a moment those changes. Q. 24 Α. Yes. 25 When we look at Exhibit 1, are we correctly Q.

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looking at the status of the wells within the half-mile 1 2 radius --3 Α. Yes, we are. -- except for the water wells? 4 Q. Yes, sir, the locations are correct. 5 Α. The production within the half-mile radius, is it 6 Q. 7 exclusive as to certain formations? 8 Α. Yes, sir, it is. With the exception of the one 9 gas well, all of the wells are producing from the Brushy 10 Canyon section of the Delaware. Your proposed plan for this injection well, the 11 Q. Candelario -- what's -- the Candelario -- what is it? 12 The Candelario 24 Number 1. 13 Α. -- is to do what, sir? 14 Q. 15 The purpose is to dispose of produced saltwater Α. 16 from the wells within this area, and RB Operating's leases on the west side of the Pecos River, to dispose of the 17 18 produced water from the Brushy Canyon formation. Pursuant to Division Form C-108, have you made a 19 Q. tabulation of all the wellbores within the half-mile 20 radius? 21 22 Α. Yes, sir, I have. 23 Q. Are all those wellbores within the control of 24 your company? 25 Α. Yes, sir, they are.

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The disposal formation is intended to be the 1 Q. 2 Cherry Canyon member of the Delaware? Yes, it is. 3 Α. The source of that produced water is to be what 4 0. formation? 5 Α. It is to be the Brushy Canyon formation. 6 The Brushy Canyon portion of the Delaware? 7 Q. Of the Delaware, yes, sir. 8 Α. Brushy Canyon is what, slightly below the --9 Q. It is --10 Α. -- Cherry Canyon? 11 Q. -- underlying the Cherry Canyon. The Cherry 12 Α. Canyon is the middle portion of the Delaware section. 13 14 Q. When we look at Exhibit 1, has your company on 15 prior occasions obtained approval for any of these wells as a disposal well? 16 Yes, sir. 17 Α. 18 0. Identify for us what well that would have been? The well is the SCB or South Culebra Bluff Number 19 Α. It is located in Unit E, I believe, of -- which 20 6 B well. 21 is the southwest of the northwest in Section 24. 22 MR. KELLAHIN: Mr. Examiner, for your information 23 I've got a copy of that administrative order. The filing was made and the order was issued on April 18th of 1991. 24 25 It's administrative order SWD-413.

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EXAMINER STOGNER: I'll take administrative 1 notice of the file on administrative order SWD-413. 2 And that well is what, about a -- right at a quarter of a mile 3 south of the proposed well; is that correct? 4 5 THE WITNESS: Yes, sir, it's about 1200 feet. 6 EXAMINER STOGNER: And that is currently a 7 disposal? 8 THE WITNESS: No, sir, it is currently a 9 producing well. 10 EXAMINER STOGNER: Okay. 11 Q. (By Mr. Kellahin) Did your company decide to go 12 ahead and with these approvals utilize this well as a 13 disposal well? 14 Α. No, sir, that --15 Q. What did you do? We approximately a month ago recompleted that 16 Α. 17 well to add additional Brushy Canyon sands to the 18 production. 19 0. Was it ever used as a disposal well? 20 No, sir, it was not. Α. 21 Do you have a need for the use of a disposal Q. 22 well? 23 Α. Yes, sir, we do. 24 Q. And why have you selected the proposed well 25 that's the subject of this Application?

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1 Α. The proposed well has tested most of the Brushy 2 Canyon section and is currently shut in. It has been shut 3 in for approximately a year. We looked at the potential for returning it to production and saw none, so therefore 4 5 we determined it would be a good candidate for use as a saltwater disposal. 6 7 Let's turn, now, Mr. McGinnis, to Exhibit Number **Q**. 8 2. 9 Yes, sir. Α. 10 Q. Would you identify for us what is marked as 11 Exhibit 2? 12 Α. Exhibit Number 2 is the same map as Exhibit 13 Number 1, with the addition of an aerial -- geographically 14 correct aerial photograph underneath the original map. 15 0. Let's start with the source of the aerial photograph. Where did you obtain that picture? 16 17 Α. The picture was obtained -- I can't remember the 18 exact website, but it's a geological information website, I believe co-sponsored by the State of New Mexico and the 19 University of New Mexico, I believe. 20 What is your recollection of the vintage of that 21 Q. 22 photograph? 23 Α. The vintage of this photograph is mid-1990s, 1994 24 to 1996, I believe. 25 Q. Starting with the photograph, then, you've

1	superimposed some information for the Examiner?
2	A. Yes, I have.
3	Q. First of all, you've superimposed the half-mile-
4	radius circle?
5	A. Yes.
6	Q. You've also superimposed the blue dots which are
7	the water wells obtained from the State Engineer's Office?
8	A. Yes, sir.
9	Q. Have you adjusted any of those dots at this point
10	to reflect where these wells are located on the ground?
11	A. No, sir, I have not.
12	Q. Let's describe for Examiner Stogner the important
13	ones that ought to be relocated.
14	A. The first one is labeled as number 10. The
15	numbers on there are only important to myself, they were
16	not obtained from the State Engineer's website. They're
17	for reference back to the information that I recovered off
18	the website.
19	Q. So you're looking in the northeast quarter of 23?
20	A. Looking in the northeast quarter of 23.
21	Q. And looking in the northwest portion of that
22	quarter section?
23	A. Yes, sir.
24	Q. And there is a number 10 below a blue
25	A blue dot

