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

APPLICATION OF MESQUITE SWD, INCORPORATED FOR APPROVAL OF A WATER DISPOSAL WELL, LEA COUNTY, NEW MEXICO.

CASE NO. 14979

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: PHILLIP GOETZE, CHIEF EXAMINER
RICHARD EZEANYIM, TECHNICAL EXAMINER

May 2, 2013

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, Phillip Goetze, Chief Examiner and Richard Ezeanyim, Technical Examiner, on Thursday, May 2, 2013, at the New Mexico Energy, Minerals and Natural Resources Department, 1220 South St. Francis Drive, Porter Hall, Room 102, Santa Fe, New Mexico.

REPORTED BY: Mary C. Hankins, CCR, RPR
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APPEARANCES

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EXHIBITS OFFERED AND ADMITTED

(9:01 a.m.)

EXAMINER GOETZE: Proceed to the next case in the docket, which is Case 14979, which is application of Mesquite SWD, Incorporated for approval of a water disposal well, Lea County, New Mexico.

Call for appearances.

MR. BRUCE: Mr. Examiner, Jim Bruce of Santa Fe representing the Applicant. I have one witness.

MR. LARSON: Morning, Mr. Examiner. Gary Larson. I'm appearing on behalf of Yates Petroleum, MYCO Industries and Abo Petroleum. I have three witnesses.

EXAMINER GOETZE: Will the witnesses please stand, state your name and be sworn in?

MS. HOTTER: Margrethe Hotter.

MR. MORRISON: Robert Morrison.

MR. FLY: Sterling Fly III.

DR. HAVENOR: Kay Havenor.

(Ms. Hotter, Mr. Morrison, Mr. Fly and Dr. Havenor sworn.)

KAY HAVENOR, Ph.D.,

after having been previously sworn under oath, was questioned and testified as follows:

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DIRECT EXAMINATION

BY MR. BRUCE:

Q. Please state your name and city of residence for the record.

A. Kay Havenor, Roswell, New Mexico.

Q. What is your occupation?

A. I'm a consulting geologist.

Q. What is your relationship to Mesquite SWD, Inc.?

A. As a consultant.

Q. Have you previously testified before the Division?

A. Yes, I have.

Q. And were your credentials as an expert geologist accepted as a matter of record?

A. Yes, they were.

Q. And are you familiar with the matters involved in this application?

A. Yes, I am.

MR. BRUCE: Mr. Examiner, I tender Mr. Havenor as an expert geologist.

EXAMINER GOETZE: He is so qualified.

Q. (BY MR. BRUCE) Mr. Havenor, let's start off very briefly with Exhibit 1. Could you just briefly identify what this is?

A. This is the C-108 application for a saltwater disposal.

Q. And if you turn to page 3 of the C-108, could you identify the well that we're here discussing today?

A. This is a proposed new drill located in Section 23 of 25 South, 32 East, Lea County, Unit C.

Q. What is the name of the well?

A. It will be the Paducah Federal SWD #3.

Q. And, again, this is not an existing well?

A. That is correct.

Q. Let's run through the C-108 a little bit. Does it contain the area of review, exhibits, et cetera?

A. Yes, it does.

EXAMINER EZEANYIM: Excuse me. Since you are on this page 3, I saw something that I wanted to clear up as we go.

Dr. Havenor, what do you mean by Opr? Is this accredited to the "Top of Cement" of the surface, "Method Determined: Opr"?

A. Where are you referring to?

EXAMINER EZEANYIM: I'm looking at page 3, where Mr. Bruce directed you to. I was looking further, and I look at the construction of the well and your paybacks to see -- before I look at the construction. You see the well surface -- you know, to the surface,

"Opr." What is Opr?

Q. (BY MR. BRUCE) He's talking about the top of the cement.

A. Oh, the top of the cement.

Q. And over to the right, "Top of Cement," it says "Opr."

A. "Operator." That was the -- that will be determined by the operator. It will be -- it has not been drilled. It will be circulated to the surface, and that will be confirmed by the operator.

EXAMINER EZEANYIM: Okay. Let me state it, because that is very confusing. If the operator at the time -- because that is what I saw on the construction diagram, and I wanted to get it out of the way, because I don't know what operator means. Operator is not the method determiner. You could say circulator. See at "Surface" and then "Circulate"?

THE WITNESS: "Method Determined." I'm sorry. Yes. That should be circulator.

EXAMINER EZEANYIM: Okay. That would be more appropriate, because the operator is not the method determiner. I'm sorry. Please don't get me wrong. Sometimes you can just ask me, if you see something like this. I know exactly what you mean. I think you think -- although I don't know what Opr means. If you

put "operator," then I would say, Okay -- because that operator is -- you are going to say circulated. We circulated cement into the surface. I think you understand. You teach these classes.

THE WITNESS: I understand. Thank you.

Q. (BY MR. BRUCE) And looking at page 3, Mr. Havenor, what will be the injection interval -- the approximate injection interval, the depth?

A. It will be from approximately 4,870 feet to a maximum of 7,250 feet.

Q. And what is the geologic formation that you will be injecting into?

A. The upper zone will be below the top of the Bell Canyon, and the lower zone will be in the Cherry Canyon.

EXAMINER EZEANYIM: So, essentially, both the Bell Canyon and Cherry Canyon? Essentially, to the top of the Bell Canyon and then all of Cherry Canyon, right?

THE WITNESS: Correct. The top -- the upper zone is below the top of the Cherry Canyon -- the Bell Canyon.

EXAMINER EZEANYIM: Which is the same. Okay.

Q. (BY MR. BRUCE) And will the well be constructed

so as to prevent movement of fluid between zones?

A. Yes, it will.

Q. And let's move on. You have pages 5 and 6, the area of review. Does Exhibit [sic] 7 contain data of the wells in the area of review?

A. Page 7?

Q. Page 7.

A. Yes, it -- it does. There are only two wells that are physically within the area of review, and that's number one and number two.

Q. Okay. So the -- okay. And you also have, say, "Item VI (a): Data on wells near the area of review." What does that reflect?

A. Because it is out of the area of review but is in reasonably close proximity, I included that information.

Q. And do we have some data sheets on some of these wells in subsequent exhibits?

A. Yes, we do.

EXAMINER EZEANYIM: Which wells are we talking about, 1 and 2?

MR. BRUCE: Mr. Examiner, if you'll look at Exhibit [sic] 7 --

EXAMINER EZEANYIM: Page 7?

MR. BRUCE: Yeah. Page 7. Excuse me. The

first items, 1 and 2, under Item VI, there are two wells in the area of review.

EXAMINER EZEANYIM: Yeah.

MR. BRUCE: And down below, Mr. Havenor has included two additional wells that are nearby but outside the one-half mile.

EXAMINER EZEANYIM: That are not within the area of review.

THE WITNESS: The bottom two are not within the area of review.

EXAMINER EZEANYIM: But you chose to include them.

THE WITNESS: I chose to include them because they are in relatively close proximity.

EXAMINER EZEANYIM: What is their status?

THE WITNESS: I'm sorry?

EXAMINER EZEANYIM: Are they producing? What happened with the wells? Those -- those ones you said are outside the area of review, what's going on with them?

THE WITNESS: One is currently a saltwater disposal well, and that's located on the west side of the area of review, the southwest side. And number two is a -- a property that penetrated the top of the Bell Canyon but is outside of the area of review; close to it

but outside.

EXAMINER EZEANYIM: Is it producing, or --

THE WITNESS: No.

EXAMINER EZEANYIM: -- what is it doing?

THE WITNESS: It is shut in.

EXAMINER EZEANYIM: Was it plugged and abandoned or shut in?

THE WITNESS: It was temporarily abandoned in 1999 and has not been touched since then.

EXAMINER EZEANYIM: That's not good.

Q. (BY MR. BRUCE) And let's turn to Exhibit 8. What are the anticipated injection volumes from this well?

A. Approximately 5,000 barrels per day would be the maximum that's anticipated. Average would probably be in the range of 3,500.

Q. And will Mesquite comply with the .2 psi depth as to injection pressure?

A. Yes, they will comply.

Q. And what will be the source of the -- this is simply a saltwater disposal well, correct?

A. Correct.

Q. And what will be the source of the disposed water?

A. Produced waters in the general area probably

from -- possibly from the basal Brush Canyon and then from the Bone Spring.

Q. Do you anticipate any compatibility problems between the produced water and the formation water?

A. I anticipate no problems.

Q. Is there any fresh water within a two-mile area of the well?

A. There is no fresh water reported through the Office of the New Mexico State Engineer. However, there is probably some stock water at a very shallow depth of approximately 100, 150 feet.

Q. And, again, with the construction of the well, there would be no contamination of that stock water?

A. Correct.

Q. Go to pages 11, 12 and 13. There are some P&A diagrams. In your opinion, are the P&A'd wells constructed such that they will not act as a conduit for fluids to move between zones?

A. Yes.

Q. And is there any faulting in this area or such that would lead to a hydrologic connection between the injection zone and the fresh water in this area?

A. Not in these zones.

Q. And the exhibit on page 15 contains the offset working interest owners; does it not?

A. Yes.

Q. Who is the surface owner; not the lessee, but the surface owner of the well site?

A. Bureau of Land Management.

Q. Now, the final page is just the notice that you published in the newspaper, correct?

A. Yes, that is correct.

Q. But this is going to hearing because of the objection of Yates Petroleum Corporation?

A. Yes.

Q. Let's talk about -- have you -- first of all, let's go back to the surface owner, the BLM. Does the BLM have any objection to the drilling of this well?

A. No.

Q. And have you spoken with Yates about their objection to the well?

A. I had a brief telephone conversation, just indicating that they were concerned about potential drilling that they might want to do. I --

Q. You're not certain what their objection is at this point?

A. No, I'm not sure.

Q. But let's talk about the wells both inside -- some of the wells inside the area of review and nearby, Mr. Havenor.

MR. BRUCE: And, Mr. Examiner, if you can go to pages 5 or 6 -- maybe start with page 6, at least on your copy. I've identified a few of the wells.

EXAMINER EZEANYIM: Page?

MR. BRUCE: If -- if you could go to page 6.

Q. (BY MR. BRUCE) Mr. Havenor, marked as Exhibits 4 through 4A are some well data sheets. Could you run through those exhibits and identify those wells on the land plats you've included in your C-108 so that the Examiners can, number one, see where those wells are located with respect to the injection well and what the status of these wells are, and maybe, overall, why you think this well -- or this formation is a good candidate for injection? Start off with Exhibit 2.

A. Exhibit 2? Okay. This well was drilled in Unit A of Section 23.

EXAMINER EZEANYIM: Which well are we talking about?

THE WITNESS: This is the Yates Petroleum, Paducah Unit Number 2.

EXAMINER EZEANYIM: Is that within the area of review?

THE WITNESS: Yes, it is.

MR. BRUCE: Mr. Examiner, if you look at

that plat, it's immediately to the east of the proposed injection well.

EXAMINER EZEANYIM: It's on the line.

MR. BRUCE: Correct.

A. This well was drilled to a total depth of 5,000 feet and was plugged back to 4,875 feet, which is in the upper Bell Canyon. It was perforated and treated and completed in 1985 and had a cumulative oil production of approximately 17,000 barrels of oil and 275,000 barrels of water. The last month of production was reported in December of 2000.

Q. (BY MR. BRUCE) What is the current status of the well?

A. The well was plugged and abandoned on September 19th, 2011.

Q. This was a very wet well; was it not?

A. Quite.

Q. You have the total -- under Miscellaneous Comments, you have the total production from the well?

A. Yes, I do, towards the bottom of the page, "Miscellaneous Comments."

Q. Let's move on to Exhibit -- again, keeping the land plat in front of you, but Exhibit 3, the J. I. O'Neill Federal P Well #1. Where is that well located with respect to the proposed injection well?

A. It is located to the east-northeast of the proposed well. It is just outside of the area of review. This well was drilled to a total depth of 4,884 feet.

