STATE OF NEW MEXICO
ENERGY, MINERAL AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION COMMISSION

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

APPLICATION OF FORTY ACRES ENERGY, LLC FOR STATUTORY UTILIZATION OF LEA COUNTY, NEW MEXICO — CASE NO 15792

APPLICATION OF FORTY ACRES ENERGY, LLC FOR APPROVAL OF SECONDARY RECOVERY PROJECT AND TO QUALIFY THE PROJECT FOR THE RECOVERED OIL TAX RATE, LEA COUNTY, NEW MEXICO — CASE NO 15793

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

September 14, 2017

SANTA FE, NEW MEXICO

BEFORE: WILLIAM V. JONES, CHIEF EXAMINER
DAVID K. BROOKS, LEGAL EXAMINER
MICHAEL McMILLAN, EXAMINER

This matter came on for hearing before the New Mexico Oil Conservation Division, William V. Jones, Chief Examiner, and David K. Brooks, Legal Examiner, on Thursday, September 14, 2017, 11:14 a.m., at the New Mexico Energy, Minerals and Natural Resources Department, Wendell Chino Building, 1220 South St. Francis Drive, Porter Hall, Room 102, Santa Fe, New Mexico

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EXHIBIT	DESCRIPTION	ADMITTED
1.	Land Plat West Eumont Unit	18
2.	Unit Agreement for the Development and Operation of the West Eumont Unit, Lea County, New Mexico	18
3.	Unit Operating Agreement	18
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5.	List of Company Names	18
6.	Letter from Chris Fling, 1/11/16	18
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EXAMINER JONES: We'll call Case Numbers 15792 and 15793. 15792 is the application of Forty Acres Energy, LLC, for statutory unitization in Lea County, New Mexico.

Case Number 15793 is application of Forty Acres Energy, LLC, for approval of secondary recovery project and to qualify the project for the recovered oil tax rate in Lea County, New Mexico.

I'll invite appearances in these cases.

MR. BRUCE: Mr. Examiner, Jim Bruce, of Santa Fe, representing the applicant. I have three witnesses.

EXAMINER JONES: Okay. So any other appearances? I thought we had some on the record.

MR. BRUCE: Yeah, Ms. Kessler entered an appearance for SCR Capital. But as our first witness can explain, they've been acquired by Forty Acres, so they're happy.

And just for the record, Mr. Fling, our land witness and I have -- and I guess the Division, have received a bunch of phone calls about it, or emails, and we've explained what's going on. Nobody events any objection.

EXAMINER JONES: Okay.

MR. BRUCE: Oh, Holland and Hart also

originally entered appearances for ConocoPhillips and for OXY. But again, Mr. Fling can explain a bit later how they were accommodated.

EXAMINER JONES: So we still have those in our file also, but --

MR. BRUCE: Yeah.

EXAMINER JONES: Okay.

Will the witness please stand and the court reporter please swear in the witnesses?

[Whereupon, Chris Fling, Jennifer Lamarro and Huxley Song were sworn.]

CHRIS FLING

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Would you please state your name and city of residence?

A. My name is Chris Fling, F-l-i-n-g. I live in Tulsa.

Q. Who do you work for?

A. I work for Primary Fuels, and I'm on the Board of Directors of Forty Acres Energy.

Q. What is your profession?

A. I'm a landman.

Q. And in this case, are you doing the land work on behalf of Forty Acres Energy?

A. Yes, I am.

Q. Have you previously testified before the Division?

A. Yes, sir, I have.

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

A. They were.

Q. And are you familiar with the land matters involved in these applications?

A. Yes, sir.

MR. BRUCE: Mr. Examiner --

Q. (By Mr. Bruce) Maybe I should ask: Are you excruciatingly familiar with the land matters?

A. Yes. It's been quite an experience.

MR. BRUCE: Mr. Examiner, I tender Mr. Fling as an expert petroleum landman.

EXAMINER JONES: He is so qualified.

Q. (By Mr. Bruce) Could you briefly summarize what Forty Acres seeks in these two cases?

A. Yes. We seek to statutorily unitize all the interest in the proposed West Eumont Unit, and to seek approval and institute a secondary recovery unit.

Q. And what is the unitized interval?

A. The unitized interval is the Yates, Seven Rivers and Queen formations, often referred to as the Eumont pool, E-u-m-o-n-t.

Q. And is the unitized formation described on page 5 of the Unit Agreement?

A. Yes, that's where it's described.

Q. And will the unitized formation include all subsurface points correlative to the depths in the description?

A. Yes.

Q. And let's run through this briefly. Is Exhibit 1 a land plat of the proposed unit area, together with, on page 2, a legal description of the land within the unit?

A. That's correct.

Q. And what types of lands are included in the unit area?

A. There are state, federal and fee lands included in the unit.

Q. And what is exhibit -- well, let's go back into it. There are what, approximately 60-some tracts in the unit?

A. Sixty-two unit tracts, yes, sir.

Q. And currently, how many different operators of Eumont wells are within the proposed unit area?

A. There are nine.

Q. And what is Forty Acres here to do today?

A. We're here as a relatively new company to get approval to form the waterflood unit and begin operations.

Q. And they made its acquisitions specifically with secondary recovery in mind, did they not?

A. Correct.

Q. And will a subsequent witness discuss the number of injection wells, producing wells and expenditures for the unit area?