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1	Q which is just to the east of an orange
2	square
3	A. Yes, sir
4	Q of a red square?
5	A of the tank battery, yes, sir. That well
6	should be located directly east. At the edge of the field
7	you can see a small enlargement of the levee dividing the
8	fields, and that's where that well is actually located.
9	Q. Okay, as we move to the east there's horizontal
10	lines
11	A. Yes, sir.
12	Q and then ewe move over and we intersect a
13	vertical line?
14	A. Yes.
15	Q. It's at the point of intersection of the
16	horizontal line and that vertical line, that it should have
17	been spotted as a water well?
18	A. Yes, sir.
19	Q. Are there any of the
20	EXAMINER STOGNER: Before we go on, in fact, it
21	looks like there's a little pumphouse.
22	THE WITNESS: There's a windmill there, sir.
23	EXAMINER STOGNER: Ah, okay, so that's the
24	depiction of that windmill that's on that road
25	THE WITNESS: Yes, sir.

EXAMINER STOGNER: -- quarter-section roadline, 1 and then that irrigation horizontal line that Mr. Kellahin 2 -- that is the windmill for that --3 THE WITNESS: Yes, sir. 4 EXAMINER STOGNER: -- reference number 10? 5 THE WITNESS: Uh-huh. 6 7 EXAMINER STOGNER: Okay, thank you for allowing me to -- while I had this fresh in my mind. 8 THE WITNESS: No problem. 9 (By Mr. Kellahin) And this is also one of the 10 Q. water sources that the opponents have asked us to test 11 12 periodically? Yes, sir. 13 Α. Are there any other wells on this map that are 14 Q. 15 mis-spotted by the State Engineer that you want to comment on? 16 17 Α. The one in the southeast of the northeast, the 18 Number 3 that I've got listed as abandoned, that is 19 actually an inactive well. It's not currently being used. 20 It should be located due east, near the -- closer to the southeast corner of the northeast section there, northeast 21 22 quarter. Approximately 800 feet east-southeast is where it is located. 23 And also in the southwest of the northwest of 24, 24 25 labeled Number 6 active, that well is also mis-spotted

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1	slightly. It should be just about on the 40-acre line
2	there, on the yellow line on the road there. So it's off
3	just a little bit.
4	Q. Mr. McGinnis, while we have this picture in front
5	of us and are locating these water sources, let's skip over
6	and have you pull out Exhibit 9, out of the exhibit
7	package
8	A. Yes, sir.
9	Q and let's look at the stipulated wells to be
10	tested. Do you have that display?
11	EXAMINER STOGNER: Mr. Kellahin, if I might, I
12	just want to make sure. If I might address and go back,
13	let's take that Number 6 water well.
14	THE WITNESS: Yes, sir.
15	EXAMINER STOGNER: Should it be over there near
16	that road, where the actual where you have depicted
17	I'm referring now to Exhibit Number 2, where the Number 6
18	should it be over there or
19	THE WITNESS: No, sir. If it would be all right,
20	I can come point it out to you.
21	EXAMINER STOGNER: I tell you what. Would you,
22	Mr. Kellahin, have him mark on my exhibit where the Number
23	3 and the Number 6 actually is? And also, why don't you
24	have in duplicate on this particular exhibit is the one
25	that will be in the permanent record to be given to the

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1 court reporter.

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2	Okay, Mr. Kellahin, on Exhibit Number 2 I've had
3	your witness change some locations, and on the water
4	well depicted as Number 10 and due east is drawn with a red
5	pen and put in parentheses the number "10". And then down
6	from the Number 3, going due east again, it looks like
7	about 800 feet, and it's in it looks like an
8	uncultivated area.
9	THE WITNESS: Yes, sir.
10	EXAMINER STOGNER: And then the Number 6 well has
11	been moved to the south and west maybe about 100 feet, and
12	it's also depicted with a red ink mark and the number "6";
13	is that correct?
14	THE WITNESS: Yes.
15	EXAMINER STOGNER: Thanks for indulging me or
16	letting me indulge in that. Just to get the record clear.
17	Okay, Mr. Kellahin, you may and thank you
18	again.
19	MR. KELLAHIN: As a point of information, Mr.
20	Examiner, the State Engineer's records are not intended to
21	be exactly where these wells are on the ground. Their
22	computer system plots it in to be in the correct quarter
23	quarter section. And so when you get on the field and use
24	a map like this, you can see that it is needs to be
25	altered to be correct.

EXAMINER STOGNER: Corrected for our 1 representative needs. So noted, and thank you. 2 (By Mr. Kellahin) Now, let's go through Exhibit 3 Q. 9, Mr. McGinnis, and we've talked about -- let's talk about 4 the four sources for which we've agreed to take samples not 5 6 more frequently than once every two years. The first one we talked about was the SCB Unit 7 Water Well Number 1, and that's up in 23, and it's the one 8 for which you've moved the location? 9 No, sir, that would be the one that lies outside 10 Α. the half-mile radius of review, labeled Number 2 Active. 11 All right, so it's in Unit Letter C. 12 Q. 13 Yes, sir. Α. 14 Q. And if we move to the west of the well I was 15 describing, it's the blue dot on the edge of the display? Α. Yes, sir. 16 17 And that's one of the source wells that we've Q. agreed to sample --18 19 Yes, it is. Α. -- and analyze? 20 Q. When you look at Exhibit 9, Mr. McGinnis, the 21 second well listed, which is the SCB Unit Water Well Number 22 2, where is that well? 23 That is the well labeled Number 10. 24 Α. 25 The third well is the Number 3, and it's Q. Okay.