EXAMINER EZEANYIM: Dr. Havenor, are you talking about this well (indicating)?

THE WITNESS: No. Straight up (indicating), outside of the -- to the right, outside of the area of review.

EXAMINER EZEANYIM: I see column [sic] -- so which one?

MR. BRUCE: I'm sorry, Mr. Examiner. I mismarked that one.

Q. (BY MR. BRUCE) But, Mr. Havenor, is that to the northeast of the proposed injection well?

A. (Indicating.)

EXAMINER EZEANYIM: Oh, okay. It's not colored, so I didn't look at it.

THE WITNESS: Yes.

Q. (BY MR. BRUCE) Go ahead. What is the status of that well, Mr. Havenor?

A. The status of the well is that it has not -- well, that well was plugged and abandoned in 1967. It was cored, and there were some spotty shows of oil in the recovered coil -- cores, and it was plugged and

abandoned without an attempt to complete it.

EXAMINER EZEANYIM: I think it was drilled and abandoned.

THE WITNESS: Yes.

EXAMINER EZEANYIM: It was drilled, and then they abandoned it within a month, right?

THE WITNESS: Yes.

Q. (BY MR. BRUCE) And Exhibit 4, which well is that, Mr. Havenor?

A. Exhibit 4 is the well located to the southeast of the area of review. This is the only other well in the area of review or adjacent to it that I included. And this was a deep well, and it completely penetrated the proposed disposal intervals of the Cherry Canyon, lower Brush Canyon -- excuse me -- the lower Bell Canyon and Cherry Canyon. It is basically for information.

Q. I notice under these -- on your notes, at the very bottom, this well lost circulation above 8,700 feet.

A. Yes, it did.

Q. And what is the current status of this well, again?

A. It is -- it is an active well as far as it has not been plugged and abandoned, and they did do some testing -- drill-stem testing in the upper Bell Canyon.

And they recovered a slight amount of oil and some water.

Q. And then Exhibit 4A, where is that well and what is the status?

A. Exhibit 4A is -- this is the well that's located in Unit P of the section right to -- or in the north of the area of review. Its status is not plugged.

Q. The well was --

A. Excuse me. It -- it -- no. It's temporarily abandoned.

Q. Temporarily abandoned.

A. Yes.

Q. It has not been P&A'd at this point?

A. That is correct.

Q. And all of these wells, they at least penetrated the top of the proposed injection zone or, as you said, the Devon well is completely through the injection zone; is that correct?

A. Yes. The -- the completion program for this well -- proposed well -- this proposed disposal well is set so that casing will be set down into the Bell Canyon to cover these zones that had some shows or production in the uppermost Bell Canyon.

Q. Now, in looking at all of these wells and the data on these wells, is the proposed injection zone

prospective for hydrocarbons; in your opinion?

A. Not -- no. It's not prospective, and much drilling in the greater area has shown it to be water.

Q. Is the zone -- injection zone under pressure?

A. No, it's not under pressure. It's -- there are numerous lost circulation zones within the proposed interval.

Q. And will injection into this zone adversely affect drilling in this area?

A. I would think that if it had any effect, it would be beneficial.

Q. Does Mesquite have another saltwater disposal well in this area?

A. Yes, they do. It's right on the southwest edge of the area of review.

Q. So if you look at --

A. Page 6.

Q. -- page 6, it would be the well over in Section 22?

A. Yes, it would be.

Q. And that is a current, active saltwater disposal well operated by Mesquite?

A. That's correct.

CROSS-EXAMINATION

BY EXAMINER EZEANYIM:

Q. Which well is that? I need to -- is it outside the area of review? This one here (indicating)?

A. Yes.

Q. It's currently operating, right?

A. It's currently a saltwater disposal well.

Q. By Mesquite?

A. Mesquite, Paducah #1.

Q. And this well is injecting into Cherry Canyon --

A. It's injecting into the same proposed interval as we are requesting on this well.

Q. Same interval?

A. Same interval.

Q. 2,040 -- it's a 2,040-foot [sic] open hole?

A. Yes.

Q. Is that what you are doing when you describe the injection well, right?

A. Yes. The Paducah #1 is cased and perforated.

Q. Do you remember the saltwater disposal order number?

A. I'm sorry?

Q. Do you know the order number of that well?

MR. BRUCE: We'll get that for you,

Mr. Examiner.

CONTINUED DIRECT EXAMINATION

BY MR. BRUCE:

Q. Approximately, do you know what the approximate volumes are of produced water being injected into that well in Section 22?

A. In the range of 5,000 barrels per day.

Q. Approximately the same as you're seeking to get approval for in the Paducah #3?

A. Yes.

Q. In your review of the area, have you noticed any problem in drilling of wells because of the injection -- the ongoing injection into the Paducah #1?

A. The closest well that has been drilled subsequent to starting disposal into the Paducah #1 is the #2, and it's located to the southwest of the #1, and it also has lost circulation.

Q. Circulation is common in this area?

A. Yes, it is.

Q. What is the bulk of the outgoing development in this area? What zones are being tested, to your knowledge?

A. The lower-most Brushy Canyon and the underlying Bone Spring.

Q. And is there a need for saltwater disposal

capacity in this area?

A. Absolutely.

Q. The ongoing Bone Spring development is by horizontal wells?

A. Horizontal drilling, yes.

Q. And they are producing quite a bit of water?

A. Yes, significant volumes.

EXAMINER EZEANYIM: In the what, in the Bone Spring?

MR. BRUCE: (Indicating.)

CONTINUED CROSS-EXAMINATION

BY EXAMINER EZEANYIM:

Q. What sand in the Bone Spring?

A. I'm sorry?

Q. What sand? We have three sands in the Bone Spring. Where are the most water coming from, the 1st Sand, 2nd Sand or --

A. I believe it's the 1st Sand.

Q. 1st Sand?

A. Yeah.

MR. BRUCE: And, Mr. Examiner, Exhibit 5 is simply my Affidavit of Notice to the offset operators and the surface owner, the BLM.

CONTINUED DIRECT EXAMINATION

BY MR. BRUCE:

Q. Other than Exhibit 5, Mr. Havenor, Exhibits 1 through 4A prepared by you or under your supervision?

A. Yes.

Q. And in your opinion, is the granting of this application in the interest of conservation and the prevention of waste?

A. Yes, it is.

MR. BRUCE: Mr. Examiner, I tender the admission of Exhibits 1 through 5.

EXAMINER GOETZE: Exhibits 1 through 5 are accepted.

(Mesquite SWD Exhibit Numbers 1 through 5 were offered and admitted into evidence.)

MR. BRUCE: And I pass the witness.

CROSS-EXAMINATION

BY MR. LARSON:

Q. Good morning, Dr. Havenor.

A. Good morning.

Q. At present, does Mesquite have legal access to the surface location to the proposed well?

A. No. It has not been applied for to the BLM.

Q. And I'll refer you to page 8 of Exhibit 1. You have the statement: "Before disposal the interval will

be evaluated to confirm" presence -- I'm sorry -- "projected absence of commercial hydrocarbons."

A. Yes.

Q. So your testimony today is, it's your belief that there isn't -- that's subject to confirmation when the well is drilled?

A. Let's go over that again.

Q. I believe you testified in answer to a question by Mr. Bruce that it's your belief there are no producible hydrocarbons in the Bell Canyon?

A. The lower Bell Canyon. We are excluding and casing off the upper Bell Canyon.

Q. So, again, you said in your application that "the interval will be evaluated to confirm the projected absence"?

A. Yes.

Q. So below the top of the interval, you believe there are no producible hydrocarbons?

A. Yes.

Q. And you rendered an opinion that you believe the injection of the produced water would be beneficial to off-site operators. Could you expand on that for me?

A. I didn't mean to say that it's beneficial, but it would certainly not impair any problems, because the presence of lost circulation in the greater area in the

Cherry Canyon, especially, is such that if you drilled into it, you're going to lose your fluids, if you're drilling. And if -- if the disposal of water were to fill up some of those voids, it would only assist in reducing the risk of -- higher risk of lost circulation. Did I confuse you enough?

Q. You did somewhat, but I'm not sure how to break that down. If I understand your testimony, it will actually be beneficial to the lost-circulation issues that have existed out there. If I stated it wrong, please tell me.

A. Well, there is clearly lost circulation, and putting water into lost-circulation zone is not going to cause additional problems for other drilling.

Q. And I believe you testified that approximately 5,000 barrels per month will be injected into the existing well?

A. No, no. Per day.

Q. Per day.

If I told you that the OCD Web site reflects approximately 14,000 barrels per day as of January, would that surprise you?

A. No, it wouldn't, because it's on a vacuum. It's going into lost circulation. It wouldn't surprise me a bit.

Q. So the amount injected varies over time?
A. Yes.
Q. That's all I have. Thank you.

CROSS-EXAMINATION

BY EXAMINER GOETZE:

Q. You brought up the Paducah #1. Are you aware of any requests for a change in pressure for that well?
A. There have been no -- no requests. It's not necessary. It's basically on a vacuum.
Q. I have no more questions.

EXAMINER GOETZE: Mr. Ezeanyim?

CONTINUED CROSS-EXAMINATION

BY EXAMINER EZEANYIM:

Q. Dr. Havenor, let's go to page 6, this one (indicating). Where is this SWD #2 well? Where is it in this circle?
A. That -- if you refer to the previous page, you'll see the location of the inner circle. It's just the enlarged area of review.
Q. Oh. You didn't locate it in this -- oh, I see, two mile, one mile. Where it is located in page 6? I want to see it on page 6. Can you locate it? What section?
A. Yes. It's -- it's -- the majority is located in Section 23, and the proposed location is in Section

23 of 25 South, 32 East, Lea County.

Q. I need to have that subject injection well located on this map. Can you locate it for us on this map? I can't see it. I need to know where it is.

EXAMINER EZEANYIM: Do you know where it is?

EXAMINER GOETZE: The injection well (indicating)?

EXAMINER EZEANYIM: Yeah, the injection well.

MR. BRUCE: It's the open circle in the middle of the half mile.

EXAMINER EZEANYIM: Oh, the open circle.

MR. BRUCE: Where it says "Yates Drilling," it's right above the "Drilling."

EXAMINER EZEANYIM: You are asking -- you are asking for that well, and you hid it there. I mean, that's why you are here, is to get it. I need to -- you are asking for that well to be approved, and you don't want me to know where it is.

MR. BRUCE: The footages are given on page -- on page 3, Mr. Examiner.

EXAMINER EZEANYIM: Oh, yeah. Of course, I can find it, but I wanted to locate it before I continue my questions.

Q. (BY EXAMINER EZEANYIM) Okay. Let's talk about, first of all, the source of water, where the water is going to come from. I thought you mentioned that the water is going to come from the basal Brushy Canyon and the Bone Spring.

A. It's basically Bone Spring water.

Q. Bone Spring water.

A. There is a little -- there is some production coming from the vary basal member of the Brushy Canyon.

Q. Okay. The Bone Spring and Brushy Canyon. Do we have a water analysis we can look at?

A. No, I have none. There were none available.

Q. And then you were asked if there were any compatibility issues. You said no. How do you know that?

A. Well, the -- the -- the sample that we used was from the Paducah field in the Cotton Draw well that is an oil well.

Q. Oh, the offset injection well? The offset injection well is also --

A. In a nearby.

Q. Yeah. And that's also giving you water from the Bone Spring?

A. No. That's Delaware water.

Q. So why do you think there is no comparability

issue between the Bell Canyon and the Bone Spring water?

A. Based upon experience in the greater area, the -- the Bone Spring waters that are disposed of have not caused any problems when disposed into the Delaware.

Q. Well, I know -- okay. That's good. I know you have a lot of experience in that area. But as you know, to complete your Form C-108, we need to look at those waters, you know. You told me based on your experience, that -- but to approve that water, then we need to look at it and say, you know, I agree with you or not agree with you.

