STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ORIGINAL

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

CASE NO. 14455

APPLICATION OF COG OPERATING, LLC FOR AUTHORIZATION TO CONDUCT INJECTION OPERATIONS FOR EVALUATION FOR SECONDARY RECOVERY OPERATIONS, EDDY COUNTY, NEW MEXICO.

and

APPLICATION OF COG OPERATING, LLC FOR AUTHORIZATION TO CONDUCT INJECTION OPERATIONS FOR EVALUATION FOR SECONDARY RECOVERY OPERATIONS, EDDY COUNTY, NEW MEXICO.

CASE NO. 14456

and

APPLICATION OF COG OPERATING, LLC FOR AUTHORIZATION TO CONDUCT INJECTION OPERATIONS FOR EVALUATION FOR SECONDARY RECOVERY OPERATIONS, EDDY COUNTY, NEW MEXICO.

CASE NO. 14457

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

April 1, 2010
Santa Fe, New Mexico

BEFORE: WILLIAM B. JONES: Hearing Examiner
DAVID BROOKS: Legal Adviser

This matter came for hearing before the New Mexico Oil Conservation Division, William B. Jones, Hearing Examiner, on April 1, 2010, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South St. Francis Drive, Room 102, Santa Fe, New Mexico.

REPORTED BY: Peggy A. Sedillo, NM CCR No. 88
Paul Baca Court Reporters
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I N D E X

A P P E A R A N C E S

FOR THE APPLICANT: SCOTT HALL, ESQ.
Montgomery and Andrews
P. O. Box 2307
Santa Fe, NM 87504-2307

FOR BP AMERICA: WILLIAM F. CARR, ESQ.
Holland and Hart
110 North Guadalupe, Suite 1
Santa Fe, NM 87501

HEARING EXAMINER: At this time, let's call Case 14455, the Application of COG Operating LLC for Authorization to Conduct Injection Operations for Evaluation of Secondary Recovery Operations, Eddy County, New Mexico. Call for appearances.

MR. HALL: Mr. Examiner, Scott Hall of the Montgomery and Andrews Law Firm in Santa Fe on behalf of the Applicant. And I have two witnesses this morning.

HEARING EXAMINER: Other appearances?

MR. CARR: May it please the Examiner, William F. Carr with the Santa Fe office of Holland and Hart, LLP. I represent BP America Production Company. I do not have a witness. We're not here to attempt to hinder COG's efforts to test water flood feasibility, but we are in the area of interest.

HEARING EXAMINER: Any other appearances? Okay, I think in the record we have an appearance from Limerock Resources.

MR. HALL: Yes. And they have provided us with a waiver of objection letter which we'll introduce.

HEARING EXAMINER: Okay. With that, will the two witnesses please stand and state your names and be sworn?

MR. PRENTICE: Richard Prentice.

MR. REYES: Ramon Reyes.

(Note: The witnesses were placed under oath.)

MR. HALL: Mr. Examiner, if I may provide you with a brief opening statement. These three cases involve four wells in Case 14455. There is the Continental A State No. 11 and the Continental A State No. 12.

Case 14456 is for the Mesquite State No. 15, and Case No. 14457 is for the Texaco BE State No. 8. We ask that all three of these cases be consolidated for hearing.

We have provided you with what we've labeled as -- Exhibit 3 is, in fact, a compilation of the C-108s and the reporting materials for each of these wells.

And the reason we want to proceed this way is to advise the Examiner that COG is at the point in this operation to simply gather data. It is something of an science experiment at this point.

COG is not at the point where it's actually implementing secondary recovery operations, it's simply obtaining data to determine the feasibility of that.

And so there is very little -- no need for land testimony, frankly, but we thought a good place for us to start would be to provide you with an overview of the geology of the injection intervals in the Glorieta-Yeso formation. And for that purpose, we have Mr. Ramon Reyes, geologist, to testify this morning.

HEARING EXAMINER: Okay. Should we call the

other two cases formally?

MR. BROOKS: And consolidate them, yes.

HEARING EXAMINER: Okay. Let's call also Case 14456, the Application of COG Operating, LLC for Authorization to Conduct Injection Operations for Evaluation of Secondary Recovery Operations, Eddy County, New Mexico. Call for appearances on this case.

MR. HALL: Mr. Examiner, Scott Hall of Montgomery and Andrews, Santa Fe, on behalf of the Applicant, COG Operating, LLC.

HEARING EXAMINER: Any other appearances?

MR. CARR: I would request the record just note our appearance in the consolidated cases.

HEARING EXAMINER: And we would also call Case 14457, the Application of COG Operating, LLC for Authorization to Conduct Injection Operations for Evaluation for Secondary Recovery Operations, Eddy County, New Mexico. And the appearances are the same? Okay. You may proceed.

RAMON REYES,

the witness herein, after first being duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HALL:

Q. For the record, please state your name.

A. Ramon Reyes.

Q. Mr. Reyes, where do you live and by whom are you employed?

A. I live in Midland, Texas, and I'm employed with Concho, or COG Operating Company.

Q. And what do you could for Concho, COG?

A. I'm a geologist for Concho.

Q. Have you previously testified before the Division and had your credentials established as a matter of record?

A. Yes, I have.

Q. Are you familiar with the wells and the lands that are the subject of these three applications?

A. I am.

Q. And have you conducted a geologic study of the area?

A. I have.

MR. HALL: At this point, Mr. Examiner, we'd offer Mr. Reyes as a qualified expert petroleum geologist.

HEARING EXAMINER: Mr. Reyes is qualified as an expert petroleum geologist.

Q. If you would, please, Mr. Reyes, let's turn to your Exhibit 1, and would you provide the Hearing Examiner with an overview of the geology for the Yeso, explain what we're trying to do here.

A. Okay. Good morning. The first map that we have in front of you is a structure map, and the structure map is on top of the Yeso. And really, it's just showing you a regional overview of the four wells that we're going to be speaking about here this morning.

Three are pretty concentrated over here in Township 17 29, and the Texaco BE No. 8 over here to the east are in 17 30. This map represents, again, a structure map.

As you can see, these are located in the southern end of the northwest shelf. And you can see by the contours at the bottom part of this map, you can see the shelf influence for the Delaware-Basin. Kind of gives us the boundary, so to speak, for the production part of the Yeso and in this part of the world.

These pools or fills are pretty much tied in together, and they're pretty extensive. They go all the way down -- all the way to 17 32 in Lea County, and all the way to the west to 17 28, and a little bit beyond that.

Also what you see on the map here, as you see, the yellow. The yellow represents our acreage position in this part with varying degrees of ownership. Also you'll note that there is quite a few locations and there's a lot of well control. So this is a pretty accurate map of what

you're seeing overall.