identified in Unit Letter E of Section 24. 1 That would be the water well labeled Number 6. Α. 2 Okay. And then the fourth sample would be a 3 Q. sample drawn from a point in the Pecos River adjacent to 4 the disposal well? 5 Yes, sir. Α. 6 Does this picture include a depiction of the 7 Q. **Pecos River?** 8 Yes, it does. 9 Α. That's what we're seeing here? 10 Q. 11 Α. Yes, sir. Mr. McGinnis, let's turn now to Exhibit Number 3. 12 Q. 13 If you'll take a minute, let's unfold that. Identify for the record, Mr. McGinnis, Exhibit Number 3. 14 15 Α. This exhibit is a larger area map of the Exhibit 1 and 2, indicating the surface ownership within the 16 subject area, as well as the proposed saltwater gathering 17 system that will service the subject Candelario 24 Number 1 18 SWD well. 19 20 Q. Give us the general concept of the company's plan for utilizing the Candelario well for injection purposes or 21 disposal purposes. 22 The company's plan is to lay poly -- 3-inch poly 23 Α. plastic line from the existing tank batteries in Section 24 25 14, 23 and 24, and bring that water to a disposal site or a

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1	facility at the South Culebra Bluff 6 B well, and then the
2	water will subsequently be pumped via a triplex pump to the
3	Candelario 24 Number 1 for disposal.
4	Q. What is your company currently doing with this
5	produced water?
6	A. Currently the water is being trucked, truck-
7	transported to a public disposal well.
8	Q. If you're allowed to have your own saltwater
9	disposal well for this system, will that result in an
10	operational savings for you?
11	A. Yes, it will.
12	Q. Is it of a magnitude such that you can prolong
13	the life of the production of these wells by reducing the
14	cost?
15	A. Yes, it will.
16	Q. And thereby recover oil that would not otherwise
17	be recovered?
18	A. Yes, sir.
19	Q. Let's turn now We've looked at the horizontal
20	configuration and the surface use. Let's look to see what
21	the reservoirs look like in a vertical sense. Let me have
22	you turn to Exhibit Number 4. Let's take a moment and
23	unfold that display.
24	Who prepared this exhibit, Mr. McGinnis?
25	A. Mr. Martin Emery.

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24 In doing your engineering work, have you relied Q. 1 upon Mr. Emery's cross-sections? 2 3 Α. Yes, sir, I have. Let's identify how we determine the injection 4 Q. interval for the disposal well. How is it shown on Exhibit 5 6 Number 4? 7 The disposal interval is the Cherry Canyon Α. formation of the Delaware section. It is highlighted by 8 the yellow with the black dots. 9 Let's look over at the legend to see the location 10 Q. of the cross-section and the wells depicted. If you'll 11 look over on that legend, has Mr. Emery included the 12 previously approved disposal well? 13 Yes, sir, he has. 14 Α. And that's the wellbore just to the right of the 15 Q. proposed injection well? 16 Yes, it is. 17 Α. Within this area have you or any other operator 18 0. been able to produce commercial oil out of the Cherry 19 20 Canyon? 21 Α. No, sir, they have not. 22 And in this wellbore that has been tested? Q. No, sir, in this wellbore it has not been tested. 23 Α. 24 Based upon log analysis, do you see any Q. 25 opportunity for oil production?

1	A. No, sir.
2	Q. So the plan, then, is to do what?
3	A. The plan would be to set to permanently
4	abandon, through the use of a cast-iron bridge plug and
5	cement, the Brushy Canyon interval and then perforate
6	Mr. Emery has marked there in green what looks to be the
7	most injectable sections of the Cherry Canyon formation,
8	and set a production or the injection packer immediately
9	above the perforations and inject down 2-7/8 internally
10	coated plastic tubing.
11	Q. As an engineer, Mr. McGinnis, have you satisfied
12	yourself that there is adequate mechanical integrity for
13	the injection well to allow you to inject produced water
14	into the Cherry Canyon and have it remain confined to the
15	Cherry Canyon?
16	A. Yes, sir, I have.
17	Q. In doing your work, do you find what you would
18	characterize as a problem well within the half-mile radius?
19	A. No, sir.
20	Q. Your analysis is that all the wells within the
21	half-mile radius are properly cased and cemented in such a
22	way that they would not be a conduit by which injection
23	fluids would move out of the injection interval?
24	A. Yes, sir, they are all adequately cased and
25	cemented.