A. The sources of the produced water shown here come from Socorro, you know, the analyses of the waters, and none are available from the Bone Spring in this area. They're not being turned in for analysis to Socorro.

Q. You stated that there is a lot of lost circulation in the Cherry Canyon?

A. Yes.

Q. Why is that? If you'll tell me why is that. I know that from the agreement that -- on that balance -- geologically, why does it create a lot of problems for those lost-circulation issues?

A. Well, the nature of the Delaware sands is -- it's pretty complex, but in the -- in the broad picture,

the movement of water in the Delaware has been, historically, to the east-southeast. And the nature of the sands in this particular area is such that it has a capacity to take a lot of water. It doesn't have a lot of natural water in it. That's the only thing that I can suggest. It's not cavernous, because there are no caves as such. It's just high porosity and permeability.

Q. Yeah. That's why we dedicated Cherry Canyon as SWD. It doesn't mean that it can't produce anything, but in some areas, we call it SWD Cherry Canyon.

A. That's true.

Q. When I look at this production coming from -- I thought it was Cherry Canyon. And according to your Form C-108, you know, some oil production where you were asked about any production overlying or underlying, you know, there is some -- we can talk about that.

But let me -- if you go back to the Form C-108, and then when you are asked if there are any other production overlying or underlying -- I wish I could get it, show you the page. Okay. Page 4. Before we call the next witness -- on number 5. I mean, that's where it comes from, the Ramsey, and it's a ten-foot interval, which is very close to, you know, where you set your packer, because the injection interval is 70,

right? And you said that's a production ten-foot interval coming from the Ramsey, and the Ramsey is the basal Bell Canyon. So do you think it's not going to affect production when you start injecting into that well?

A. No. That's -- we had -- we planned to set casing down through that potentially productive top zone of the Delaware, the Ramsey.

Q. Let's see. Your production casing is set at -- where is your production casing set at?

A. It's proposed to be set at 4,870.

Q. And production is happening at 48 -- 4,840, and the packer is set at 4,820, right?

A. Yes.

Q. I'm not worried about the underlying production, because that's -- I think it's in the Bone Spring, maybe, or Ramsey. That's the Ramsey, right?

A. There's -- there's over 1,000 feet from the base of the zone of our proposed disposal to the base of the Brushy Canyon where that production is. So there is 1,000 feet -- at least 1,000 feet of Delaware above the lowest zone we intend to dispose into.

Q. Okay. See why I'm asking? I know you understand why I'm asking you. We don't want to flush out that production in the zone that you identified that

is very close to the packer setting depth. You see why I'm asking that question?

A. Yes.

Q. I mean, it's a concern to me. But I need to go back and look at this and make sure you are at least producing one barrel a day. It's something.

A. Correct.

Q. You know we know that injecting water to aid production somewhere else is okay.

Now, this Bone Spring water and the Brushy Canyon water is water from -- whose water is this? This is a commercial saltwater disposal, right?

A. Yes.

Q. So who are your clients?

A. I can't answer that question. I don't know who the specific clients are.

Q. All you want is to get an SWD. You don't really care where they come from?

A. Well, it comes from the, generally, local area, and that production is primarily Bone Spring, with possibly a little bit in the basal Brushy Canyon.

Q. That might be a good answer.

What is the depth of the fresh water in the area?

A. No more than about 125 feet, if it can be

found.

Q. You talked about stock water. Where is the stock water?

A. Stock water, yes.

Q. Yeah. What is the depth of that stock water?

A. Well, that would be it.

Q. 125 feet?

A. That's the only water that is available, with spotty zones at the base of the Quaternary sands.

Q. I think you know this case is contested, and I will allow the Examiner to excuse you for now. But I may have a reason to recall you. You might be recalled, because I don't know what else is going to be said by the opposing party.

I have no more questions at this time.

EXAMINER GOETZE: Very good. We are done with this witness.

MR. BRUCE: I just have a couple of follow-up questions.

EXAMINER GOETZE: Very good.

REDIRECT EXAMINATION

BY MR. BRUCE:

Q. Mr. Larson asked you about the legal access. Again, the BLM owns the surface, correct?

A. Yes.

Q. And to your knowledge, does the -- if you get approval from the Division for the saltwater disposal well, will Mesquite then apply to the BLM for a right-of-way to gain access to the surface and file an APD for the well?

A. Oh, yes. And the normal procedure has been that we determine whether the C-108 can be approved, and if it is, then we go through the application with the BLM. The BLM has been supplied with a copy of the C-108 application, and they have not expressed any problem with it.

Q. And is that basically the procedure that was followed for the Paducah #1 SWD well over in Section 22?

A. And the #2 to the south.

Q. To the south. And they're both on federal lands?

A. Yes.

Q. And you obtained Division approval for the saltwater disposal well, and then went to the BLM to get the APD, et cetera approved?

A. That is correct.

MR. BRUCE: That's all I have.

EXAMINER GOETZE: Well, for the record, the Mesquite Saltwater Disposal Paducah #1 has an Administrative Order of SWD 1264-A.

And at this point, we're going to take a break, ten-minute break. And, Mr. Larson, you can pick up from there. All right?

(Break taken, 9:50 a.m. to 10:07 a.m.)

EXAMINER GOETZE: We're back on the record and continuing with Case 14979, application of Mesquite SWD for approval of water disposal well, Lea County, New Mexico.

Mr. Larson?

MR. LARSON: Thank you, Mr. Examiner. My first witness is Mr. Morrison.

ROBERT MORRISON,

after having been previously sworn under oath, was questioned and testified as follows:

DIRECT EXAMINATION

BY MR. LARSON:

Q. Would you state your name for the record?

A. Robert Morrison.

Q. And where do you reside?

A. Artesia, New Mexico.

Q. By whom are you employed and in what capacity?

A. I'm employed by Yates Petroleum Corporation as a landman.

Q. Is this your first time appearing in an Examiner Hearing?

A. This is my very first time.
Q. And who are you appearing on behalf of today?
A. I appear on behalf of Yates Petroleum Corporation, Abo Petroleum Corporation and MYCO Industries, Inc.
Q. And can you please summarize for the Examiner your educational background and professional experience in the oil and gas industry?
A. Certainly. I graduated from Texas Tech University in May 2010 with a degree in energy commerce. I started working for Yates in June of 2010, and I've been there ever since.
Q. And do you have personal knowledge of Yates', Abo's and MYCO's working interest in the surface location of the proposed SWD well?
A. I do.
Q. And the surrounding area?
A. I do.
MR. LARSON: Mr. Examiner, I move for Mr. Morrison's qualification as an expert in land matters.
EXAMINER GOETZE: So qualified.
Q. (BY MR. LARSON) I direct your attention to what's been marked as Yates Exhibit Number 1.
MR. BRUCE: Gary, could we get some

exhibits?

MR. LARSON: I'm sorry?

MR. BRUCE: Could we get some exhibits?

MR. LARSON: Oh, I'm sorry. I put them out there, and I --

Do you have them?

EXAMINER GOETZE: No, I don't have them either.

MR. LARSON: I had them nicely stacked up, and --

EXAMINER GOETZE: We caught counselor off guard.

Q. (BY MR. LARSON) Mr. Morrison, could you identify what's been marked as Exhibit Number 1?

A. Yes, sir. Exhibit 1 shows the relation between the propsed surface location of Mesquite SWD's proposed Paducah Federal SWD #3 in relation to Abo and MYCO's federal lease NM-110836 and the surrounding activity.

Q. And did you prepare this exhibit?

A. I did.

Q. And does the shaded area in Section 23 show the proposed surface location of the SWD well?

A. Yes, sir.

Q. And what does the purple line around the outer edge indicate?

A. The purple line indicates the Farber Working Interest Unit, the OA that governs these lands.

EXAMINER EZEANYIM: Farber land -- forgive me. I don't know colors. Which is the --

THE WITNESS: The heavy line.

EXAMINER EZEANYIM: Okay. Around the well.

THE WITNESS: Around the well, as well as the surrounding sections.

EXAMINER EZEANYIM: And who did you say those lands belong to?

THE WITNESS: It belongs to the Farber Working Interest Unit. The outline show the contract area of the operating agreement that governs these lands.

EXAMINER EZEANYIM: And the engagement well is in the shaded area.

THE WITNESS: Correct, the red circle, open circle, in the shaded area.

EXAMINER EZEANYIM: Please try to point out what you guys want, you know, so we can understand it. Now I think it's clear. Go ahead.

Q. (BY MR. LARSON) And as you sit here today, would you change anything on this map?

A. Yes, sir. Please be advised that we would amend the heavy outline to include Section 13, as it is

part of the contract area of the Farber Working Interest Unit.

Q. And what is the nature of Abo's, MYCO's and Yates' interest in the Farber WIU?

A. Abo and MYCO are record title owners, one-third, one-third, as well as owning a contractual working interest in the Farber Working Interest Unit. Yates Petroleum Corporation owns a contractual working interest unit -- excuse me -- a contractual working interest in the working interest unit and has been designated operator.

Q. And does that joint operating agreement include the northwest quarter of Section 23?

A. Yes, sir, it does.

Q. And is Yates currently operating any wells within the Farber Working Interest Unit outlined on Exhibit 1?

A. Yes, sir.

Mr. Examiners, if you will see, in Sections 1 and 2 at the top of the working interest unit, Yates Petroleum operates the Farber BOB in Section 1 and the Undaunted in Section 2.

Q. And are there any proposed wells within the Farber WIU?

A. Yes, sir. As indicated by the active permits

that have been applied for by the red lines indicated in Sections 23, 26, 24, 25, 18, 19 and 30, as well as to the north, in Sections 1 and 12.

Q. And what is the target zone for those proposed wells?

A. The Bone Spring.

Q. And moving back to this shaded area in Exhibit 1, does Yates have plans to drill wells in the northwest quarter?

A. They do.

Q. And Dr. Havenor testified about an existing Mesquite well in Section 22. Did Yates object to the application for that well?

A. No, sir, they did not.

Q. And do you recall when that application was made?

A. November of 2010.

Q. And have Yates' drilling plans changed since that application for the existing well was tendered?

A. Yes, sir. Yates Petroleum's drilling plans have changed over the past two-and-a-half years.

Q. And if you knew what you did now, do you think Yates would have objected back in 2010?

A. Yes, I do.

MR. LARSON: Mr. Examiner, I'd move the

admission of Exhibit Number 1 -- Yates Exhibit Number 1.

EXAMINER GOETZE: Exhibit Number 1, as amended, is accepted.

(Yates Exhibit Number 1 was offered and admitted into evidence.)

MR. BRUCE: Is that all the questions?

MR. LARSON: That's all the question I have.

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Just briefly, Mr. Morrison, I just wanted to clarify. The proposed wells that -- the red lines over in the inside and outside of the working interest unit are all proposed Bone Spring wells?

A. Yes, sir.

Q. And the two wells that have been drilled up in Sections 1 and 2 are also Bone Spring wells?

A. Correct.

Q. Do you know which sand or carbonate those are in?

A. I do not. I'd have to defer to our geologist.

MR. BRUCE: That's all the questions I have, Mr. Examiner.

EXAMINER GOETZE: Thank you.

I have no questions for this witness.

Mr. Ezeanyim?

CROSS-EXAMINATION

BY EXAMINER EZEANYIM:

Q. What is your name?

A. Robert Morrison.

Q. Morrison. Okay.

Let's go to Exhibit 1. And to understand, this Farber Working Interest Unit contains how many acres; do you know?

A. Exactly --

Q. It can be a -- I'm trying to calculate it, but if you know, you could tell me.

A. Off the top of my head, no, sir, I do not.

Q. But anyway, it includes -- I want to know what township or range. It includes -- if you start from your top, right-hand corner, it includes Sections 6, 1, 2, part of -- 1, 2. And then you go gown to 11, 12, 7, and then that's a quarter section. And then you have the number three? Number three is included, right?