The structure map going from west to east is a downward structure going -- it's dipping to the east. So the wells over to the east are probably roughly 1,500 feet deeper than they are on the western edge.

So there's just a nice, smooth down-dip structure overall. Not much to say otherwise, and it's all pretty much consistent and there's not a whole lot of change as far as thickening and thinning of the overall section of where we're talking about. So we'll go ahead and move on to the next exhibit.

On the next exhibit, there's actually four different cross-sections, each one having three wells hung on top of the same structure map that I just showed you on top of the Yeso.

The middle wells for each of the four cross-sections are the subject wells that Mr. Prentice will be talking about later on.

The cross-section pretty much just shows you how consistent and how fluid the overall sections are that we're going to be talking about. These wells are roughly over 2 miles apart overall.

And you can see by our picks and how it's hung, it's pretty consistent. You can see where it starts getting down-dip as we go farther and farther east. It's

demonstrated by the structure map.

We'll be talking about the Yeso section. And the Yeso section is a carbonate section that's roughly about 1,200 feet thick overall. It's fairly well defined, because the Glorieta is a siltstone section and it can be well depicted on logs.

And at the base of the Yeso is the tub, again, another siltstone that's fairly thick. And you can -- it's also very easy to depict on logs.

Focusing on the Yeso, the upper part of the Yeso, because it is such a big section, we've broken it down into two different names that -- the upper third part of the section, we call it the Paddock, and then the bottom two-thirds of it we call the Blinebry.

And the pick that you're seeing here, it's a generalized over -- For the most part, everyone agrees with the pick industry wise, but for our in-house, this is what we use. Because it's a fairly consistent siltsand section that's roughly about ten feet thick and it's pretty consistent throughout going from west to east.

Just a little history on this Yeso production. The majority of the production was focused on the Paddock, which is the upper perfs that you're seeing there up on top.

That was fairly obvious, because if you look at

the logs, that's where you see the better concentration of porosity. It's a little bit higher. It averages 8 to 10 percent porosity, sometimes in other places a little higher. And so that's pretty obvious where you want to go and try to make an economic or commercial well.

As you go farther down in the section of the Blinebry, you'll see where the porosity signature on that section is fairly tight. And I demonstrated it because there's a green line going straight -- going down across, and that's actually zero porosity. So anything to the left of your -- if you're knowledgeable in reading logs is where your porosity starts. Those are two percent increments going to your left.

So you see the Blinebry is very tight rock. It averages two to three percent porosity. Really tight. Which is why for a long time this was not very prospective. No one tapped into it, nobody understood that it could be an economic and productive zone.

Due to new stimulation and fracing techniques, we found that doing that has made wells productive and commercial. So we feel we're one of the front runners as far as producing the bottom two-thirds of this interval.

So now we're looking at pretty much the whole package. And you will note in the Paddock, you'll see the perfs pretty much mimic or mirror where the best porosity

interval is and where it was produced.

And then you have a 150 to 200 feet section that is fairly tight. It's as tight, if not tighter, than the rest of the log going down. And that kind of gives you -- that's where that separation that people saw that -- you know, this is the best part to do, so everything else was ignored.

So now here we are looking at this overall section. And now we want to continue on with our development and to do the ultimate we can to recover all the hydrocarbons we can from these intervals.

Q. And Exhibit 1 is your structure map. And does Exhibit 2 consist of four cross-sections consolidated into one exhibit?

A. That is correct.

Q. And were Exhibits 1 and 2 prepared by you?

A. They were.

MR. HALL: At this point, Mr. Examiner that concludes the direct of this witness. And we'd move the admission of Exhibits 1 and 2.

HEARING EXAMINER: Exhibits 1 and 2 will be admitted. Is this -- How do you pick the Blinebry if it's so tight on the logs, do you pick it based on mud log shows?

THE WITNESS: How do we pick the top of the

Blinebry?

HEARING EXAMINER: Well, the prospective zones in the Blinebry.

THE WITNESS: How do we know where to put our perfs?

HEARING EXAMINER: Yes.

THE WITNESS: Well, it's been a learning process as we've gone along. We've increased the size of our fracs. We've modified as we've gone along. What we've down now is, we perforate at 200 foot intervals and we try to pick as best we can with the tight rock that you see there, we try to -- we try to space them up 100 feet apart with 200 foot intervals and try to get as many of those 200 foot intervals as we can in that section.

Sometimes we'll do two, sometimes we'll do three depending on how thick that interval is. And then we frac them.

So yeah, you can distinguish -- I can't tell you that the bottom third or the upper third is the better part of the overall interval. I mean, we're talking three percent porosity. So it's really tight rock.

HEARING EXAMINER: And that would imply that it can't hold that much oil or gas either. So -- but I guess the shale plays are -- I think cracking is the key, I guess.

THE WITNESS: Yes, sir.

HEARING EXAMINER: And it looks like you're not afraid to perforate the higher gamma ray zones either.

THE WITNESS: No, sir. You'll notice sometimes that if you do get some silt sections in this part of the world -- and that's influenced by being so close to the shelf edge, that you start getting these channels as you're coming off the shelf edge, and you do run into some of those.

Part of that -- of this silts is, we try -- we try not to see them but we do as we get farther down; they tend to be more wet.

HEARING EXAMINER: Okay.

THE WITNESS: And so we try to avoid that as much as we can.

HEARING EXAMINER: Okay. But it's extremely tight rock and you're going to put water in it to try to force oil to the producing wells. It's the same -- and you have to frac it. So it just -- Good luck in your venture. I hope it succeeds. But it just seems a little bit -- Has it happened before, do you have some analogy of Blinebry water floods?

THE WITNESS: I'll defer that to Mr. Prentice.

HEARING EXAMINER: Okay. The difference between the Glorieta and the Paddock, I've always wondered why --

because the Yeso includes such a huge interval and I remember seeing it in the outcrops, you know, of Tijeras Canyon and stuff, but it's totally different, I guess, here.

THE WITNESS: Right. And the reason the Glorieta is also -- includes the Yeso, because there has been some producers that have actually perforated the Glorieta, because it is higher porosity and it does give you mud log shows. But overall, they tend to be more wet than anything else. So we try to avoid that interval.

HEARING EXAMINER: And the Paddock is just a porosity zone that comes and goes inside the Yeso?

THE WITNESS: Correct.

HEARING EXAMINER: Okay. Well, it's a big dropoff in the structure, but you still -- you still have oil saturations over on the lower structural -- you have good production from this area?

THE WITNESS: Yes, sir.

HEARING EXAMINER: Okay. I have no more questions.