1	Q. Let's turn to the next cross-section. It would
2	be Exhibit Number 5. When Mr. Emery adds wells using a
3	different orientation to his cross-section, that's what
4	he's done here, right?
5	A. Yes, sir.
6	Q. Do you see any material difference in the cross-
7	sections that you want to explain to Mr. Stogner?
8	A. No, sir, the cross-section indicates basically no
9	structural component to the reservoirs involved.
10	Q. Do any of the wells within the half-mile radius
11	produce from any other formation than the Brushy Canyon?
12	A. We have the one well, the SCB Unit Number 1 well,
13	which I believe produces from the Atoka.
14	Q. So within the Delaware formations, all these
15	wells will produce from the Brushy Canyon interval of the
16	Delaware?
17	A. Yes, sir.
18	Q. Are you satisfied that injection of water into
19	the Cherry Canyon formation into the injection well is not
20	going to compromise or impair your ability to produce oil
21	out of the Brushy Canyon?
22	A. Yes, sir, I am.
23	Q. Let's set those aside for a moment, Mr. McGinnis.
24	If you go ahead and come back to your Exhibit Number 1 as
25	our locator map, and if you'll turn to Exhibit 6, which is

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the C-108 you prepared, and let's turn back to the 1 tabulation of the wellbore data. It's about halfway 2 3 through the package. Does the C-108 attachment here showing the area-4 of-review wells on the tabulation --5 Yes, it does. 6 Α. 7 -- include all the wells? Q. 8 Yes, it does. Α. Let's go through each of these and have you 9 Q. demonstrate to Mr. Stogner that in your opinion each of 10 11 these is adequately cased and cemented in such a way that 12 they'll be isolated in the injection interval. 13 Α. Okay. Indicate for him also the ones that you have 14 Q. 15 measured tops, cement circulated to the surface, or for 16 which you have made some calculation. 17 Α. Yes, sir, starting with the Candelario Number 1 18 well, the first well on the list, the subject well for 19 disposal, the surface casing was cemented to surface. They 20 circulated 50 sacks of cement on the 5-1/2 production 21 casing. 22 The casing was cemented in a two-stage process. 23 The initial stage was 700 sacks. When the DV tool was 24 opened and circulation was established, approximately 95 25 sacks of cement were circulated to the surface, indicating

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1	that the cement covered the DV tool at 3491 feet.
2	The second stage was 1000 sacks of cement. The
3	cement did not circulate to surface, but the calculated
4	volume is substantial enough, based on the 1.32 cubic feet
5	per sack, to have made it to the surface. A bond log was
6	subsequently run. It was not run to surface but was run to
7	3900 feet, which showed good bond to that point. It is my
8	opinion that we do have good cement to the DV tool and
9	largely fairly close to the surface, by calculation.
10	The South Culebra Bluff 6 B well, which is the
11	well immediately to the south of the Candelario Number 1
12	was originally drilled as a deep test. It had 13-3/8
13	casing cemented to the surface at 485 feet. A 7-5/8
14	intermediate casing string was run to 7006 feet and
15	cemented with 3055 sacks. That is more than enough cement
16	by calculation to have reached the surface. The top of
17	cement was established at least to 3900 feet by CBL. The
18	log was not run any higher than that, but by calculation it
19	would show complete coverage. The 4-1/2-inch liner is not
20	pertinent to this issue.
21	The next well, the South Culebra Bluff 23 Number
22	12, which is immediately to the west of the 6 B well,
23	surface casing was run to 579 feet, cemented to surface
24	with returns. Production casing was cemented also in two
25	stages. The first stage, top of cement was, through the

and the second second

1 CBL was found at -- here again, the CBL was not run to 2 surface. The calculation shows that it did reach the DV 3 tool, because they did have cement to surface on their 4 circulation through the DV tool. Top of cement is just due 5 to the log not being run all the way to surface. DV tool 6 at 3434 feet was cemented with 1200 sacks. The cement did 7 circulate to surface on the second stage.

The South Culebra Bluff 4 B well, which is 8 9 directly west of the Candelario Number 1, that was also a deep test. It was cemented, surface casing, circulated 125 10 sacks, 7-5/8 intermediate casing which -- there's a typo 11 there, it's supposed -- I believe it is 6180 feet -- was 12 cemented with 6200 sacks of cement. The top of cement was 13 checked with a temperature log at 700 feet. A bond log was 14 run subsequent on 12-2 of 2002 to a depth of 3700 feet and 15 16 showed good bond to that depth. That was run so the well 17 could be recompleted to the Brushy Canyon. But there again 18 the cement, by temperature log, was shown to be at 700 19 feet.

The South Culebra Bluff Number 1 was the original unit well. It was drilled as a deep test, and it too had 13-3/8 casing set to 418 feet, cement was circulated to surface. 9-5/8 intermediate casing was set at 6355 feet and cemented with 1065-sack first stage when the DV tool was up and 25 sacks were circulated to surface, indicating

cement was to the DV tool at 2875. And then it was
 cemented with 1640 sacks on the second stage. Top of
 cement was at 40 feet, it was topped out with one inch. A
 7-inch casing string was run subsequent to that. It was
 cemented only at the base from 11,745 to 5710. That is an
 additional casing string inside the 9-5/8.

7 The sixth well is the Reed Number 2. It is 8 almost due north of the South Culebra Bluff 4 B well. That 9 well was -- also had 8-5/8 casing set to 509 feet, 10 cemented. It did not have returns to surface, but the top 11 of cement was calculated at the surface. 5-1/2 casing was 12 run to 6300 feet, the initial stage, there was 550 sacks, 13 when the DV tool was opened and circulated 100 sacks were 14 circulated to surface. The DV tool was cemented with 1150 15 sacks, and the top of cement, it did circulate to surface.