A. Correct.

Q. It's not a continuance. Okay.

Okay. Now, who is -- who drilled all those wells in red? Is that red?

A. The red lines are permits that have been applied for.

Q. Oh. They're not drilled yet?
A. Not drilled and not approved yet, but they have been applied for.
Q. To BLM?
A. Yes, sir.
Q. Okay. And then these wells are belonging to, you know, the working interest of those, Yates, Abo and --
A. And MYCO.
Q. Okay. What about drilling the wells in Sections 1 and 2? Are those wells?
A. Yes, sir.
Q. Who owns those?
A. Yates Petroleum is the operator.
Q. They have been drilled, right?
A. Yes, sir.
Q. So they are producing?
A. Correct.
Q. From what pool?
A. It's from the Bone Spring Formation.
Q. Okay. Bone Spring Formation.
And then all these wells that you have applied for an APD, they also go to the Bone Spring?
A. Yes, sir.
Q. And I just want to understand what you meant

there. Okay. And, again, in your application here today, if I understand you, you don't want Saltwater Disposal #1 well to be drilled in that -- is that Section 23?

A. 23.

Q. Northwest quarter of Section 23?

A. Correct.

Q. I'm not going to ask you why, because maybe your geologist will tell me why.

A. Yes, sir.

Q. We are just asking about land.

A. Correct. We own the land in the -- or the lease in the northwest 23, and we object to them locating their well there.

Q. Okay. That's it. Thank you very much. I have no more questions.

EXAMINER GOETZE: Next witness?

STERLING H. FLY III,

after having been previously sworn under oath, was questioned and testified as follows:

DIRECT EXAMINATION

BY MR. LARSON:

Q. Good morning, Mr. Fly. Can you please state your full name for the record?

A. Sterling Harper Fly III.

Q. And where do you reside?
A. Roswell, New Mexico.
Q. And by whom are you employed and in what capacity?
A. I'm a senior geologist with Yates Petroleum.
Q. And are you also testifying today on behalf of Abo, MYCO and Yates?
A. Yes.
Q. And can you please briefly summarize your educational background and professional experience in the oil and gas industry?
A. Education: I have three degrees, all from the University of Texas at Austin, a bachelor's in biology, a bachelor's in geology and a master's in geology.

My oil and gas experience is with City Service Company, Yates Petroleum for eight years, and Eland Energy in Dallas.

Q. And your current stint at Yates, how long have you been there?
A. Two years right now, a total of eight years.
Q. And have you previously testified in an Examiner Hearing?
A. Yes.
Q. And were your qualifications accepted as an expert in petroleum geology?

A. Yes.

MR. LARSON: Mr. Examiner, I move for Mr. Fly's qualification as an expert geologist for purposes of this hearing.

EXAMINER GOETZE: So qualified.

EXAMINER EZEANYIM: With one exception.

MR. BRUCE: (Laughter.)

EXAMINER EZEANYIM: He went to the University of Texas.

EXAMINER GOETZE: That's your problem (laughter).

EXAMINER EZEANYIM: See, I'm for --

MR. LARSON: Objection (laughter).

EXAMINER GOETZE: There you go (laughter).

EXAMINER EZEANYIM: Okay. I'm sorry. Go ahead (laughter).

Q. (BY MR. LARSON) Mr. Fly, could you please identify what's been marked as Yates Exhibit Number 2?

A. Exhibit Number 2 is a structure map. The contour datum is the top of the Ramsey Sandstone, member of the Bell Canyon Formation.

Q. Did you prepare this document?

A. Yes, I did.

Q. And does your structure map identify any Yates developmental wells?

A. Yes. There are four horizontal locations indicated, shown in red, with the well names. It also shows the location of the proposed Mesquite Paducah Fed SWD #3.

Q. And what's the spatial relationship between the proposed Federal SWD #3 and the Fearless BSF Fed 1H?

A. I have it at approximately a half mile, perhaps just outside a half-mile radius.

Q. And for Mr. Ezeanyim's edification, the fearless BSF Federal would be in Section 23?

A. The surface location, yes.

Q. Surface location. Thank you.

The Resolute BTO and YPC Valiant would be in Section 24?

A. Surface locations, again.

Q. And the Fearless BSF Fed #1 --

A. That's actually #2H. That's a drafting error.

Q. Okay. As I did with Mr. Morrison, could we have the record reflect that the proposed well in Section 26 should be the Fed #2H, correct?

A. Yes.

Q. And that's in Section 26?

A. Yes, sir.

Q. And if these developmental wells are successful, does Yates plan to develop any in the Farber

WIU?

A. Yes. We envision full development of all Yates' interest leases, which would be a minimum of four wells -- four horizontal wells per section, up to perhaps six wells per section. And that would assume a single zone. There may -- we have identified multiple zones as potential horizontal targets, but the minimum case would be a single target.

Q. And that would be throughout each section in the Farber?

A. Yes.

Q. Could you next identify what's been marked as Yates Exhibit Number 3? And this is a foldout, a rather large foldout.

A. Exhibit Number 3 is a cross section of structural datum. The line of section -- the reference line of section is indicated on Exhibit Number 2. The blue line, A to A prime, on a cross section is A. The left side of the cross section is north, and the right side is south.

Q. And did you also prepare this document?

A. Yes.

Q. And what does this document intend to depict?

A. What this shows is a productive interval on the two wells in the Paducah east field located -- referring

to Exhibit Number 2. That's in Section 14, southeast-southeast corner [sic], and Section 23, northeast-northeast corner [sic]. On the cross section, Exhibit 3, that is the second well from the left and the third well from the left. On the cross section --

EXAMINER EZEANYIM: There is no well on Section 14? Is there any well there?

THE WITNESS: In Location P, in Section 14?

EXAMINER EZEANYIM: Section 14. Do you have any well on Section 14.

THE WITNESS: Not a new well. I'm sorry. I don't understand the question.

EXAMINER EZEANYIM: Well, I'm looking for a well. I know there are some gas wells over there, but currently do you have a new well to be drilled in Section 14.

THE WITNESS: No.

EXAMINER EZEANYIM: But you have -- in Sections 23 and 24 and 25, right, 26.

THE WITNESS: Yes.

EXAMINER EZEANYIM: I wanted to make sure where those wells are. You mentioned Section 14. That's why I'm asking.

THE WITNESS: (Indicating.)

EXAMINER EZEANYIM: You mentioned Section

14.

THE WITNESS: Okay. I will mention that we do have -- referring back to Mr. Morrison's Exhibit 1, we did have the northwest quarter of Section 14, just for reference.

EXAMINER EZEANYIM: Okay. You are talking about -- go ahead on this map.

THE WITNESS: Yes, sir.

EXAMINER EZEANYIM: We may or may not tell where the target is on this map.

MR. LARSON: Certainly. Certainly.

A. Okay. The producing interval on the second and third wells from the left on the cross section is shown as a little red box to the right side of the log images. So that is -- you know, I've indicated at the top of the Olds -- or near the top of the Olds Sand, which is the green correlation line. I point out, you know, the correlations -- the significant correlations are the Bell Canyon, which is, you know, a black line, and the Ramsey Sand, a blue line, and the Olds Sand is a green line. All of these, of course, are Bell Canyon members.

The other thing I wanted to point out on the cross section is, I added these wells on either end because they have modern mud logs on there. And so if you look at the mud log, which is the far right image on

the first, third and fifth wells of the cross section, you see that there were hydrocarbon shows in this interval at the top of the Olds on all three wells.

Q. (BY MR. LARSON) Is it your belief that there are significant hydrocarbons in the proposed injection interval?

A. I think there is a good possibility, as identified on the Applicant's exhibit, the well diagram.

EXAMINER EZEANYIM: However, your primary is Bone Spring, right?

THE WITNESS: Yes.

EXAMINER EZEANYIM: But you think that production is coming from the Bell Canyon and Ramsey, because that's your indication there? You said that there is production from Bell Canyon and Ramsey, right, on this --

THE WITNESS: Olds, actually; Olds, as opposed to Ramsey.

EXAMINER EZEANYIM: Oh, Olds. Okay. Okay. I see. Go ahead.

Q. (BY MR. LARSON) Mr. Fly, in your opinion, will Mesquite's proposed injection of produced water into the Bell Canyon and Cherry Canyon Formations negatively impact Yates' drilling program for the northwest quarter of Section 3 and the rest of the Farber WIU?

A. Section 23 at the --

Q. I'm sorry. Section 23.

A. Yes. In my opinion, that is -- it would be a negative impact on our drilling program for the deeper objectives.

Q. And in your opinion, would the granting of the application result in an impairment of Yates', Abo's and MYCO's correlative rights?

A. Yes.

EXAMINER EZEANYIM: There are two questions. I need to get a correct answer on these two questions. Can you answer those two questions? I tell you, those two questions are why we are here. I will ask the first question and then the second question, and let's see what the answer is.

The first one is: Will the drilling of that saltwater disposal well hamper your operation? And you said yes, but you didn't specify. So when I ask the second question, I want you to repeat those answers to begin to demonstrate why this saltwater disposal well would be an impairment of the correlative rights or induce waste, because that's why we are here. So you have hinted at it now, and I want to get an answer.

MR. LARSON: I'll follow up, Mr. Ezeanyim, and say, some of this will be covered by Ms. Hotter, who

is our petroleum engineer, but I'll certainly follow up with Mr. Fly to the extent --

EXAMINER EZEANYIM: Whoever you want to tell us, you know, because that is why we have the hearing. The hearing is to argue: Which one do we go? And then, you know, I want to get the answers and then get the facts so that we can begin to make some recommendations here. If I don't get the facts, I can't make recommendations. So when you ask the question, you're hinting at something, and I want an answer.

MR. LARSON: Understood.

EXAMINER EZEANYIM: Very good.

Q. (BY MR. LARSON) Mr. Fly, what is the basis for your opinion that the proposed injection producing water would negatively impact Yates' drilling program in the Farber?

A. Primarily, I think that we would be subjected to waterflow through that interval, which will impact our drilling design program, perhaps, you know, resulting in increased costs due to adjusting the mud system and so forth. And our engineer will go into this in greater detail in a bit, but, primarily, again, the negative financial impact will be due to veering away from our design drilling program, you know, our optimum drilling program due to increased waterflow.

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Q. And then following up on the second opinion you rendered, how would that impact Abo, Yates' and MYCO's correlative rights?

A. Well, the way -- the correlative rights in the Bell Canyon would be negatively impacted due to, basically, flooding of potentially productive zone, that being the Bell Canyon, specifically the Olds member of the Bell Canyon.

Q. And would the waterflow that you mentioned potentially impact Yates' ability to go to the full extent of its drilling program in the area?

A. Yes. It would -- it would have a cumulative effect most severely in the vicinity of the proposed SWD location. The immediate impact would be on the Fearless Fed #1, which is approximately a half mile away. A subsequent impact would be on the two or three horizontal locations in the northwest quarter of Section 23, which has not been applied for yet, but they're clearly in our plans. As I stated earlier, we ultimately envision drilling everything we can to fully exploit one of many -- one of several potential horizontal targets.

Q. And does Yates anticipate exploiting intervals other than the Bone Spring?

A. Yes. Well, we have several targets within the

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Bone Spring, and, also, we consider the lower Brushy Canyon to be a target interval.

And, of course, this Bell Canyon would be -- we would consider that a hind-pipe target. You know, it's an existing resource, but it clearly looks like it would be a producible area.

Q. And the issues you brought up in terms of fighting waterflow and increased costs, those will be dealt with in more depth by Ms. Hotter?

A. Yes.

MR. LARSON: Mr Examiner, I'd move the admission of Yates Exhibit Numbers 2 and 3.

EXAMINER GOETZE: Exhibits 2 and 3, as amended, are accepted.

(Yates Exhibit Numbers 2 and 3 were offered and admitted into evidence.)

MR. LARSON: Pass the witness.

EXAMINER GOETZE: Your turn, Mr. Bruce.