MR. BROOKS: No questions.

HEARING EXAMINER: Thank you.

THE WITNESS: Thank you.

MR. HALL: We would call Richard Prentice.

RICHARD PRENTICE,

the witness herein, after first being duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HALL:

Q. For the record, state your name.

A. Richard Prentice.

Q. Mr. Prentice, where do you live?

A. Midland, Texas.

Q. By whom are you employed?

A. Concho Resources.

Q. What do you do for Concho?

A. I'm a reservoir engineer.

Q. And Concho and COG are one and the same?

A. One and the same, yes, sir.

Q. All right. Have you previously testified before the Division and had your credentials as an engineer accepted as a matter of record?

A. Yes, I have.

Q. You're familiar with the lands and the wells that are the subject of these three applications?

A. Yes, I am.

MR. HALL: At this point, Mr. Examiner, we would offer Mr. Prentice as a qualified expert petroleum engineer.

HEARING EXAMINER: Mr. Prentice is so qualified.

Q. If you would, Mr. Prentice, would you give the Hearing Examiner an overview summary of what COG is trying to do with these wells?

A. As the Examiners have already begun to notice, we are attempting to discover and determine the feasibility of injecting fluids into the Paddock and Blinebry in these four wells and in these fields, these pools.

Q. And if we can turn to Exhibit 3, Mr. Prentice, is Exhibit 3 your notebook with C-108 applications for each of these wells?

A. Yes, they are.

MR. HALL: And a good way to find your way through this material, Mr. Examiner, we've separated these by case number. There is a tab for each case number.

HEARING EXAMINER: Okay.

MR. HALL: And then there is a table of contents just below the case number tab which will provide you with guidance for each of the subtabs. There is a Roman numeral one.

Tab I is the justification for the project.

Tab II is a production plot and mobility ratio plot.

Tab III provides you with the well data.

Tab V is the area of review maps.

Tab VI is a well tabulation.

Tab VII is the proposed operation.

Tab VIII is a geological review and analysis of the ground water.

Tab IX is the injection proceed.

Tab X is the current test data.

Tab XI, fresh water analysis.

Tab XII, geological fresh water statement.

And then proof of notice that was given during the administrative round. I have another set of notice affidavits to give you.

HEARING EXAMINER: Okay.

Q. On top of the table of contents is the Division's form C-108 for each of these wells. And I thought that we would simply try to discuss these by subject matter together for each well as we proceeded.

So if you could, Mr. Prentice, briefly identify each of the wells and their prospective pools that they are in.

A. The four wells that we're discussing this morning are the Continental A State No. 11 and No. 12 in Section 30; Units F and D of the Empire field; and Mesquite State 15 in Section 20, Unit L of the Empire East field; and Texaco BE No. 8 in Section 16; the Loco Hills

field in Section T 17S R 30E; the other 3R in 17 South 20E, all in Eddy County, new Mexico.

Q. And briefly, what are you trying to do here with your injectivity project?

A. Briefly, what we're trying to do is to establish -- this is part of an overall feasibility study of potential secondary recovery operations in the Empire and the Empire East fields and Loco Hills field in both the Paddock and in the Blinebry areas.

Q. So COG is not implementing actual secondary recovery operations at this time through this project; is that correct?

A. That is correct.

Q. And so you're not asking for the designation of project areas around these injectors?

A. No, we are not.

Q. Okay. If you would, we've already reviewed the table of contents; let's get ourselves located, if you could direct us to Tab V.

A. Tab V has area of review maps, the half mile radius around each of the proposed injectors, and a two mile radius map beyond that.

Q. And if we want to find the actual footage locations for the surface and bottom holes for each of these wells, can we find that under Tab III for each case?

A. Yes. Tab III on each of these wells lists the footage of where each one of these wells is located.

Q. And Tab III also gives you -- it's labeled "Well Data," is it not?

A. That's correct.

Q. It gives you some information with respect to your packers and your packer setting depths?

A. That's correct.

Q. Tell us, what is the source of the injection fluids?

A. The source of the injection fluids is, we produce water from the areas, from the area leases.

Q. Are they all COG leased wells?

A. Yes, they are.

Q. Okay. Tell the Hearing Examiner how you selected these particular intervals of the Glorieta-Yeso for injection.

A. We selected the wells based on ownership, and we selected the wells for their completions in both the Paddock and in the Blinebry that we thought might be amenable to discovering what's feasible in our injection plans.

Q. And the geological determinations in-house has been that the formation in the Paddock and Blinebry is fairly consistent contiguous throughout the area of the

four wells?

A. Yes, it appears to be that way.

Q. Okay. If we refer to Tab I for each of these wells, what is Tab I?

A. Tab 1 is a justification for the conversion of each of these wells to injection.

Q. What type of data do you hope to derive from your injectivity testing?

A. We're hoping to determine data such as reservoir preferential permeability trends, injectivities into each interval, injection performances, sweep efficiencies, operating pressure, so forth and so on, that might be incorporated into future secondary recovery operations if they prove to be feasible.

Q. What else is reflected on the justification section?

A. There is a couple of different headings. Beneath the statement of purpose, there is a heading called "Oil in Place and Recoverable Reserves." I tried to summarize for all four of these wells the potential impacts on each well. I listed an oil in place per acre by zone.

Typically between the two zones, the oil in place is between 95,000 and 100,000 barrels per acre. I tried to estimate what the impact of each individual well

might be and I suggested five acres and five percent, and the oil recovery might be between 25,000 and 30,000 barrels per well for these individual well tests that we're talking about.

Q. We get to Page 2 of that same section, and you discuss mobility ratio data. Of what importance is that data to you?

A. There was a request for whatever mobility ratio data that we have. We had none in these fields. The nearest mobility ratio I have is from what we call our Skull unit over in Fren field in 17 31 back to the east. I presented that data. It is located in the -- as a matter of fact, in Tab II behind the well production plots.

Basically, it shows that the -- a mobility ratio of one is reached at a water saturation of about 43 percent. Most hole water saturations are below that. So that gives us some level of comfort in the Paddock. This is a Paddock relative perm data set.

Q. If we turn to Tab III, does that show us something about the wellbore for each of those injections?

A. Yes, Tab III is the -- how each well is -- where the producing horizons are and where the overlying and underlying reservoirs are. It shows a schematic of the well as it is now, and then a schematic of the well as we

propose it for injection.

Q. Can you explain to us the function of your tandem packer setup?

A. Sure. The tandem packer and -- The last two pages in those tabs are the tandem packer and the arrangement of the wellbore as it will be. And the tandem packer -- it's a downhole regulator.