The final well is the RB Operating Candie 13 16 17 It had surface casing set at 582 feet, cemented Number 1. to surface with 350 sacks, had 64 sacks circulated. 18 The 19 initial stage on the production casing, the top of cement 20 was calculated at the DV tool. They did not see any cement 21 returns, however when the DV tool was circulated 26 barrels 22 of cement was brought to surface on that well.

23 So all of our production casings were set below 24 the usable water -- or the water as indicated in the cross-25 sections, all cemented to surface. And the production

casing strings were also either by measurement, calculation
 or viewing cement to surface, were also cemented to
 surface.

When we look at the cement calculations and 4 **Q**. 5 compare it to the injection interval, have you satisfied 6 yourself that there is sufficient cement above the top of 7 the injection interval to take you up a certain footage? Yes, sir, I have -- in the injection well I ran 8 Α. 9 the calculations that show that the amount of cement pumped 10 is in excess of two times the annular volume of the 5-1/2-11 inch casing in 7-7/8-inch hole. So yes, sir, I have 12 satisfied myself that we have cement, adequate amount of 13 cement above the injection interval to contain it there. 14 Q. When you flip back a couple of pages in the 15 C-108, in the exhibit, we have the proposed, the existing 16 wellbore schematics, and then you have your data sheet 17 where you describe in writing the details of what you're trying to do. Let me ask you the conclusions. 18 Are you proposing to start at an injection 19 20 pressure that is the equivalent of the Division practice of 21 giving you .2 p.s.i. per foot of depth to the top 22 perforation? 23 Α. Yes, we are.

24 Q. And if step-rate tests later determine that you 25 can safely inject above that threshold limit, then you

1	propose to submit the step-rate test to the Division for
2	additional injection pressure approval?
3	A. Yes, we will.
4	Q. Do you have a range of expectation as to the
5	maximum volume of disposal in the well?
6	A. The maximum that we are anticipating, we're
7	asking for 4000 barrels a day. At this point in time, I
8	don't know if the formation will take that at the pressures
9	stipulated, but we are have located sands within the
10	Cherry Canyon interval that we believe will take water at
11	fairly good rates. Currently we're looking at
12	approximately 1000 barrels a day to start off with, with
13	additional recompletion work and possible additional
14	drilling, we'll be looking to increase that volume with
15	time.
16	Q. Mr. McGinnis, has your company obtained the
17	approval of the owner of the surface at the injection
18	well
19	A. Yes, we have.
20	Q to utilize this well?
21	A. Yes, we have.
22	Q. And is that what's indicated by Exhibit Number 7?
23	A. Yes, it is.
24	Q. There's a memorandum of agreement with the
25	surface owner?

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Yes, it is. Α. 1 And that would allow you to use this well for 2 Q. bringing up produced water from these other areas and 3 putting it into this well? 4 Α. Yes, it will. 5 6 Have you submitted in the C-108 the water Q. 7 analysis on the various source waters that you have had 8 data on? 9 Α. Yes, we have. Do each of those represent the three water source 10 0. wells that the opponents asked you to sample? 11 12 Α. Yes, we have. So you currently have background analysis on each 13 Q. 14 of those three? 15 Α. Yes, we do. 16 And then the fourth one is to take a sample out 0. 17 of the Pecos River? That's correct. 18 Α. 19 Do you find any opportunity for incompatibility Q. 20 of the produced water, produced out of the Brushy Canyon, 21 with any fluids that may exist in the Cherry Canyon? No, sir, I do not. 22 Α. 23 These are all about the same vintage in terms of Q. 24 geologic time? 25 Α. Yes, they are. They both are characterized by

1	high chlorides content and high dissolved solids.
2	Q. I believe the exhibit package, Mr. McGinnis,
3	includes an Exhibit 8, which is a portion of the C-108 that
4	shows the parties to whom notice was sent?
5	A. Yes.
6	Q. And that was taken out of your files?
7	A. Yes, it was.
8	MR. KELLAHIN: Mr. Stogner, that concludes my
9	examination of Mr. McGinnis.
10	We move the introduction of Exhibits 1 through 9.
11	EXAMINER STOGNER: Exhibits 1 through 9 will be
12	admitted into evidence at this time.
13	EXAMINATION
14	BY EXAMINER STOGNER:
15	Q. Okay, I'm referring now to either Exhibit 1 or 2,
16	doesn't matter, and Exhibit 9. I want to make sure that
17	the wells that you're showing on the stipulation, that I
18	have straight in mind which ones they're talking about.
19	The one in subparagraph (a), the SCB Unit Water
20	Well Number 1, now, you show that to be in Unit Letter C.
21	That corresponds to the Number 2 Active Water Well on
22	I'm referring now to Exhibit Number 1. Would that be
23	right?
24	A. Yes, sir.
25	Q. Okay. And then the SCB Unit Water Well Number 2,

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1	that is in Unit A of 23. That would be the well that you
2	show or that is identified as the Number 10 Active?
3	A. Yes, sir.
4	Q. And then the subparagraph (c) SCB Unit Water Well
5	Number 3, that is the one to the south as Number 6; is that
6	correct?
7	A. Yes, it is.
8	Q. Why these three wells? I can understand the two
9	closer ones, but why the one far away?
10	A. That was just an additional water well. At the
11	time there weren't many there, so we just we added that
12	well on for our own reference, to have a well a little
13	further away from the injection well that if something were
14	to happen we would have another reference point.
15	Q. Now, any particular place on the Pecos River that
16	you're to take the sample?
17	A. Well, sir, there's a low-water crossing right
18	there. You look at the aerial photograph, you can kind of
19	see where the road horseshoes across the river
20	Q. Yes.
21	A where there's a low-water crossing there, it
22	would be easy access, it would be downstream of the
23	disposal well. So if there was any problems, that would be
24	where we would see it.
25	Q. Now that you've brought that up, I'm referring