MR. BRUCE: Just a couple of questions.

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Mr. Fly, in 30 years of questioning Yates' witnesses, I've never asked this question, but I've always been fascinated. If you look at your Exhibit 2, take one of the wells, say, in Section 24, the Resolute

BTO --

A. Yes.

Q. -- what does BTO, BTV, et cetera stand for?

A. I honestly do not know. I think it's just a sequential -- it's like saying Well Number 2, Well Number 3, Well Number 4. I've never understood that myself.

Q. I had to ask.

A. I'll have to ask.

Q. Do you agree, Mr. Fly, that wells drilled in this area encounter less circulation than the Bell and Cherry Canyon?

A. Yes. Not all.

Q. And you mentioned that there are several target zones in the Bone Spring. Which sands are you looking at?

A. You had asked Mr. Morrison -- or somebody asked Mr. Morrison about the Farber and the wells to the north. One of those is in the 2nd Sand, 2nd Bone Spring, and the other is in the Avalon Shale. So that would be representative.

Q. Does Yates have any plans to drill into the Bell Canyon alone?

A. No, not specifically Bell Canyon. I'm sorry. I was thinking Brushy when you asked me that. No. We

don't have plans for the Bell Canyon, per se, but we do consider it a resource.

Q. And do you agree that the Bell and Cherry Canyon zones are wet?

A. Yes.

MR. BRUCE: That's all the questions I have, Mr. Examiner.

EXAMINER GOETZE: Do you want to cross?

MR. LARSON: I have no redirect.

EXAMINER GOETZE: I have no questions.

Mr. Ezeanyim?

CROSS-EXAMINATION

BY EXAMINER EZEANYIM:

Q. The engineer can answer my questions more effectively, but let me ask you this question, so you can begin to think about it. We have the Bell Canyon, the Cherry Canyon, the Brushy Canyon. Are those any prospect -- maybe the Ramsey. This is basal Brushy Canyon. Are there prospects for you in the Cherry Canyon and -- you don't have any -- you don't want to deal with the Bell Canyon. That's out, right?

A. Uh-huh.

Q. You don't have anything there.

What about the Cherry Canyon?

A. In this immediate area, I'm not aware of a lot

of potential in the Cherry Canyon. Farther to the north and down south in Texas, there is significant Cherry Canyon.

Q. What about the Brushy Canyon?

A. Brushy Canyon, we have a well about four miles to the north, a horizontal Brushy Canyon well. And within the Farber Working Interest Unit area, the primary objective is Bone Spring.

Q. Okay. If I understand your testimony, injecting into this well, whatever this well is, the Paducah #3, it will increase your cost of operations, right?

A. Yes.

Q. And how is that?

A. Well, by the problems of increased waterflow. If we -- and, again, this goes to some of our engineer's testimony, but we may have to deal with excess water production and removal from the location. We may have to deal with mudding up or altering our drilling plan, which are unanticipated costs.

Q. It seems to me that if the Brushy Canyon is not your prospect, you shouldn't worry about the water production from there, because you are in the Bone Spring, especially the 2nd Sand Bone Spring. That's really your primary target, right, the 2nd Sand, which

is a depth -- you know, it's deeper than the Brushy Canyon.

I mean, operationally, I want to see how it affects your cost, because I don't want it to affect your cost. If it is going to affect your cost and then you can't break even in the way you're drilling, that's not acceptable, but I want to begin to understand how that would happen. I mean, you can understand why I'm asking that. I'm asking -- let's say you spend 100 million, but now, because of -- you spend 200 million and don't break even. That's not acceptable.

So you need to convince me why injecting a saltwater disposal will increase that cost and how much it will cost, so we can weigh, you know -- weigh --

A. Uh-huh.

Q. Here we are just trying to seek the truth, and this is technical truth. It's not a fact truth. It's just a technical truth. There is a geology, and why we should do what we should do.

A. Uh-huh.

Q. And then you can understand what I'm asking. I'm trying to find out why. If it's going to affect Yates, Abo and the other people who are getting into this, increase your costs substantially or to redesign the project so that it costs more money, or they will

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produce a lot of water instead of oil, I need a conviction [sic] of that, so I can begin to look at the recommendation.

You know, when I am talking to you, I'm not trying to bully you. I mean, you have done very well in your testimony. Don't get me wrong. But I'm always ambitious to get the truth, the technical truth, because I can't make that -- we cannot make that decision in a vacuum. I can't go, Oh, XYZ; I like XYZ. No. I have to find why we make a recommendation and that's why we see the technical truth. Don't think I'm hassling anybody. Some people may think I'm asking too much, but we use the answers to those questions to make a recommendation. So that's why. So don't think, well, he's asking me dumb questions. Better to ask dumb questions than regret it later. So I'm not being hard on you.

Is it Mr. Frye?

A. Fly, F-L-Y.

Q. Okay. That's why we are asking questions. We are going to find out why you are objecting. And I think you have the right of this, and that's why we are here, you know, in this nature, to protect Yates. I don't want the correlative rights of Yates to be impaired. If I were you, I would do the same thing.

I'm not saying you shouldn't. You have the right to do it, and that's what you're doing, but I need convincing technical evidence to do it.

So we have more testimony coming here, but I think I will need you to go into detail about these cost issues. And I know that there is rather low circulation in the Cherry Canyon.

Is it really possible that injection into the Cherry Canyon will hurt the operation? I don't know. We need to look at it, too. Don't tell me what I say is not true until we get the facts on that or no facts on that.

At this point, I think I will allow you to continue and look at that with another witness. You might be called to answer more geology questions, you know.

A. Okay.

EXAMINER GOETZE: I believe we're done with this witness.

MR. LARSON: Yes, Mr. Examiner.

MARGRETHE FAABERG HOTTER,

after having been previously sworn under oath, was questioned and testified as follows:

DIRECT EXAMINATION

BY MR. LARSON:

Q. Good morning, Ms. Hotter.

A. Good morning.

Q. Please state your full name for the record.

A. Margrethe Faaberg Hotter.

Q. And where do you reside?

A. Carlsbad, New Mexico.

Q. And by whom are you employed and in what capacity?

A. I'm employed with Yates Petroleum Corporation as a petroleum engineer.

Q. Have you previously testified in an Examiner Hearing?

A. No.

Q. And are you also appearing here today on behalf of the three entities, Abo, MYCO and Yates?

A. Yes, I am.

Q. Could you please summarize your educational background and professional experience in the oil and gas industry?

A. I graduated with a master's in petroleum engineering in '92 from the Norwegian University of Science and Technology. From '92 through 2000, I worked with Statoil, Smith International and Baker Hughes,

working offshore, North Sea.

I've been employed with Yates since 2000, first as a reservoir engineer for five years, and in the last eight years, I've been in Operations. The last -- of those 13 years I've been with Yates, 11 have been -- the last 11 have been in the Permian Basin as a petroleum engineer.

Q. And would it be fair to say that you have responsibility for all of Yates' current and future producing wells in southern Lea County?

A. Among other areas, yes.

MR. LARSON: Mr. Examiner, I request that Ms. Hotter be qualified as an expert petroleum engineer.

EXAMINER GOETZE: So qualified.

Q. (BY MR. LARSON) As Mr. Morrison and Mr. Fly have testified, Yates will drill its Fearless BSF Fed #1H well to the Bone Spring. What would be the effect of Yates having to drill through the proposed produced water injection zone assuming that water is injected into that zone to reach the Bone Spring targets?

A. Well, our main concern in drilling a well in an area where there are water disposals are the waterflow and all the problems it causes us. It causes several problems.

Number one, all waters that are being

reinjected into the formation from the surface, no matter how good you clean it, there is contamination in it. Bacteria are introduced into the formation, and over time, those bacteria breaks down and turn into H2S.

H2S causes -- it's very harmful. It creates safety issues for our personnel, and it creates a corrosive environment for the pipe in the ground over the interval of injection.

Secondary, waterflow also causes problems during the cementing phase. It's very difficult to get a proper cement job done in an area where you have a waterflow. The bigger the flow, the bigger the problem.

Also, it's very important when you drill that you balance your mud weight. Delaware is quite delicate. It has a lot of different sands. Some break down easier than the other. You have to be very careful balancing your mud weights.

Waterflow can cause one of two things depending on the water that is being injected. If it's very salt [sic], it can increase the mud weight that we're using. That increase in mud weight can break down the formation, and you get loss of formation -- or -- or loss of circulation.

Or, two, which is most commonly [sic], is that it dilutes your mud weight. You have to keep

adding barite to it to keep your mud weights up, and it creates a big problem on the surface.

In these closed-loop systems that they're doing these days, you don't have the capacity for extra fluid. An extra 20, 40, 60 barrels an hour leads to the trucks continuously having to transport water off location, creating a dangerous environment on the location and a very high cost reinjecting disposed water for a second time.

Q. So addressing directly Mr. Ezeanyim's questions about cost --

A. Yes.

Q. -- is it your testimony that bringing additional produced water from the proposed injection interval would increase your water disposal costs during drilling?

A. Oh, significantly. I mean, each -- you know, these days, we pay three, four, five -- depending where you are, 3-, 4-, $5 a barrel to truck it and then dispose of the water. And, I mean, we've got samples where -- where it cost at least over half a million dollars. It depends on the flow. If it's a small flow versus a big flow, it makes a big difference. We've had places where we couldn't even -- we lost a whole well, because we couldn't control the flow, and we had to just

plug it and move over and drill another well. We couldn't drill it, and that cost millions.

Q. And the cementing issues or the cementing difficulties you mentioned, does that also increase the cost?

A. Oh, yes. I mean, the -- we need to have a good cement job in order to be able to produce these wells properly. I mean, this is a big area. We need to be able to isolate the zones that we are stimulating in order to get a good stimulation job. And there are also requirements, state and federal requirements -- well, I guess these are federal, so mostly federal requirements that you have to have, pipe back your cement about 500 feet into the intermediate casing. With waterflows, this can be very difficult. You might have to end up doing remedial work, which is extremely costly. You have to shoot a hole in the brand-new casing, creating a weak point in an area where waterflow -- you know there's going to be H2S, which is very corrosive, and it's going to create a lot of problems down the road in the wellbore itself.

Q. And you mentioned federal requirements. Are those BLM requirements?

A. Yes. Yes, sir.

Q. I'll direct your attention to what's been

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marked as Yates Exhibit Number 4. Can you please identify that document?

A. Yes. The upper figure shows the different mud weights that we are using to -- this indicates the mud weight used through the Delaware Formation. And this is basically the same all over the Permian Basin, but I've used examples here of the two wells that we have in the Farber Working Interest Unit just north -- north of the lease in question. There's one west of the lease in question, and two south. They're all -- the three other ones are outside of the Farber Working Interest Unit.

Q. Ms. Hotter, could I interrupt you right there?

A. Oh, sorry.

Q. Could you pull out Exhibit Number 1 and point out where those wells are that are indicated on your Exhibit 4?

A. Well, only two -- you can only see two of them. The Farber is the one in Section 1. The Undaunted is the one in Section 2. The Presidente is further to the west, outside this map. And the Zapata and Quijote are to the south of this. It's just to give a representation to show what kind of mud weights we are using through this interval.

And what you will see on this plot is that you see the higher mud weights going through the salt

where we set the intermediate casing. As soon as you go below the intermediate casing through the Delaware, we had to produce [sic] our mud weight.

reduce

Basically, we -- we -- we drill with a mud weight of 8.8, 8.9. It's a cut brine. We have to dilute a normal brine in order to -- to -- to drill it. These wells break down very easily, so you cannot have a too high mud weight, because you will break down the formation. At the same time, you can't have it too low because then you will get flow into here.

And there was mentioned quite a bit about loss in the Cherry Canyon. In this area, we have not noticed a whole lot of losses in those wells that have been drilled through the Cherry Canyon. Our major loss, seepage zone, is actually right at the base of the Brushy Canyon and top of the Bone Spring area. That's where we have seen some seepage and losses.