What we're hoping to do is to very intentionally force a certain volume of water into the Blinebry without letting it all preferentially go into the Paddock. The only way I know to do that is to use the downhole regulator, and that is the mechanical arrangement of that downhole regulator.

Q. You'll have similar arrays in each of the four wells?

A. Yes. Yes, they're all the same.

Q. All right. Let's turn over to Tab VI. What does that show us?

A. Tab VI is a tabulation of the wells in the areas of review. Typically in the first two or three pages of Tab VI, I list the wells by section.

About the fifth column over is the section column, just to try to keep these all these numbers relatively straight.

To the far right is the total depth of the well

that -- and that gives you an idea of what wells penetrated the Yeso and which wells did not.

Continuing on the spreadsheet in about -- I'm in the Continental book, but about Page 4, the spreadsheet is continued. The wells start to repeat themselves. But I've listed on those pages what the producing horizon is when the wells were spudded, when the wells were completed, when they were abandoned.

So it gives you some idea of where each well is completed. And footages are listed on the first three pages, of course, and unit locations.

Q. These wells are all reflected on the AOR maps as well?

A. Yes, they are.

Q. Okay. If you turn back to the wellbore schematic for any one of these wells under Tab III, can you discuss the casing and cementing program for the wells?

A. Sure. I'll just start for an instance in the first tab. Again, I'm in the Continental book. The first tab is a Concho State S 19 No. 1. Typically, 13 of 3 H was set at about 350 to 450 feet to protect the fresh water zones. 85 H was set at about 3,000 feet to protect the salt sections.

Then the final one was set down below the zone

of -- this is an Abo well, Morrow well, but the 5 S was set through the productive horizon, is the production string. And in most cases, cement was circulated to the surface.

Q. And that same information for each of the wells can be found under Tab III for each --

A. Yes. I've tried to list each well by section to again try to simplify finding individual wells instead of going through a spaghetti bowl.

Q. Okay. Will these wells be open-hole completion?

A. No.

Q. How will they be completed?

A. Case hole. They are all case-hole completions.

Q. And will the fluids be injected under pressure?

A. Yes, they will be.

Q. At what pressures do you expect?

A. We've asked for a maximum pressure limit of 2,000 pounds and a maximum rate of 2,000 barrels a day into these wells.

Q. Now, will the well heads be equipped with a back-pressure limiting valve?

A. Yes. The service well equipment will, among other things, have back-pressure check valves.

Q. All right. And what are the tubing materials?

A. Tubing is usually internally plastic coated

seven-eighths inch tubing.

Q. Okay. Let's talk about the average and maximum daily injection rates you anticipate. What are those and how did you determine them?

A. We're asking for -- like I said, a rate of 2,000 barrels a day, and a maximum pressure of 2,000 pounds of well-head pressure. Our template is the Jenkins unit, a previously authorized Paddock flood over in Loco Hills.

The pressure limit there is 880 pounds at the well head. We had no rate limit. We found we could put away 1,000 barrels a day at 880 pounds. In fact, we needed to to fill up our pores and start to build pressure at the well head.

As Mr. Reyes has indicated, the -- we have no injection data points for the Blinebry, all we have is core data, and we've got a very tight reservoir in the Blinebry. So we're expecting a higher limit for our pressure at the well head for the Blinebry.

Q. All right.

MR. HALL: Mr. Examiner, there is an Order authorizing injection for that Jenkins project. I'll send that over to you.

HEARING EXAMINER: Okay. Thank you.

Q. Would you explain to the Examiner why you're asking for pressures that exceed the standard gradient?

A. Once again, we are anticipating a much higher -- a lower injectivity, a higher pressure in the Blinebry based simply on our core data. We cite some numbers that we have on our core data.

On the Continental E 12 on a Blinebry hole core in the interval throughout -- in the completion interval, our permeabilities is two-tenths of a milidarcy. Our porosity is 1.8, average. I mean, over the whole thing.

If we look at some of the -- That's a hole core. If we look at some of the sidewall cores, the picture improves a little bit on our Texaco BE 7. The porosity in the Blinebry is about 6 percent and the perm is about .5 milidarcies. So it's not completely gloom and doom, but it's not the best.

As compared to the Paddock -- this is in the same well, the Texaco BE 7, flood core's average K is about ten milidarcies, and porosity is about 12 percent. So we got much better porosity and a whole lot better permeability.

The flood on the Mesquite lease and the Paddock is about 8 percent porosity and about 3 percent milidarcy perms. On the Mesquite 14 in the Blinebry, we're back down to 5 percent porosity and about nine-tenths of a milidarcy perm. Again, these are plugged core datas.

On the Mesquite 16, the Blinebry is about 1.6

milidarcies and about 5 percent porosity. These give you a flavor of why we're thinking we're going to need a higher pressure on our Blinebry injection.

Q. You also have some shut-in pressure data that you considered?

A. Yes.

Q. If you look under Tab VII.

A. Yeah, that's where I was going. Tab VII behind the water analysis is a well chronology report. And I may have highlighted, or may not have for the Examiner's copy, but typically, I try to show what our shut-in frac pressures were in the Blinebry and in the Paddock. I'm looking at the Continental A 11. It's Page 3 of what we call the chronology report.

After we frac'ed the Blinebry, our 15 minute shut-in pressure was 856 pounds in the Blinebry. We frac'ed the -- well, we frac'ed the Blinebry again, a second Blinebry zone; a 15 minute shut-in was 809 pounds. When we shot the Paddock on Page 8, the 15 minute shut-in pressure was only 560 pounds.

So we've got some cleaves here that we're going to be facing something a little bit stronger than what we see in the Paddock. And these types of reports are -- there's another one for H 12 in the same book, and you can find them in the notebooks, too.

MR. HALL: Excuse me, Mr. Examiner. I just need a few moments here.

HEARING EXAMINER: Why don't we take a recess?

(Note: A break was taken.)

HEARING EXAMINER: Okay, let's go back on the record.

Q. Mr. Prentice, while we're discussing fracture gradients, let's look at Exhibit 4 very briefly. Can you identify that?

A. I think Exhibit 4 is the e-mail we received from in Mr. Wesley Ingram with the BLM concerning frac gradients of our proposals.

Q. Okay. Can you address the concerns that the BLM expressed in that e-mail?

A. A couple things come to my attention. We're seeing frac gradients out there between .75 and .9. I'm not sure that I understand completely Mr. Ingram's -- where he got the .96 numbers.

If I understand correctly, the way the frac gradient is calculated, it's the well-head pressure divided by the top perf. By my calculations, if that's the case, our 2,000 pounds translates into a frac gradient between .4 and .5.

I really do not understand what the point .9 and .96 comes from. If you use a lower set of perforations,

then the frac gradient just becomes less than .4, 5.