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now to Exhibit Number 2, and I'm looking at that low-water 1 2 crossing --Uh-huh. 3 Α. -- is there a pipeline across there? 4 0. 5 Yes, sir, there is. Α. 6 Okay, is that a big pipeline or a --Q. 7 It is a --Α. 8 Q. Is it a main ---- Gulf Terra -- No, sir, it is a gathering line 9 Α. out there. It is, I believe, currently operated by Gulf 10 Terra. 11 12 Okay. Q. Yes, sir, that is a gas line that runs through 13 Α. 14 there. 15 Okay. Now, could you explain to me -- more out Q. of curiosity too -- how are these water samples to be 16 17 taken, who are to take them, what is being looked for? Α. Well, I'm not exactly sure. I believe the letter 18 19 requested indications of hydrocarbons. The water that we 20 plan to inject will be clean, so there should be no hydrocarbons involved. 21 22 The original samples were taken by a 23 representative of Baker Petrolite under the supervision of 24 RB's pumper, with the assistance of the land owner going 25 out and turning the well on. These wells, of course, do

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1	not run all the time. They're used for irrigation
2	purposes.
3	And so if the landowners request a sample, the
4	first one to be, you know, two years after this initial
5	one, at their request we will take a third party out there,
6	have them gather samples and run analysis on them.
7	Q. Okay, again, referring to Exhibit Number 1, what
8	does that term SCB stand for?
9	A. That is an abbreviation for South Culebra Bluff.
10	Q. Is that a recognized name or term or shows up on
11	the State Engineer's report to identify that well?
12	A. Oh, no, sir, those were for our reference only.
13	Q. Could you provide me a reference of those three
14	wells that shows up in the public records of the State
15	Engineer's Office?
16	A. I believe that they are listed by the owner, and
17	even that now, it's difficult. But yes, sir, I can.
18	EXAMINER STOGNER: Okay, I'm a little concerned
19	about the vagueness of the description if this is to be put
20	into a rough draft I mean into a draft order. Are you
21	proposing that it be a part of the order, Mr. Kellahin,
22	or
23	MR. KELLAHIN: That was Mr. Martin's request, is
24	that there be a paragraph in the order that was like what
25	we've submitted.

EXAMINER STOGNER: Okay.

1 MR. KELLAHIN: I agree with you, in the haste of 2 doing this yesterday, there may be a question about the 3 4 exact locations, and I think what we'll do is, we'll give 5 you the exact footages. 6 EXAMINER STOGNER: Give me some exact footages, some more reference points, yeah, let's make this a little 7 8 more detailed about where these wells are, because Unit 9 Letter C, Unit Letter A, Unit Letter E, that's not even an 10 official designation; that's an OCD thing set up years ago. It's a very good one, but it's still very vague, and that's 11 12 what concerns me on that. 13 MR. KELLAHIN: We'll do that, Mr. Examiner. 14 EXAMINER STOGNER: Also it says to provide copies 15 to the Division. Copies of the report? 16 MR. KELLAHIN: That was not Mr. Martin's 17 suggestion. I simply added it as a means to put them in 18 the public record somewhere --19 EXAMINER STOGNER: Okay, put them in the public 20 record, okay. 21 MR. KELLAHIN: -- so they would be in the case 22 file if anybody wanted to look at those and see if there 23 was a problem. 24 EXAMINER STOGNER: Okay. 25 MR. KELLAHIN: There's no indication here that

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1	either party was assuming responsibility for whatever
2	contamination would show up on any subsequent test; it was
3	just a way to have information generated so either the
4	rancher or the owner could then investigate what may be the
5	source of an impairment of his water quality.
6	EXAMINER STOGNER: Okay, has there been an
7	initial analysis on these three or, I'm sorry, these
8	four samples? Is there one on record now?
9	MR. KELLAHIN: Yes, sir
10	EXAMINER STOGNER: Do you have them?
11	MR. KELLAHIN: and that's how this was done.
12	Mr. Martin took out of our C-108 the three water analyses
13	that Mr. McGinnis has provided and simply faxed them back
14	to me as the three wells to be sampled.
15	EXAMINER STOGNER: How about the Pecos River
16	water?
17	MR. KELLAHIN: We don't have a sample of that.
18	That was an add-on that he thought about afterwards.
19	EXAMINER STOGNER: Does RB have a sample of that
20	river water?
21	THE WITNESS: We can get one, sir.
22	EXAMINER STOGNER: I would strongly suggest,
23	subsequent to the hearing, that that be taken shortly after
24	today and at least put in the record.
25	Now, let's talk about how this is to be put into

the Division record if it's put in. What happens -- or
 means today, what's put in the order and what actually
 happens in the future could be three different things, or
 at least two different things.

What I would suggest is, when this copy is sent 5 6 to the Division, that you reference the case number and the subsequent order number, because what I would visualize is, 7 8 when that comes in and it is -- whoever it comes to, I'd 9 suggest you send it to the director, because if it goes to 10 one of the other bureaus and maybe put somewhere, but I'd like to see that put into the case file. And since we have 11 imaging now, that could be directly put in every time we 12 get something on this. So please reference the case number 13 and the order number and even the paragraph number that 14 15 this was a stipulation set forth.