And it's -- Delaware is -- it's a strange -- it has so many -- many sands, and some of them will give you flow; some of them will give you losses. And it's a very delicate balancing issue, and you have to make sure -- it's very critical that your mud weights and mud are balanced properly.

EXAMINER EZEANYIM: Excuse me, Counselor. This is very important information for me.

CROSS-EXAMINATION

BY EXAMINER EZEANYIM:

Q. I think you are Ms. Hotter?

A. Yes.

Q. For this area, the Xs, what are those, mud weights and --

A. Oh, that's just -- you see those different -- it just shows the different mud weights that we use per depth, mud weight per depth on those different wells.

Q. I know. I know, but what is -- down at the bottom, what is that?

A. Those are wells.

Q. Those are well names, right?

A. Yeah, those are well names.

Q. Okay. This is a very good piece of information. And this is the information on offset wells?

A. Yes.

Q. Okay. Are you a drilling engineer, too?

A. I'm working as an operations engineer. I'm not working as a drilling engineer now, no.

Q. Yeah. Okay. Now, this is important. This is what you got --

A. Yes.

Q. -- when this well is not yet drilled --

A. Yes.

Q. -- right?

Okay. From your experience, now what would you expect -- what would you expect the cost to go -- let's say this well is approved and all you were saying about the mud -- you know, increasing the mud or decreasing the mud. Which protector [sic] would you expect? You know, I would have loved to see that here. Say, Well, if you approve this Saltwater Disposal Well #3, this is how the well is going to be, and these are the problems we are going to encounter.

A. Yes.

Q. This is what is happening. The well is not drilled.

A. No.

Q. And I see why. You drilled the salt [sic]. You have the mud well, because you know salt. You have to increase the -- when you go -- we saw how underbalanced, if you are drilling, essentially, water --

A. Yes.

Q. -- 8.8, 8.9 water --

A. Yes.

Q. So you have brought something to say, Well, this map the projected mud weight that we're going to

have to deal with if this saltwater disposal is going to be approved. This is the problem. We're going to have a lot of loss of circulation. But it's not that -- you are telling me what can happen. The well is not drilled, so I don't know what to do.

A. No.

Q. And here we deal with what we call the preponderance of technical evidence, not preponderance like you do in court. I need to see the preponderance of technical evidence, convincing me what I'm going to do, and if I'm very convinced or not. But I want to convince with the judge with a preponderance of evidence. That's what we expect to find here whenever anybody comes here. If you come in here and just tell me something I don't understand, then I make my decision in a vacuum, and then I take it to Commission and say, Well, I don't know. So I need to be able to make a recommendation based on technical evidence.

I'm not saying what you did is wrong. Don't get me wrong, but if I were doing this, I would have produced -- here (indicating). I would have produced this page and tell them, If you approve this order, this is what is going to happen, and this is how much it's going to cost me and how it will impair my correlative rights.

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A. Okay.

Q. I'm not saying -- this is good work. At least I have this. But the point I'm trying to make is that when you come in before the Division, we also look for a preponderance of technical evidence and what would we do to prevent waste and protect correlative rights, and that is what we are trying to do.

A. Yes.

Q. If it's not convincing, then we are in trouble.

A. The cost on these will increase with time, because the more you're injecting, the bigger the waterflow you're going to get. And the bigger the waterflow, the more increase you're going to have in your mud weights, trying to keep it up.

With H2S, you have to have a special type of casing, special type of drill strength. Most drilling contractors that you have your drilling rig with will not allow you to use their drill string during an H2S environment. You have to rent an extra-strength to go through there; higher-grade casing, which is more expensive.

We've had cases where we have drilled through areas close to water disposal wells where we lost an entire well. It cost us $3 million just for the well, and we had to move over. It will depend, as I

said, on the amount of flow that we get.

Q. Is that Yates?

A. Yes, Yates.

Q. It's Yates?

A. Yes. And we've had --

Q. Why didn't you bring that evidence?

A. I have it in my file if you want to see it. I mean, I just -- I didn't put it in an extended -- because it's from different areas, and it's far away, and it's not related to this well.

Q. But it doesn't matter. It's in New Mexico?

A. Yes.

Q. If it's in New Mexico, you can tell us, regardless of the area.

A. Yeah.

Q. I mean, it doesn't hurt to say that.

A. Okay.

Q. So it goes back to what I'm trying to say.

A. Yes.

Q. I'm trying to make sure people understand what we are looking for here. If you come in here and tell me, Oh, we want approval because -- based on my experience, I don't have nothing to -- I mean, if you approve that, say, Here, even though it is maybe -- I don't know what county, you know, Roosevelt County or

some county -- this is what happened.

A. Yes.

Q. I mean, that's the point. You understand what I'm trying to say?

A. Yes, I do.

Q. Very good. Okay. I'm sorry to interrupt, but this is important for me to understand before we continue.

EXAMINER EZEANYIM: Mr. Larson, go ahead.

A. And at the bottom here on Exhibit 4 is just showing the mud program that we are planning to do in the Fearless.

EXAMINER EZEANYIM: Where?

A. The bottom of the --

EXAMINER EZEANYIM: Oh, okay.

A. That's the Fearless, which we will -- that's going to be the mud program for all the wells around here. That's how you have to drill, through the Delaware and the Bone Spring.

CONTINUED DIRECT EXAMINATION

BY MR. LARSON:

Q. So these statistics at the bottom of Exhibit 4, those are specific to the Fearless well that the APD's been submitted for?

A. Yes. This is for -- this is to -- this is for

the Fearless. They're identical to the other ones that have been submitted.

Q. And the numerous wells Mr. Fly --

A. Yes.

Q. -- testified to about the Farber --

A. Yes.

Q. -- you will have a similar drilling program?

A. Yes.

Q. And in terms of the issue of increased costs, are you able to predict with some certainty the problems which you'll encounter if you have to drill through this produced water injection zone?

A. With relation to costs or --

Q. Yes, the specific problems you'll encounter.

A. H2S environment, problems cementing, problems controlling the water -- or the -- the mud weight. And this will be -- I mean, this will be a problem all the way from -- we drill out from the -- from the intermediate casing shoe and all the way down to the other well.

What you can do -- you know, in order to stop, you could put enough -- you can change your casing program, trying to deal with it if the -- if the flows are moderate. If you have high flow, there's nothing you can do. You can't even drill the well if the flows

are high enough. If you can control the well, you can -- you can set in an extra string of casing, which, in this case, then, would have to be set at the base, below the injection zone, which will reduce your hole size, which means that you have to drill out with a smaller hole size, build your curve with a smaller hole size and drill out to TD with a smaller hole size. Smaller hole size, smaller bit; smaller bit, bigger chance of -- of -- of breaking off, you know, the smaller, the thinner steel you have. You have smaller drill pipes, so you have less weight. And you have less weight, you can drill long -- you need the weight. You use weight in order to -- to drill, your weight on the bit. And you have to have enough sufficient weight that you can -- to drill far. Some of these wells that I've proposed here are -- are extended reach wells.

EXAMINER EZEANYIM: What -- what -- why do you have to drill those small holes? Why?

THE WITNESS: Huh?

EXAMINER EZEANYIM: Why are you drilling the holes with smaller bits and --

THE WITNESS: If -- if we have to -- if -- if the -- if we are not able to control the mud -- the flow with any kind of mud weight, we're losing control of our mud weight, and we will have to set an extra

string of casing, which has to be set -- we have to set the intermediate casing where we drill because of -- of -- of the mud weight. It goes from a 10 mud weight to an 8.8 mud weight.

And so we have to set the casing -- the intermediate casing where we do -- if we have to set a seven-inch casing or a different casing to shut off the water in order for us to be able to continue drilling the well, you know, you will -- as you set your casing, you reduce your hole sizes, and this will impact -- it will impact your drilling. You know, you might not be able to drill as far because you're losing weight with your drill pipe.

Secondary, when you do your stimulation job, you -- it will increase costs there because you have a smaller pipe, you have more friction, use more horsepower. Horsepower is one of the most highest costs during the frack job.

Also, it's very complicated when you have a smaller -- the smaller hole, the more difficult it is to drill, and -- and -- and you're building your curve and to get your casing all the way to bottom.

At the end there, too, producing the well, if you set a -- pumping a four-and-a-half inch casing versus a five-and-a-half, it's big; it's substantial.

The smaller the pump, the less efficiency you can have on it. It will -- it will grow warm, and you will have to switch it out more often. A pump is -- I mean, we're talking $150,000 a pump right there.

And the thing is, you can put a liner in there, but it will be high up. It will be higher up. It will be at the base of the -- base of the Cherry, basically, to shut off the water, and you will have to then pipe back into there, which means you can only pump it from high up. The lower you put your pump, the more efficiently you can pump, and the better production you can get. So it will also affect our production. We will -- we will have to set an extra string of casing and put the pump -- pump it from higher up. It will be less efficient.

Q. (BY MR. LARSON) And given these potential problems you will encounter, is it possible to give an estimate of potential increased costs, or do you not know until you actually start the drilling program?

A. You will -- you will not know -- I would anticipate the cost will be less initially because you have a -- have a smaller waterflow. You know, you may talk half a million dollars, initially. In the end, it can -- you might not be able to drill it if you have too much problems with the waterflow.

Q. And there is also the possibility of losing production; is that correct?

A. Less efficient if you have to go to the point where you have to set an extra string of casing, and from that high up, because our target is the Bone Spring, way above our kick-off point and -- yes.

Q. And then directly responding to Examiner Ezeanyim's point, is it possible for -- you know, we've got a potential of up to 50 wells out in the Farber unit -- to look at each one and say, It's going to increase costs by X through 12? Are you able to do that, as you sit here today?

A. No. I mean, it will -- because you're going to start with a few wells. The further away you are, the less affected you are with the waterflow, and the less cost it's going to be.

As the years go by -- I mean, we're talking about developing this entire area, and we're talking, you know, 50-some wells just in this one horizon. You're adding, I mean, at least three or four more. We're talking 200 wells, and it's over a long period of time. And they've already -- in the year and a half they've had that current water well, they've injected over -- about 5 million barrels already, and it's not even pressuring up. I mean, it's going far, and it's a

lot of water. And then another water disposal right there, it -- it -- over -- over the years -- I mean, I don't even want to think about it.

Q. Could you next identify what's marked as Exhibit Number 5?

A. Exhibit Number 5. This shows the Undaunted, which is the well they drilled a couple of miles north of it. It's just a representative -- it's just shown here to represent the typical wellbore sketch or well -- the casing design that we use for Delaware and Bone Spring wells. This is -- this is typical how we drill it. On the bottom here, it's the actual casing design for the Fearless and for -- for the other wells. This one is from Fearless.

Q. Did you also prepare this document?

A. I did.

Q. And is this well design for the Fearless BSF Fed #1H -- I'm somewhat like Mr. Bruce; I'm wondering how these wells get named -- that Yates is planning to drill?

A. Yes. The -- the -- the casing program you will see on the bottom. The drawing up here shows a well with a pilot hole. I mean, I don't believe the Fearless is going to be drilled with a pilot hole. Some of these wells on this unit will; some will not. It depends on

the control that we have in the vicinity of the well.

Q. In looking at the well diagram, what is the relationship between the intermediate casing and the proposed injection interval?

A. The proposed injection interval will be right below the intermediate casing shoe. This one shows all the way down to the Bone Spring, 2nd Bone Spring Sand, which is the target in the -- in the Fearless, and it will be drilled in the Undaunted. And it just shows that the whole 2,000 feet of injected interval is going to be through our open hole and will be a problem that we will have to deal with, the entire drilling of the productive interval.

Q. And what specifically would the problem be?

A. It will be the waterflow. It will be controlling your mud weight. It will be difficult with the cementing, and it would be -- you know, the danger of H2S.