The second issue that catches my attention, I think Mr. Ingram has expressed a concern about water migrating from the Blinebry to the Paddock.

As the logs that Mr. Reyes showed, there's about a 150, 200 foot interval between the two zones. We don't expect migrations between the two, and even if -- in the remote case that there is, this is all considered to be one pool by the Commission. I'm not sure we're violating anything there legally if that by some happenstance happens. So that's how I would address his concerns at this point.

Q. Let's turn again to Tab VII, and then the second page under each of those tabs. Is that your water analysis report?

A. Yes. We included water analysis reports on each of our books. We just wanted to point out the -- couple of numbers. The total dissolved solvents over in that left column was usually over 180,000, 185,000 or so. The chloride contents in the middle column, usually 113,000 -- over at least 113,000 milligrams per liter in both cases.

The pH is located there in the middle column below the chloride content, usually a little bit less than seven neutral to -- I think slightly acidic. Those are numbers that catch our attention.

Q. Does your water require any treatment before injection?

A. Yes. We are -- well, we are treating our produced water to keep the waters free -- the waters that we treat that we inject in the Paddock, I think are probably treated for saline purposes to drop out the total dissolved solvents and to keep the waters more or less clean.

Q. Okay. Can you discuss in a little more detail the permeability and porosity of the reservoir?

A. Well, those are the numbers that I have already quoted of the perm numbers that we're seeing core data wise and the porosity numbers that -- The difference between the two zones are fairly obvious at this point.

Q. Okay. What's the current dry mechanism for the reservoir?

A. Currently, we believe this is a solution gas dry reservoir with some water drive components either from the edge or from the bottom.

Q. Are you satisfied that the injection fluids will remain contained within the injection intervals?

A. Yes. We don't see any reason why they should migrate out of the Yeso.

Q. For purposes of your hydrogeologic and geologic analysis, what was your area of review?

A. The area of review was the -- Are we talking about Exhibit 8 at this point?

Q. Yes.

A. Okay. Exhibit 8 was a review of the groundwater sources more on a regional basis on the east half of Eddy County east of the Pecos River. There's a two page analysis there just highlighting the points that seem to be relevant.

Groundwater is usually found in the upper Permian and maybe Triassic age rocks of the Tertiary quadrant age. I say that in Page 1. Below Permian age rocks are too mineralized to be potable, usable as far as we know for livestock.

I go into some detail on the second page of that, basically, that the groundwaters are found 400 feet from surface, generally less than 300 to 400 feet. I do quote some early analyses out there in the middle of that second paragraph.

I talk about the calcium carbonate samples range from 201 to 3,590 parts per million in 21 samples that they took, and were a thousand parts per million in 14 of the 21 samples. Chloride content was 17 to 785 parts per million in more than 210 of the samples.

What else? I tried to summarize everything down there at the last paragraph. Generally, the Triassic beds

are found 300 feet or less. Water is generally fair quality. Sometimes locally impotable.

The injection intervals start at about 3,800 feet, so we've got a 3,500 foot separation. We don't see any communication between those two intervals.

I do cite my reference. It's a field of mines and minerals resources book, Geology and Resources of Eddy County, New Mexico. This became my source for my analysis.

Q. From your review of the available data bases and visual inspections in the field, did you find any windmills, water wells within your areas of review?

A. We did not see anything on our current maps indicating any windmills. We had guys in the field look out, look across the area. We found no indication of windmills. I did look at the earlier maps. They did have spots of wells back in the '50s. If they were there -- I have no reason to doubt that, but we certainly didn't see them today.

Q. Okay. You're confident that no fresh water zones exist below your injection interval; is that right?

A. That's correct. We're not seeing fresh water zones anywhere below 400 feet from surface.

Q. Okay. And are you satisfied based on your examination of all available geologic and engineering data

for evidence of open faults and any other hydrologic connection between the injection zone and any source of underground drinking water, do those exist?

A. No. We don't see any kind of faulting, any kind of connection between our -- between the Yeso and the surface waters.

Q. Okay. Let's go back to Tab VI. You have a subtab with the section, township, and range on there.

A. Yes.

Q. Under that tab, are these compilations of the wellbore schematics for all the wells that you show in the area of review?

A. Yes, all wells that's penetrated the Yeso, yes.

Q. Okay. And what's the source of the data for these?

A. This data all came from IHS public information data bases.

Q. Were you satisfied that the data available to you was sufficient to permit you to determine casing depths and calculate cement tops on those?

A. Yes.

Q. Let's turn briefly to what we've marked as Exhibit 5. Can you identify that, please?

A. Exhibit 5 is a letter from BP America that we received listing their concerns about a well that they

operate, Empire Abo Unit No. 47. That is 1,900 feet, plus or minus, from our Continental A State No. 11.

Q. Could you summarize the concerns that BP expressed?

A. Sure. Maybe it would be helpful to find this well on the map and then look at a schematic. If you look at the A 11 area of review, the big circle, of course the A 11 is marked with a blue triangle.

If you go south southeast and find Unit J in Section 30, there's a cluster of wells. There's State B dry hole Empire Abo unit line -- This is just east of the Hermosa on the Navajo lease, 47, and then there's a 4 just the east of that well. Those are all part of the discussion.

BP is concerned about that No. 47 down there in J of 30. I will turn to the tab that says Section 30, 17 29E. The first well in that tab is the Empire Abo BP Empire 45. The next one is the 46, and the third page is 47.

This is a schematic of that well as we understand it today. It's an old Abo unit well. TD about 6,359, cemented with 450 sacks. Got some perfs squeezed off below a bridge plug, and then perfs 6,118 to 6,150, complete in 1961, I believe.

BP's concern is that there's no document of

record of top of cement. There's a calculated top of 3,200 feet. And they are concerned that water from our Continental 11 will migrate and maybe pose a hazard to a well with the top of cement not known.

They've indicated that -- Of course, our Navajo No. 4 well to the east, if we see water in that well, their concerns will be heightened.

We are completely agreeable to working with them on this matter. We perceive the probability of the water migrating from the 11 to this well is minimal. There are at least two different pressure sinks in between.

We don't see water migrating that far south at all. If we are, we're much more efficient than we ever hope to be. But if we do see some response in our Navajo well, we will be agreeable to working with BP.

And I suspect we probably have an ownership in this well anyway. We'll be working with them to try to determine the top of cement and if there is a hazard or not.

I did some rough cement calculations. The top of our injection hole was 3,926. By my calculations, if there is a 25 percent loss, the top of cement would be about 3,688 feet.