I want at least to have in the record today that we're looking to set up some sort of an operation, even though that won't be put in the case file, *per se*, but how it is to be manually done, and so let's do it that way.

So what I'm seeking from you at this point, Mr. Kellahin, is the description of those wells, and even that low-water crossing, kind of where it is. Let's make those directions a little more clearer, and -- I'm not making that a requirement, but I'm just suggesting that you get an initial water sample from the river now. That way there

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1 | will be some comparison.

2	I don't know what we're looking for or what they
3	would be looking for on that, but and I'm assuming
4	the reason I was talking about that Are you going to
5	take the water sample upstream or downstream from the road
6	crossing and the pipeline crossing? I suggest you take it
7	upstream, but that's not a requirement, but that's still
8	I'd take it upstream.
9	MR. KELLAHIN: This was Mr. Martin's request, and
10	as an accommodation to his clients we decided to acquiesce
11	and go ahead and take these samples.
12	EXAMINER STOGNER: I'm not saying the pipeline
13	leaks or anything, but at least you won't be held
14	responsible for it.
15	MR. KELLAHIN: Good point.
16	EXAMINER STOGNER: Or if people I had an old
17	
	car that leaked a lot of oil, and if I drove across that
18	car that leaked a lot of oil, and if I drove across that low-water area there would definitely be some hydrocarbon
18 19	car that leaked a lot of oil, and if I drove across that low-water area there would definitely be some hydrocarbon indication from my old Chevrolet in that.
18 19 20	car that leaked a lot of oil, and if I drove across that low-water area there would definitely be some hydrocarbon indication from my old Chevrolet in that. Q. (By Examiner Stogner) Okay, the water wells that
18 19 20 21	<pre>car that leaked a lot of oil, and if I drove across that low-water area there would definitely be some hydrocarbon indication from my old Chevrolet in that. Q. (By Examiner Stogner) Okay, the water wells that are within your area of review, what depths are they? Is</pre>
18 19 20 21 22	<pre>car that leaked a lot of oil, and if I drove across that low-water area there would definitely be some hydrocarbon indication from my old Chevrolet in that. Q. (By Examiner Stogner) Okay, the water wells that are within your area of review, what depths are they? Is the water What depth are these wells?</pre>
18 19 20 21 22 23	<pre>car that leaked a lot of oil, and if I drove across that low-water area there would definitely be some hydrocarbon indication from my old Chevrolet in that. Q. (By Examiner Stogner) Okay, the water wells that are within your area of review, what depths are they? Is the water What depth are these wells? A. The wells, per the State Engineer's record, are</pre>
18 19 20 21 22 23 24	<pre>car that leaked a lot of oil, and if I drove across that low-water area there would definitely be some hydrocarbon indication from my old Chevrolet in that. Q. (By Examiner Stogner) Okay, the water wells that are within your area of review, what depths are they? Is the water What depth are these wells? A. The wells, per the State Engineer's record, are all shallower than 200 feet.</pre>

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And where the water depth is indicated, it is 1 Α. less than 75 feet. 2 And what is the top of the Rustler-Salado, the --3 Q. 4 those formations, your --5 Α. That section is listed by Mr. Emery as an 6 evaporite section made up --7 0. Yes. -- mostly of anhydrites and salts. 8 Α. What's the top of those formations, is that 9 Q. 10 formation, or will he address that? 11 Α. I'd defer to that, I'll let him answer that 12 question, sir. EXAMINER STOGNER: All right, I'm getting ahead 13 of myself then. 14 That's okay. 15 THE WITNESS: EXAMINER STOGNER: I'll tell you what, I have no 16 other questions of this witness. 17 18 Are there any questions of Mr. McGinnis at this time? 19 20 MR. KELLAHIN: No, sir. 21 EXAMINER STOGNER: You may be excused. Thank 22 you, sir. 23 THE WITNESS: Thank you. 24 EXAMINER STOGNER: I don't know the ways of the 25 State Engineer's Office, but I'll bet after today I'm going

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to get a real education. 1 2 MR. KELLAHIN: We're all going to learn, Mr. 3 Stogner. 4 EXAMINER STOGNER: Oh, you bet you. I'm going to 5 get a personal lesson, I'm sure. 6 MARTIN EMERY, the witness herein, after having been first duly sworn upon 7 8 his oath, was examined and testified as follows: 9 DIRECT EXAMINATION BY MR. KELLAHIN: 10 For the record, Mr. Emery, please state your name 11 Q. 12 and occupation. My name is Martin Emery, and I'm chief geologist 13 Α. for Range Resources Corporation. 14 15 Q. Mr. Emery, on prior occasions have you testified 16 before the Division? 17 Α. Yes, I have. And have your qualifications as an expert 18 Q. geologist been made a matter of record? 19 Yes. 20 Α. Do the geologic displays that Mr. McGinnis 21 Q. testified about represent your work product? 22 Yes. 23 Α. 24 Q. Are you familiar with the geology concerning this 25 Application?