Q. It's similar to the issues you said you confront generally?

A. Yes. And it's also -- you know, when you're talking about H2S and damage to pipe, I mean, initially you're not going to see something, but down the road, I mean, that's going to eat up your production casing. And that's -- I mean, if it's over too big of an

interval that are eating up, I mean, it's not fixable.

Q. And the proposed surface location of the injection wells on the BLM surface, are there any drilling requirements that will come into play here?

A. Their requirement is that we have to cement -- cement back 500 feet into the intermediate casing, and if you're not able to do that, you have to do remedial work.

Q. In your opinion, would Mesquite's proposed injection into the Bell Canyon and Cherry Canyon Formations increase the costs of Yates' drilling program for the Farber WIU?

A. Yes, increasing as time goes by.

Q. For the reasons you've set out previously?

A. Yes.

Q. And would it also potentially impair Yates', Abo's and MYCO's correlative rights in terms of reasonably being able to produce the hydrocarbons that they have a working interest in?

A. Yes. I mean, the cost is a big part. It has to be economic to drill, and then the more the well costs, the less economic they are.

MR. LARSON: Mr. Examiner, I move the admission of Yates Exhibit Numbers 4 and 5.

EXAMINER GOETZE: Exhibits 4 and 5 are

accepted.

(Yates Exhibit Numbers 4 and 5 were offered and admitted into evidence.)

MR. LARSON: I pass the witness.

MR. BRUCE: Mr. Examiner, I do want to recall Mr. Havenor to address a few of these issues rather than spend too much time cross-examining Ms. Hotter.

CROSS-EXAMINATION

BY MR. BRUCE:

Q. Ms. Hotter, what you're talking about is all based on increased waterflows and increased H2S levels, correct?

A. Yes.

Q. And if those don't occur, then there are no increased costs?

A. No. We don't -- if we don't see the produced water in the area where we drill, there is no -- yes.

Q. And then just a couple of questions. The two wells you have drilled up to the north in Sections 1 and 2 --

A. Yes.

Q. -- Bone Spring wells, what type of water production are you seeing from those wells?

A. They are from a different formation.

Q. Correct. Yes.

A. Top of my head, I would say 200 barrels a day, something like that. But I'm not -- I don't think that the injected interval will cause as to produce more water. It will -- it will -- it will not affect the production or -- or the amount of water in the productive zone. It will cause problems during the drilling phase.

Q. I understand that. I just wondered what those wells --

A. Yes. And that's just off the top of my head. I don't have them here, but in that range.

Q. Just one final question. You mentioned, in the Paducah SWD #1, there's about 5 million barrels of water injected?

A. Yes, according to the OCD.

Q. And you said there is no evidence of pressuring up in the reservoir as a result, correct?

A. Well --

Q. Doesn't that indicate there is a pretty large void to fill in the Cherry Canyon?

A. Or that the water can go very far away and affect wells further away than you would think. There is just a huge continuous sand that will affect far away.

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MR. BRUCE: That's all the questions I have, Mr. Examiner.

EXAMINER GOETZE: Very good.

EXAMINER EZEANYIM: Counselor, do you intend to call Dr. Havenor?

MR. BRUCE: Yes, I do.

EXAMINER EZEANYIM: Then we have to finish with this witness. Are there any other questions?

MR. LARSON: Nothing further.

CROSS-EXAMINATION

BY EXAMINER GOETZE:

Q. Okay. The well of concern is Fearless BSF Federal 1H. We're not doing a pilot on that?

A. I don't believe we are. I think -- I may be wrong on that. I don't think we are.

Q. Okay. And we're looking at -- it seems to be that this program now, we're doing mile-and-a-half laterals?

A. Yes.

Q. And is that going to be a pattern that you hope to continue throughout?

A. It's been more economic for us to drill a longer lateral.

Q. And this is after doing the one-mile laterals? This is your --

A. The one-mile laterals are the standard. We're trying to utilize where we have surface and trying to drill -- drill up the whole unit.

Q. Very good.

And then a question about the targets. We've identified the Cherry, the Brushy Canyon, as well Bone Spring. What will happen if we do find economic resources in your shallower? Are you going to dramatically change the drilling program? I'm sure the completion is going to be a little bit different. How is that going to be handled?

A. Yes. If we go to some of the shallower wells, it will -- I mean, then we will be closer to the injecting zone or perhaps in the injection zones, if there is any, but it's not -- the mud program is going to remain the same. We're going to set the intermediate casing basically the same, have the same casing. It's not going to change a whole lot from if we go into the shallower.

The Bone Spring and the Delaware behave very, very similar. But they're both low pressure and, in some places, underpressure. They react to the mud the same. Delaware is generally more water filled, has a higher water saturation than the Bone Spring. They frack with the same frack gradient. They're very

similar.

Q. No further questions. Thank you.

EXAMINER GOETZE: Mr. Ezeanyim?

CROSS-EXAMINATION

BY EXAMINER EZEANYIM:

Q. Ms. Hotter, even though this is not related to this issue, but the one-and-a-half mile well that you've designed, you've applied for an APD. My question is: Are they formed by the joint operating agreement, because you are asking us to approve that project area? So it means that you have submitted your request for APD approval. Everybody in that unit has participated in drilling the wells to that mile and a half; is that correct?

A. Yes.

Q. Is that correct? I mean, if you go to -- SWD #1, you can see a mile and a half in Section 24 and 25, another one from 26 to 23.

A. Yes.

Q. All those wells Dr. Havenor talked about, you have applied for an APD. Applications for APD, if you will recall -- agreement on those nonstandard -- I mean, those project areas, right?

A. Yes. We have applied for APDs for all of these.

Q. I think counsel can answer that question. What I'm asking here is not a part of this, but I want to understand. Everybody has agreed to participate in drilling that one-and-a-half mile well, right?

A. Yes.

Q. That's why you applied for an APD?

A. Yes.

Q. So that's why we didn't see any application asking us to form that project area, right? It's yes or no.

MR. LARSON: Mr. Examiner, I think that's something Mr. Morrison could address.

EXAMINER EZEANYIM: Oh, okay. The land person?

MR. LARSON: Yes.

EXAMINER EZEANYIM: Okay. Before we call Mr. Morrison back, let me finish this.

A. Okay.

Q. (BY EXAMINER EZEANYIM) But I want to know how those -- I know you applied to BLM to get it. And after BLM, you come to us to approve when you have -- you know, when everybody have a need to participate in the well, JOA --

A. Yes.

Q. -- area. I mean, that is not part of this.

It's part of what I'm asking. But I want to understand why -- where everything is. But on your own case, let's start with the -- I call it an assumption, that the approval of this saltwater disposal will not drown [sic] your production, right?

A. No.

Q. It's only going to increase your costs --

A. Yes.

Q. -- from all you've just said, and you've told me a lot of things about how your costs would be increased, right? So that's what I understand. It's not going to drown your production. I mean, we can't approve something like that.

But now you are saying that Yates, Abo and the rest of your correlative rights would be impaired because costs will increase a substantial amount because of the waterflow, right?

A. Yes. And we may not -- it might come to a point where we're not able to drill. And if we're not able to drill or we're not able to produce it as -- stimulate it or produce it as efficiently as we would, we will lose correlative rights.

Q. Okay. Now, why didn't you contest the salt disposal well that was approved in 2010? Let me now ask that question. Why didn't Yates, you know --

A. We should have. I don't know.
Q. Did you get notice?
A. Yes. I believe -- I believe we did. I didn't see it on my desk, but I believe we did. We should have, yeah.
Q. I don't know whether I should ask that question of the geologist or the land person, because you should have objected to that injecting into --
A. Yes.
Q. -- in the same zone?
A. Yes. Yes. It's a concern already.
Q. Okay. Now -- exactly. In that case, it appears that you might come in and say, Well, it's not going to be appropriate, because you are looking to drill your wells in all these areas you have identified, of which the number one well is part of it, right? Yes?
A. Yes. But the thing is that I don't think we were aware of -- we didn't -- until we started looking -- got this -- this -- this water disposal and started doing research, that's when we discovered the other one.
Q. Yeah, I know that.
A. Yeah.
Q. I mean, things happen.
A. Yes.

Q. You might not have -- 2010 is almost three years. So you were not aware at that time, but now when you apply --

A. This is going to cost us.

Q. -- oh, this is going to give us a problem.

A. Yes.

Q. That's why you do this.

A. Yes.

Q. I can understand that.

Okay. I don't know who is operating this well in Section 14 and those wells in Sections 1 and 2.

A. Yeah, those are us, ours.

Q. Now, where do you dispose of the water from those wells?

A. I think they go into our -- we have a water disposal system. We call it the Livingston Ridge area, where we have a disposal area going far away. We currently have the water disposal just northwest of this that this one will go into. It's connected to a system, and we are adding water disposal into it. It's going through a pipeline into our own water disposal system.

Q. So it goes through a closed-loop system that you produce from those two horizontal wells. They go through a close-looped system off-lease somewhere to be disposed?

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A. No. The closed-loop system is during the drilling phase, because we don't have pits. We have the closed-loop system, where you have your mud weight and going through.

During the production phase, the produced water goes into a water pipeline, but it's connected to our water system, and it'll be transferred into a water disposal well that we have other places.

Q. You don't truck them?

A. Not these ones. There are wells that we do truck, but not these two -- not those two.

Q. Do you have a disposal well that you park [sic] in --

A. Yes.

Q. They are not located in this neighborhood?

A. It's -- we just finished one, and we're going to start injecting into it, a few miles away.

Q. Is it in the Cherry or -- where is it injecting?

A. Yes. It's a much, much smaller interval than -- it's in the -- it's in the Bell Canyon, below the productive upper Bell Canyon, Farber [sic].

Q. These wells -- right now, these wells are not captured in the half-mile area of review, but -- I don't know. They are not in the area of review, right?

A. No.
Q. I mean, these wells are the ones proposed?
A. Yes, because they have not been approved yet. They have been submitted, but they're not approved yet, so they're not in the --
Q. Area of review?
A. No.
Q. Are you saying that there will be one-half mile of that well, or --
A. Yeah, the Fearless will be.
Q. The Fearless #1H?
A. Yes. It's marked here in the -- it's the top of the red line in Section 23.
Q. Okay. Because they are new wells to be drilled --
A. Yes.
Q. -- so they weren't seen by Mesquite, the well there?
A. Yes.
Q. So that will be within the half-mile of the area of review, correct?
A. I believe so.
Q. This is the diagram you depicted here --
A. Yes.
Q. -- without saltwater disposal.

Will this well schematic change if you start injecting into the Saltwater Disposal #3?

A. Yes. If -- if -- if the -- it will depend on the amount of flow that we see. If we're able to control it with just adding the -- controlling it with the mud weight, we will keep this -- this -- this wellbore profile. It's the most optimum for us. For productionwise, stimulation-wise, drilling-wise and costwise, this is the best way of doing it.

If the waterflow increases significantly, we would have to set a different -- an extra set of casing. We have to set additional casing below the injection interval, and that will change this -- this wellbore. Also, we would change the grade of the casing if there is H2S present. We will have to upgrade the casing.

Q. In your mind, can you give me an estimate how much this will cost Yates, Abo and the rest by this process of injecting into the SWD #3? It's an estimate, because I haven't done work there. What do you think it would be?

A. I would estimate probably, initially, when it's a moderate flow, not a high flow, because that can be -- you can talk millions. I mean, you may lose your well and everything.

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If it's a low to moderate flow, it will cost -- the extra casing, cementing would probably be 3-, $400,000 per well. The mud cost would probably be an additional half a million. Well, if you go up with a higher grade of H2S, it becomes a real problem. I'm not very sure how much extra. That would increase the numbers that I gave you for the casing.

Then, of course, you'd have to rent an additional -- additional drill pipe, drilling through H2S formations, which will -- you're talking -- and then long-term corrosive, fixing casing, casing remedial work. I mean, it will be significant.