So no, I don't think anybody really knows how much cement was lost in their cementing process. If it

was less than 25 percent, probably there's no issue at all. If it was greater than 25 percent, there may be an issue if water migrates that far south. But we're willing to work with them.

Q. To summarize, are the recommendations set forth in BP's letter agreeable to COG?

A. Yes, they are.

Q. Okay. And we had one other communication from another operator, Limerock?

A. That's correct.

Q. And have their concerns been resolved?

A. Yes, as far as we know. Again, going back to the area of review map, this time looking at the A 12 area of review map, Limerock operates to the northwest in Section 24, the A 24 State wells.

I think their concern was mainly related to the A 24 State No. 5 in P of 24. I think that's the only one that's been completed. And we have an ownership in that well, too.

They had done a pinnacle frac analysis, and at one point in time were convinced that water was going to migrate their direction.

Once again, we think the -- This is not a top of cement issue, this is -- they're completed in the same Yeso interval. We don't think that water will migrate

that far. There's too many pressure sinks in between.

I think they were agreeable to waive their rights objection if we agreed to give them first right of refusal into our water disposal system, and we agreed to do that.

We have plenty of water available. We do not intend to buy third-party water in the near future or maybe the distant future. But they were agreeable to that.

Q. To be clear, COG will not be operating these four wells as disposal facilities?

A. That is correct, these are not disposal operations.

Q. So Limerock has provided COG with that written waiver of its objection, and it's Exhibit 6, the letter before you?

A. Yes.

Q. From your overall review of all of the wells in the areas of review for each of the wells, have you found any evidence of casing leaks?

A. No, we did not.

Q. Are you satisfied that the conditions of all of those wells are such that none of them will act as a conduit for fluids from the injection interval to fresh drinking water supplies?

A. Yes.

Q. You do you see any evidence at all that the wells may serve as conduits within the AOR outside of the injection interval at all?

A. No, we do not.

Q. If we turn to Tab XIII, in each of the cases, does Tab XIII carry copies of the notice letters provided in the course of the administrative application for approval from the Division?

A. Yes. We notified all of our offset operators, all the co-owners that we had, landowners. We notified everybody that we thought we were required to notice, and these are receipts of that notice. Usually on the last page of each of these is a publication notice in the Artesia paper that we had publicized back in December

Q. Right. And did we notify the surface owner?

A. Yes, we did.

Q. All right. Do you foresee any need to request a higher injection pressure from the Division in the future?

A. That will probably depend on what limit we are granted from this hearing. If we are granted a .2 psi limit, I can see very easily that we might be back with step-rate tests and asking for a higher limit at some point sometime in the future.

Q. Mr. Prentice, in your opinion, can this project

be operated so that the injection fluids remain contained within the injection formation?

A. Yes.

Q. And in your opinion, will injection operations pose any threat of impairment of correlative rights or waste of hydrocarbon resources?

A. No.

Q. And can this project be operated so that public health and satisfy and the environment are protected?

A. Yes.

Q. And were all the materials in Exhibit 3 prepared by you, compiled by you, or at your direction?

A. Yes, they were.

MR. HALL: That's my direct of this witness. We'd move the admission of Exhibits 3, 4, 5 and 6.

HEARING EXAMINER: Any objection?

MR. CARR: No objection.

HEARING EXAMINER: Exhibits 3, 4, 5 and 6 will be admitted. Mr. Carr?

CROSS-EXAMINATION

BY MR. CARR:

Q. About your Exhibit No. 5, you have no objection to the conditions in that order that were requested by BP; is that correct?

A. No, we're willing to work with BP on this issue.

MR. CARR: We have no objection to the Order in this case.

HEARING EXAMINER: Okay. That Limerock concern, did you say that their well -- did they only have one well that they were concerned about, or was it a lease?

THE WITNESS: Well, the concern was expressed on that one well. Actually, we never really informed about specifically what well it was.

HEARING EXAMINER: Oh, okay.

THE WITNESS: Of the three wells out there, 5 is the only one that's been completed.

HEARING EXAMINER: Okay.

THE WITNESS: So by process of elimination, we think it's No. 5.

HEARING EXAMINER: Okay. But for whatever reason, they were completed in the same zone anyway?

THE WITNESS: The Yeso, yes.

HEARING EXAMINER: Okay.

THE WITNESS: We have an ownership in that well.

HEARING EXAMINER: Okay. Let's see here. Does Mack Energy have any interest out here, or -- I saw in the files where it looked like there was a transfer of ownership from Mack to Concho or COG --

THE WITNESS: Most of the properties out here are formerly Mack operated properties that have been

transferred over to COG, Concho.

HEARING EXAMINER: Okay. Does that mean that some of COG's employees used to work for Mack, or still do, or --

THE WITNESS: I would say that -- and I don't know this for a fact, but there are some former Mack employees that are now employees of Concho.

HEARING EXAMINER: Okay. First of all, before I forget, thanks for doing all of this work. This is a nice packet you guys put together, and this was really nice.

THE WITNESS: Thank you for taking the time to look at it.

HEARING EXAMINER: Yeah, I looked at it before the hearing. Thankfully, Mr. Hall gave it to us before the hearing. And that was nice reservoir engineering that you did on this.

Before I forget to ask for it, there was a few -- when I went through the area of review wells and looked on your schematics and your cement top data, there was a few on this that said "Cement top," and then a question mark.

Did you look at all of those and use 75 percent or 80 percent fill-up factor as a calculation, or do you still -- could you go through and look at them again? I mean, I -- and make sure there is none that still say

"question mark" and they don't have a cement top.

At least over the interval we're talking about -- I don't care about if the DV tool was set below your Yeso or -- you know, below your injection interval, I don't care about the lower interval, if that's the case, but there was a few that still had a question mark --

THE WITNESS: Did you have one of mine or -- This was some public information. So it may be -- the guy that did it may have -- It may have come from what was available from the OCD records or from --

HEARING EXAMINER: Okay. Under Tab VI on the very first -- the Continental exhibit, the very first with the DV tool set at 2,507 feet. So there was at least one. Maybe you could just look through them and if you see any like that, maybe do a quick calculation and shoot a copy and send it to the --

THE WITNESS: Okay.

HEARING EXAMINER: Is that acceptable, Mr. Brooks?

MR. BROOKS: Yes. With a copy to Mr. Carr.

HEARING EXAMINER: Okay.

MR. BROOKS: Not that he's necessarily concerned with it, but it's something that needs to be done.

HEARING EXAMINER: Okay. And the DV tool

setting depth, is that always designed to -- here, I guess historically, the DV tools were set a certain depth for a certain reason. Do you know the most common reason why they were set and what formation they were protecting?