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44 1 Α. Yes, I am. 2 MR. KELLAHIN: We tender Mr. Emery as an expert 3 petroleum geologist. 4 EXAMINER STOGNER: Mr. Emery is so qualified. 5 (By Mr. Kellahin) Mr. Emery, we can take either Q. one or both of these displays, and let me ask you some 6 7 conclusionary questions about your work. Is there anything 8 Mr. McGinnis testified to with which you have a 9 disagreement? 10 Α. No, there is not. 11 Have you independently satisfied yourself as a Q. geologist that if produced water is introduced into the 12 13 Cherry Canyon as your company proposes in this well, it 14 will remain confined to the Cherry Canyon? 15 Yes, I have. Α. Are there any hydrocarbons, to the best of your 16 Q. knowledge, in the Cherry Canyon formation into which you're 17 going to inject produced water that would be compromised by 18 19 this injection? 20 No. Based on mudlogs and log analysis, the Α. Cherry Canyon formation of the Delaware Mountain Group in 21 the immediate are of the Candelario well is wet. 22 Let's talk about the lithology. Describe for us 23 **Q**. 24 from the base of the Cherry Canyon to the top of the Brushy 25 Canyon, what is the distance and the composition of the

1 | materials?

2	A. In the Candelario well it's approximately 70 feet
3	from the base of the proposed injection interval to the top
4	of the Brushy Canyon, and that interval is comprised of
5	calcareous shale and tight siltstone.
6	Q. In this area are the hydrocarbons in the top of
7	the Brushy Canyon do they remain confined to the top of
8	the Brushy Canyon?
9	A. Yes, that interval that I just described, that
10	70-foot interval, is actually the top seal for the
11	hydrocarbons contained in the uppermost part of the Brushy

12 Canyon.

Q. And based upon your experience, that is an adequate seal to separate out the Brushy Canyon from the base of the Cherry Canyon?

A. Correct.

Q. As we move vertically, we get up into the Rustlerand these other formations.

19 A. Uh-huh.

20 Q. And what's the lithology of the interval shown in 21 purple?

A. It's all evaporites comprised of interbedded
anhydrite and salt. The uppermost part of the RustlerSalado-Castille formations is anyhdrite.

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Q. We're injecting down about 4300 feet?

That's correct. 1 Α. 2 Q. Are you satisfied that there are not any faults 3 or other hydrologic connections that would communicate the 4 injection fluids in the Cherry Canyon to shallower freshwater sands? 5 6 Yes, I am satisfied. These are structural cross-Α. 7 sections, and you can see from both cross-sections which 8 incorporate all the nearby wells that there are no 9 structural discontinuities evident from the well-to-well 10 correlations. What's your understanding of the deepest 11 0. freshwater sources in this area? 12 The information that we gathered from the State 13 Α. Engineer was that the deepest freshwater formations are 14 15 shallower than 200 feet, or the 200 feet that all the water wells are shallower than. 16 17 MR. KELLAHIN: That concludes my examination of 18 Mr. Emery. 19 EXAMINATION 20 BY EXAMINER STOGNER: 21 Mr. Emery, were you a party to this agreement on Q. the water wells? 22 23 Α. Yes. You were. So did you look over it, or was it 24 0. 25 with the initial -- or were there any kind of discussions

1	with Mr. Martin that you had?
2	A. We were just made aware of this proposal
3	yesterday at Tom Kellahin's office, but yes, we did discuss
4	it as a group at that time.
5	Q. But not with Mr. Martin?
6	A. Not with Mr. Martin, no.
7	Q. And so what depth out here, before I hit the top
8	of the Rustler formation in this general area?
9	A. It's somewhat difficult to ascertain because
10	there's very few wells that really have logs that go up
11	shallower than a couple hundred feet, but it's in the 200-
12	to 400-foot range, and I think there's some dissolution at
13	the top of this evaporite section, so it does vary
14	somewhat, as indicated by the squiggly line, the
15	unconformity drawn at the base of the light blue stippling.
16	Q. What kind of water quality would I get or would
17	you suspect if I drilled one of my had one of my water
18	wells that went into the Rustler formation, and the water
19	was coming shallower and I Would it be saltier than if I
20	completed around 75 feet or higher up into the aquifer?
21	A. I would suspect it is, and I think Mr. McGinnis
22	has some further knowledge about water qualities from some
23	of the various water wells in the area, some of which are
24	fairly poor water quality.
25	EXAMINER STOGNER: I have no other questions of

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either witness at this point. Mr. Kellahin, do you have 1 2 anything further? 3 MR. KELLAHIN: No, sir, that concludes our 4 presentation. 5 EXAMINER STOGNER: I would welcome a rough draft --6 7 MR. KELLAHIN: Yes, sir. EXAMINER STOGNER: -- and particularly the 8 9 locations of where the samples are to be taken. MR. KELLAHIN: We'll take care of that. 10 EXAMINER STOGNER: With that, then, Case Number 11 12 13,313 will be taken under advisement. Thank you very much. 13 And with that, today's hearing is adjourned. 14 15 (Thereupon, these proceedings were concluded at 11:07 a.m.) 16 17 * * 18 19 20 I do hereby certify that the foregoing is a complete record of the proceedings in 21 the Examiner hearing of Case No. 13313 heard by file ga 19 Hugust 2004, 22 - Examiner 23 OII Conservation Division 24 25

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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 August 23rd, 2004.

STEVEN T. BRENNER CCR No. 7

My commission expires: October 16th, 2006

STEVEN T. BRENNER, CCR (505) 989-9317