Q. Including -- not drilling the well in the first place --

A. Yes.

Q. -- because that's not a problem.

A. Yes.

Q. You said that.

A. Yes. Easily over a million dollars.

Q. What did you say?

A. It would be an easy million dollars extra.

EXAMINER EZEANYIM: Okay. I think I have all the information I need. You may be excused.

MR. LARSON: Mr. Examiner, can I --

EXAMINER GOETZE: You want to redirect?

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MR. LARSON: Couple of follow-up questions.

REDIRECT EXAMINATION

BY MR. LARSON:

Q. Do you agree with Mr. Morrison that the world has changed since Mesquite filed its application in 2010, and --

A. Yes.

Q. -- Yates has done a new drilling program since that first --

A. Yes. We've discovered some additional sands in the Bone Spring, and that has made it much more interesting.

Q. And do you have any basis to disagree with Mr. Fly that the Fearless is just outside the half-mile area of review?

A. Oh. No. I was just looking at the map. It might be just outside.

Q. That's all I have. Thank you.

EXAMINER GOETZE: Any more additional questions?

MR. BRUCE: Not of this witness, Mr. Examiner.

EXAMINER GOETZE: We're done with this witness, then.

Thank you.

MR. BRUCE: With your permission, Mr. Examiner, I would like to recall Dr. Havenor simply because Yates has brought up stuff that we haven't heard about before, and I just have three questions.

EXAMINER GOETZE: Very good. Bring your witness up. And this witness has been previously qualified.

KAY HAVENOR, Ph.D.,

after having been previously sworn under oath, was recalled and was questioned and testified as follows:

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Mr. Havenor, you listened to the Yates engineering witness; did you not?

A. Yes.

Q. And their geologic witness; did you not?

A. Yes.

Q. What about the upper Olds; would Mesquite isolate the upper Olds with casing?

A. It's our intent to do that.

Q. So you would not affect the producing potential --

A. No.

Q. -- producing upper Olds?

A. That's correct. That was the original plan.

Q. And what about H2S in this area; have you checked into that?

A. We have not encountered any in our operations, no.

Q. So there should be no affect on drilling as a result of the H2S in this area?

A. Not through the intervals that we would be involved with.

Q. And what about -- what is your -- they asked you about waterflow. Is it possible there will be no waterflow at all?

A. None at all would be -- I can't -- I can't address that.

Q. Sure.

A. However, it's significant movement of water through the system that is taking place at the present time. And I would also point out that it is mostly Bone Spring water that is being disposed of in that interval, and the chemistry of the two are quite comparable.

Q. Okay. So, number one, you don't see any compatibility problems between the Bone Spring and the injection formation water, correct?

A. Correct.

Q. And so that shouldn't lead to any increased

type of well costs, drilling costs?

A. I wouldn't think so.

Q. And then you were talking about waterflow. I think you mentioned in your direct testimony that waterflow already occurs throughout the Bone Spring.

A. Yes.

Q. So it already exists?

A. Let's go back. You said Bone Spring?

Q. I mean in the Delaware.

A. In the Delaware, yes.

Q. There's already waterflow. I think you said it goes from southeast -- east, southeastward --

A. Direction, yes.

Q. -- direction.

So waterflow is already an issue that an operator has to address with drilling through the Delaware?

A. Yes, but in varying degrees as you go through the formations.

Q. The various subparts of the Delaware?

A. Of the Delaware, yes.

Q. But it already exists?

A. Yes.

Q. And, again, the Paducah SWD #1 is on vacuum to this day, even after 5 million barrels were injected?

A. Yes.

Q. So there's quite a large capacity of the Delaware to absorb water?

A. Yes. It certainly has been doing it.

MR. BRUCE: That's all I have, Mr. Examiner.

EXAMINER GOETZE: Do you have any questions?

MR. LARSON: I don't, Mr. Examiner.

EXAMINER EZEANYIM: Yeah, I do.

EXAMINER GOETZE: Very good.

CROSS-EXAMINATION

BY EXAMINER EZEANYIM:

Q. Dr. Havenor, can you give me an idea how much H2S is contained in this produced water?

A. Just what comes out of the -- basically what would come out of the Bone Spring. And we have not had any conditions in the drilling of -- or the reentry -- well, the drilling of one and the reentry of the original saltwater disposal well, we had no problems with H2S through the Delaware zone that we worked in, which was the Bell Canyon and the Cherry Canyon.

Q. Okay. Now, you -- you just stated, again, from your experience that there is no compatibility issues between the Bone Spring-produced water and the Bell

Canyon and Cherry Canyon. To complete Form C-108, we are going to require that we get that water analysis. We need it as part of the C-108.

A. And from --

Q. I mean, I know I -- let me agree with you, because you have the expertise. But I want to see it on paper, so I can agree with you totally. So we may have to require you to complete Form C-108 by submitting that water analysis for the Bone Spring or where you inject.

A. Supplement the analysis that we presented with --

Q. Yeah.

A. Okay.

Q. See what I mean?

A. Yes, sir.

Q. I mean, if you ask me, Is this going to prevent waste, I say yes. But if you don't tell me how it will prevent waste, I'll be a mess. So we are going to get that from you as a supplement, right?

A. I will find it some way.

Q. Okay. Well, you can find it. You can find a bunch of places to get --

A. But it's -- it's been handled. The analyses we submit have not been handled as produced water.

Q. How is it handled?

A. It's trucked from multiple wells, and I would --

Q. That's the problem, Dr. Havenor. That is the problem. It's trucked from everywhere. It might not even be from the Bone Spring. If I want to operate -- say I have a contract to give you Bone Spring water, what says I can't give you my Morrow water so you can put it in there? Who knows, because it's being trucked? It is not a closed system. It's trucked from everywhere.

A. Then -- then to satisfy that request, would it be all right for us to just grab a couple of samples of the water being disposed that comes from --

Q. That's exactly what we're asking for.

A. Okay. That can be done easily.

Q. Because you might catch something. That's not really my client's water. You might see something different. I'm not saying that, you know, operators can do whatever they want, but if I'm there, who said I can't give you my Morrow water and say anything about it and put it in there?

A. Well, it would be Mesquite's water when it's grabbed.

Q. Yeah, I know. I'm not saying it's going to happen, but I need the water analysis. I know you do

this all the time, and you do it very well. And sometimes because of -- when you say, Yeah, no compatibility, I tend to agree with you, but we need to see it on paper.

A. Yes, sir.

EXAMINER EZEANYIM: Any further questions, comments, closing statements? Anything?

EXAMINER GOETZE: This is your opportunity.

MR. BRUCE: Mr. Larson, were you intending to do a closing argument?

MR. LARSON: Actually, I wanted to bring Mr. Morrison back up to address your issue about the Farber Working Interest Unit, one or two questions. That's it.

EXAMINER GOETZE: Done with this witness.

THE WITNESS: Thank you.

MR. BRUCE: Before he gets up there, Mr. Examiner, I think you know what the issues are. I wasn't planning on making a closing argument.

EXAMINER EZEANYIM: I would like to get -- give me your card. I'm not familiar with you guys. Give me your card, so I can contact you if I need to have a question. Give me your card before you go.

EXAMINER GOETZE: Mr. Morrison, you've been sworn in and so qualified.

ROBERT MORRISON,

after having been previously sworn under oath, was recalled and was questioned and testified as follows:

DIRECT EXAMINATION

BY MR. LARSON:

Q. Mr. Morrison, I think you've heard Examiner Ezeanyim's concerns about the interest within this Farber Working Interest Unit. And I believe your testimony was that under a joint operating agreement, you have 100-percent participation in the working interest unit; is that correct?

A. I can't testify to anything outside of the working interest unit, but informed that we have a contractual interest outside of the working interest unit, but I can't testify to anything outside of that.

Q. I understand.

A. I'm not informed as to that.

MR. LARSON: Maybe I should ask Examiner Ezeanyim to ask you directly, because that's how I understood your question.

CROSS-EXAMINATION

BY EXAMINER EZEANYIM:

Q. You are not supposed to tell me outside the unit. We are talking about inside the unit.

A. Right. And your mention of the participating area confused me, so could you --

Q. Oh, okay. If you look at -- you did this, right (indicating)?

A. Yes, sir.

Q. Okay. Now, let me look at this. I'm looking at -- oh, man, I have to go to school for color.

MR. LARSON: The color purple.

Q. (BY EXAMINER EZEANYIM) If you look at the purple, all those wells in the Farber Working Interest Unit --

A. Yes, sir.

Q. -- I can see a lot of proposed wells that you tried to --

A. Yes, sir.

Q. -- that you are seeking for an APD.

A. Correct.

Q. Most of them, I want to have my -- most of those wells --

A. Yes, sir, there are several.

Q. There are several that are going to have my -- so that unit, to be able to apply for an APD, there is an agreement to do a mile-and-a-half long well, because as we started here today, we don't have any idea -- you know, you didn't come in to ask us to allow you to fund

those wells, right?

A. Right.

Q. So you formed them by voluntary agreement, right?

A. Correct.

Q. Are those wells now being drilled by voluntary agreement?

A. Yes, sir. I testified to -- as to the working interest unit, yes, they have that agreement. My knowledge as to what -- what agreements have been in place outside -- whereas, the surface hole is outside of the working interest unit, there are -- there is an agreement in place where that is being worked on to get the agreement in place, but I cannot testify as to 100 percent of --

Q. Okay. Let's take this well in Sections 24 and 25, that well. That is an agreement for a mile-and-a-half well, right?

A. Yes.

Q. That's what I'm asking.

A. Okay.

Q. I don't want you to go outside the unit, because outside the unit has no relevance in this case. I'm talking about inside the unit. You see what I mean?

A. Okay. I don't have my exhibit in front of me.

Q. You can take mine.
A. Okay. Yes. Yes. Within 24, yes.
Q. They are all formed by voluntary agreements?
A. Yes. Correct.
Q. You know, I said it before, that it might not be relevant in this case, but I wanted to know how those wells are being drilled, because -- both of them now. That way you don't have a voluntary agreement. They all come here asking to form that unit --
A. Right.
Q. -- and then compulsory pool it. So we are trying to decide what we're going to do by asking these questions.
A. Yes, sir.
Q. Because if you guys form two-mile, three-mile, 100-mile, one-half mile, everybody agrees. You don't have to come here. All you have to do is like you did, fill in Form C-102 and apply to the BLM or to the state, whatever.
A. Right.
Q. But when it comes to decide that, when somebody is objecting, that's when you are coming here. So if there is no disagreement -- I understand here there is an agreement. You are going to drill those wells under the joint operating agreements, right?

A. Correct.

Q. That's really when I'm going to ask questions. People think I'm trying to put them on a pedestal. No. I'm trying to get some facts if we are going to do something.

EXAMINER EZEANYIM: That's really what I'm trying to do, Mr. Larson.

MR. LARSON: Understood. And he would be the one to address your questions to.

EXAMINER EZEANYIM: Thank you. Continue if you have more questions.

MR. LARSON: That's all I have.

EXAMINER GOETZE: Any more questions?

The witness is excused. Thank you.

Any other testimony to be brought?

MR. BRUCE: No, sir.

MR. LARSON: No, sir.

EXAMINER GOETZE: Then we'll take case 14979 under advisement, and this is the end of today's hearings.

(Case Number 14979 concludes, 11:41 a.m.)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 14979 heard by me on May 2, 2013

, Examiner
Oil Conservation Division

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STATE OF NEW MEXICO

COUNTY OF BERNALILLO

CERTIFICATE OF COURT REPORTER

I, MARY C. HANKINS, New Mexico Certified Court Reporter No. 20, and Registered Professional Reporter, do hereby certify that I reported the foregoing proceedings in stenographic shorthand and that the foregoing pages are a true and correct transcript of those proceedings that were reduced to printed form by me to the best of my ability.

I FURTHER CERTIFY that the Reporter's Record of the proceedings truly and accurately reflects the exhibits, if any, offered by the respective parties.

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

Mary Hankins

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