THE WITNESS: I'm not the drilling expert, but I'm going to be presupposing that DV tools were set, at least on the production strings, to enhance the circulation surface above that.

HEARING EXAMINER: Okay, that's fine. The salt zone out here, the intermediate was protecting the salt; is there any issue with salt flows in this area?

THE WITNESS: I'm not aware of any. I think -- you know, that's where you start seeing the DV tools in that secondary string. I think they were probably addressing that issue with DV tools again.

HEARING EXAMINER: Okay. How old are the majority of these wells, when was it first -- I should have asked Mr. Reyes this.

THE WITNESS: And I think it may depend on what zone you're talking about. The old Empire Abo wells were drilled back in the '60s, of course. The Paddock wells are relatively new within the last -- since, oh, the late 1990s. From our wells, I'm looking at this first one, this is a Morrow well that looked like 1978 probably.

HEARING EXAMINER: Okay. It's a range of ages.

It's not too old, really, considering some fields are drilled in the '30s, you know.

THE WITNESS: Some of the shallower stuff, of course, was very, very early on. Less than a thousand feet, that stuff is really early, early on. So.

HEARING EXAMINER: Okay.

THE WITNESS: And actually, You've got spud dates over there on each one of those area of review wells beginning at about Page 4, you've got completion dates.

HEARING EXAMINER: You or someone did a good job of putting the APIs on.

THE WITNESS: IHS is a wonderful data base if you just manipulate it correctly.

HEARING EXAMINER: Yeah. Okay. I guess one of the big questions to get to the crux of it is, what criteria will you use to monitor this project to see if it's successful or not?

THE WITNESS: A couple of things. The object is, of course, to put water in the ground. And then where is it going to go? In the Jenkins we thought we had a -- They were facing the same problem a couple of years ago in the Jenkins. They set the No. 5 spot. Well, the water didn't go the way the 5 spot should go, it went north/south.

So we just shot ourselves in the foot and have

had to realign it. So instead of setting up any kind of a 5 spot, now I'm trying to do one well, I'm trying to do two zones. If I'm lucky, if we are fortunate, then the permeability trends will be in the same direction in both zones. That's a big if.

How will we monitor it? I tried to set these things up where we have offsetting Blinebry-Paddock wells north/south, east/west, northwest/southeast, then southwest/northeast. So hopefully I will have my options covered.

Again, if I can intentionally put a certain amount of water into the Blinebry, once I see response flow of water in one of the offsetting wells -- We had pretty good success in the Jenkins with tagging it with radioactive tracers. Those are pretty definitive.

So if I can, A, get a response, and, B, tag it and say, okay, in this zone the preferential permeability is this direction or that direction, that's how I plan to monitor it.

HEARING EXAMINER: Okay. How do you -- these tubulars that you're proposing and -- you're planning on using, do they have little meters down there and pressure sensors, do they have realtime readouts, do they have --

THE WITNESS: My understanding of the way it works is, you set a -- the analogy I'm going to use is an

orifice needle. You set a rate. If I can pump 2,000 barrels a day, the top zones -- if I restrict that to 1,000, then the rest of it's got to go down hole.

HEARING EXAMINER: So you can actually dial in what your top zone is going to receive --

THE WITNESS: Yes.

HEARING EXAMINER: Because you know it's more permeable.

THE WITNESS: Yes. I know it's more permeable, and hence, I'm not at this point -- at least at this time prepared to say if I set a packer above everything, I can tell what I want from the entire section, I don't think I can do that just yet.

HEARING EXAMINER: Okay. And are you going to have pressure sensors down there or --

THE WITNESS: I don't think that is part of the setup right now. I'm thinking our pressures will be at the surface.

HEARING EXAMINER: Yes. And anyway, pressure sensors most logically might be on a monitor well producing and surrounding it.

THE WITNESS: Oh, the producing wells -- we'll know from our well tests.

HEARING EXAMINER: Okay. You have pretty good facilities around these proposed injection wells?

THE WITNESS: Yes.

HEARING EXAMINER: Your porosity down in the Blinebry, those three Blinebry zones being so low that even the total porosity is low, and then you got shalely, so you've got effective porosity -- might be really slow. So your injection may go long distances in little bitty intervals then depending on how much pressure you put on it.

THE WITNESS: Yes. One of the things I have here that we didn't talk about was drainage areas. When you say a long distance, long is relative. All this stuff is on ten acre spacing. The picture that's emerging as far as drainage is concerned is the Paddock will drain, oh, ten plus acres. Blinebry, we're thinking drains five.

So what is long here? I expect drainage will impact our ability to inject mainly due to reservoir hydrogenates. I think there's lots of complex things going on down there that we don't fully understand.

So that's another -- this is part of the feasibility study, is it feasible to put water in the Blinebry, and what is going to come out, what it's going to look like.

HEARING EXAMINER: Okay. I saw -- I think you have pressure data for the different zones, at least set at current pressures.

THE WITNESS: Yeah. We took some shut-in bottom hole pressures down there

HEARING EXAMINER: Did you see any negative skins or skin damage, do you calculate permeability from these?

THE WITNESS: These are not buildups, these are just drop-in bottom hole pressures. We have started a program as part of the larger feasibility studies of taking buildups. We're dealing with brand new wells. We're not going to see any skin to speak of.

The question we're trying to address is, what is the regional reservoir pressure down there in each interval. We think it's changing, but we haven't got that tied down yet.

HEARING EXAMINER: So the drop-ins are just fine unless they're still building up?

THE WITNESS: Oh yeah, these are just drop-ins.

HEARING EXAMINER: Okay. Your primary recovery out here, is it -- what kind of initial rate do you have and what kind of declines are you on right now and ultimate recoveries?

THE WITNESS: We're doing a lot of analyses along those lines. We try to track this stuff by zone, and then by 20 acre and 10 acre locations. That has some relevance to this. So the answer is going to be depending

on what slice of the pie you're talking about.

Typically, new wells come in -- you know, Yeso commingled with about 2,000 to 3,000 a month, a hundred or less a day. Drop-off is 50, 60 percent. Ultimate recoveries -- and I think I -- well, that may be oil in place. You have a idea of that.

Oil recoveries, we're seeing in excess of 100,000 barrels for a commingled Yeso, typically. Sometimes the 10 acre, sometimes a little bit more, sometimes a little bit less.

HEARING EXAMINER: Okay.

THE WITNESS: Blinebry -- you know, we separate them under Paddock and Blinebry and get different numbers.

HEARING EXAMINER: Okay.

THE WITNESS: Our recovery factors, we're thinking in terms of 15 percent. That's typical for most carbonates. That's the number I grew up with, that's the number I'm using. It tends to fit well with our volumetrics.

HEARING EXAMINER: Okay. This maximum pressure limit, you're asking for 2,000 surface pressure?

THE WITNESS: Yes.

HEARING EXAMINER: Okay. And how much pressure would you put on -- well, you're just going to control the rate between the zones; is that correct?

THE WITNESS: Yes.

HEARING EXAMINER: So basically, that pressure will be communicated down to the Blinebry?

THE WITNESS: Yes.

HEARING EXAMINER: And so what kind of surface gradient is that down to the top perf in the Blinebry?

THE WITNESS: 2,000 pounds and -- Let's look that up. ALN is a good example. The Blinebry is at 4,436. So 2,000.

HEARING EXAMINER: Okay.

THE WITNESS: 4,436 is about .45.

HEARING EXAMINER: Okay. We're talking about less than a .5 gradient?

THE WITNESS: Yes. And that's why I couldn't -- I didn't follow Wesley's .59.

HEARING EXAMINER: I can't speak for Wesley, but -- I wish he'd come speak for himself sometimes, but I think he's using bottom-hole gradients. That's what I suspect. But I don't know for sure. Now, the rock over on the east, the Texaco BE, that's a better reservoir; is that correct?

THE WITNESS: I don't know if it's any better reservoir --

HEARING EXAMINER: Well, more porosity, higher permeability in the Blinebry?

THE WITNESS: Let me look at my numbers and see what I said. The Blinebry was showing -- this is E 7 -- oh, about 6 percent and a half milidarcy. That really --

HEARING EXAMINER: Is that density porosity or is that crossplot porosity?

THE WITNESS: This is core porosity.

HEARING EXAMINER: Core porosity.

THE WITNESS: This is plug sample core porosity.

HEARING EXAMINER: How does that relate to your log porosities, do you guys do a relationship?

THE WITNESS: Oh yeah, they've got an analysis built into the logs that takes core data into account and tries to wait it out by -- They're using a crossplot porosity, I'm sure.

HEARING EXAMINER: But that core -- that log porosity you're seeing off the logs, is that pessimistic compared to core porosity?

THE WITNESS: I think it has to do with -- they try to adjust the crossplot porosity to that core data. Whether it's pessimistic or not, I don't know.

HEARING EXAMINER: Okay. I just wondered if you just -- I glanced at a log, whether it was really better than it looks there. And these frac jobs, are you into designing them, or do you guys look at your frac height and your length pretty scientifically?

THE WITNESS: They've done a lot of work on that. They've used a lot of -- well, they use a lot of design work. And then they've done some pinnacle-type analysis where you can -- you know, these micro seismic events.

HEARING EXAMINER: Okay.

THE WITNESS: I really don't think that our design -- the industry's design standards match up quite well with micro seismic analysis.

HEARING EXAMINER: Oh, really.

THE WITNESS: No. I think there's a lot going on down there that --

HEARING EXAMINER: Okay, so the models are not accurate as far as -- they don't even --

THE WITNESS: I think they're good starting points. You got to start somewhere. But when you watch these micro seismic events going on and -- It's an interesting phenomenon if you've never watched them. It's an interesting phenomenon.

HEARING EXAMINER: I have not. A guy I used to work with is actually in that business up in the Rockies.

THE WITNESS: Lots of interesting things go on when you pump fluid and --

HEARING EXAMINER: That's incredible that they can actually tell that considering you got the salt zone

above you here and you're telling that even from --

THE WITNESS: Yes, sir.

HEARING EXAMINER: Also drainage from other zones above you even. So it tends to make you wonder how accurate that would be, too, you know. But does it show a direction?

THE WITNESS: Oh, yeah, you can see azimuth.

HEARING EXAMINER: What direction is it out here?

COURT REPORTER: You can see what?

THE WITNESS: Azimuth. East, west, north, south. It will tell you where your frac is migrating. What it's measuring is little earthquakes, and you see little dots start to pop up called micro seismic events. They're very fascinating.

This is not helping to address your question. They're designed as best as we can. Mother Nature has her own plans, quite frankly.

HEARING EXAMINER: Well, I wish you good luck on this project.

THE WITNESS: We need all the luck we can get our hands on.

HEARING EXAMINER: Sometimes luck is better than --

THE WITNESS: Yes, sir.

HEARING EXAMINER: David, do you have questions?

MR. BROOKS: No, I don't think I have any questions.

HEARING EXAMINER: So no project areas and no salt water disposal, just injection?

MR. HALL: For today.

HEARING EXAMINER: For today. We'll hope to see you guys in a couple of years with --

THE WITNESS: We would like very much to be able to do this in a couple of years on a broader basis.

HEARING EXAMINER: Okay. Well, thanks, Mr. Prentice and Mr. Reyes.

MR. HALL: Aa housekeeping matter. I provided additional notice of the Examiner Hearing. So I'd ask to introduce in Case 14455 Exhibit 7, which is our notice affidavit materials. Exhibit 8 is the affidavit for Case No. 14456. And Exhibit 9 is the notice for Case No. 14457. And that's all I have.

HEARING EXAMINER: Okay.

MR. BROOKS: How did you select the people you notified?

MR. HALL: I used the same list that they used for the administrative notice.

MR. BROOKS: So you notified everybody within one mile of each injection well?

MR. HALL: Right.

HEARING EXAMINER: One-half mile.

MR. BROOKS: One-half -- yeah, that is one-half mile. That's right. And the way the Rule requires it to be done -- I'm sure you understand, but just to make clear for the record, you draw a half mile circle, and then you have to figure each unit that's -- spacing unit, any part of which is within that half mile. So you have to advise the people that own --

MR. HALL: So the entire 40.

MR. BROOKS: Yeah. And is that the way you did it?

MR. HALL: I believe so. So long as we're not talking about H2S injection.

MR. BROOKS: We're not talking about -- I didn't hear any testimony that we were talking about H2S injection. That makes it easier.

MR. HALL: Which is different.

MR. BROOKS: Yes, it is different.

HEARING EXAMINER: So we'll admit Exhibits 7, 8 and 9, and take Cases 14455, 14456, and 14457 under advisement. Thank you, folks. The docket is concluded.

(Whereupon, the proceedings concluded.)

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

Oil Conservation Division Examiner

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

REPORTER'S CERTIFICATE

I, PEGGY A. SEDILLO, Certified Court Reporter of the firm Paul Baca Professional Court Reporters do hereby certify that the foregoing transcript is a complete and accurate record of said proceedings as the same were recorded by me or under my supervision.

Dated at Albuquerque, New Mexico this 9th day of April, 2010.

PEGGY A. SEDILLO, CCR NO. 88
License Expires 12/31/10