A. Yes.

Q. Could you identify Exhibit 2 for the Examiner?

A. Exhibit 2 is a copy of the Unit Agreement for the proposed unit.

Q. And is this the standard form that is approved by the State Land Office?

A. The State Land Office and the BLM, yes.

Q. And it's similar to other secondary recovery unit agreements previously approved by the Division, is it not?

A. Correct.

Q. And is Forty Acres Energy the designated unit operator?

A. Yes.

Q. What is Exhibit 3?

A. Exhibit 3 is a copy of the Unit Operating Agreement.

Q. And does this set forth the authorities and duties of the unit operator, as well as the apportionment of expenses between the working interest owners?

A. It does.

Q. Does the Unit Operating Agreement contain a provision for carrying working interest owners?

A. It does, in Article 11.

Q. And does it also provide for a penalty as provided in the statute against any nonconsenting working interest owners?

A. Yes, it does.

Q. And are the tract participation factors set forth in the Unit Agreement?

A. In the Unit Agreement, on page 8.

Q. And will the engineer discuss the tract participation factors?

A. Yes.

Q. Let's discuss the ownership of the tracts in the unit area. If you'll go back to Exhibit 2 and look at Exhibit B to Exhibit 2, could you describe how the tracts were formed?

A. All the tracts were formed based on mineral ownership and by working interest ownership.

Q. And does Exhibit 2 set forth the tracts on a tract-by-tract or a lease-by-lease listing?

A. It does.

Q. And were the names of all the interest owners in Exhibit B obtained from current title examination?

A. Current title examination, Internet searches, very in-depth.

Q. This is an old producing area?

A. Yes.

Q. Was title difficult --

A. There was a lot of title. Yeah, it was very difficult.

Q. And how many interest owners of all types are there in the proposed unit?

A. Oh, over 100.

Q. Let's talk first about working interest owners. Does Exhibit 4 contain a listing of working interest owners in the proposed unit?

A. Yes. Exhibit 4 is the working interest owners.

Q. What is the approximate current approval overall unit of working interest owners? What percentage interest have currently approved the unit?

A. Well in excess of 80 percent.

Q. And are you still receiving ratifications or people who say they are going to join in the unit?

A. We still receive some sort of correspondence in terms of ratification and joinder almost every day.

Q. And does Exhibit 5 contain a listing of all of the fee royalty and overriding royal -- fee royalty owners plus all overriding royalty owners?

A. Yes, it does. That, and some of these folks also own a working interest as well.

Q. Okay.

A. But they're captured on the working interest list, also.

Q. Okay. So when notice was given, they were given notice --

A. They got multiple notices, yes.

Q. And if you'll look at -- let's take a step back. Has the Unit Agreement and supporting data been submitted both to the State Land Office and to the BLM for preliminary approval?

A. Yes, sir, they have.

Q. Has Forty Acres obtained preliminary approval from the State Land Office?

A. Yes, we have.

MR. BRUCE: And Mr. Examiner, I couldn't find that late last night, but we will submit it to you.

EXAMINER JONES: Okay.

Q. (By Mr. Bruce) What about the BLM; what have they said about the unit?

A. The BLM -- we've been in constant contact with the BLM. We've had both verbal and email correspondence with them where they have expressed no problems at all with what we're trying to do and in fact support.

Q. And they've actually emailed you saying that we haven't gotten to their preliminary approval phase, but they have no objection to --

A. That's correct.

Q. And if you assume that the State Land Office and the BLM approve the -- finally approve the unit, together with overrides and royalty owners who have also ratified the unit, what percentage are you looking at in that category of approval?

A. Virtually 100 percent.

Q. And at such time as final approval is sought to be obtained from the State Land Office and the BLM, will you submit all the ratifications or signatures to the agreement, also to the Division?

A. Yes.

Q. Let's discuss your effort to obtain the voluntary unitization among the parties to the unit. Let's go over the unit timeline. And I'll refer you to

Exhibit 6, which is a letter dated early -- actually, it says 2016. That's actually 2016, I believe, Mr. Fling; is that correct?

A. Yes, that's correct.

Q. Has Forty Acres been working on the unitization and the waterflood for what, approximately a year at this point?

A. Yes. We originally acquired the properties in 2016 and began -- the engineer will talk more about that, and geologist, but we began working on that and acquiring additional interest.

Q. And it took up until January of this year to put forward a plan to the interest owners?

A. Correct.

Q. And what did this January 11th letter do?

A. The January 11th letter, referred to as Exhibit 6, is an invitation from us to all of the working interest owners to participate in a working interest owners' meeting wherein we could describe to all the working interest owners what our plans were.

Q. And where was that meeting held?

A. It was held in Midland, Texas.

Q. In February of this year?

A. Yes.

Q. And was it fairly well-attended?

A. There were a few attendees, but really not very many. I think seven or eight companies is all that chose to appear.

Q. But did you have contacts with virtually all the interest owners even if they did not show up?

A. Correct.

Q. Have you had multiple emails, phone calls, et cetera, with all the working interest parties?

A. Yes. All of the working interest owners that we can find.

Q. Some are unlocated?

A. Correct.

Q. Did you then send out formal offers to the working interest owners and to the overrides during the summer?

A. Formal offers to participate.

Q. Formal offers to participate.

A. That included copies of the Unit Agreement and Unit Operating Agreement, ratifications, joinders and the entire package.

Q. And was Exhibit 7 a form letter that was sent out to the working interest owners, along with the unit documents and --

A. Yes, it was.

Q. And was Exhibit 8 a similar letter sent out to

the overrides and fee royalty owners but with only the Unit Agreement, not the waterflood Application?

A. Correct.

Q. And not --

A. Not the Operating Agreement.

Q. Not the Operating Agreement.

In your opinion, has Forty Acres made a good faith effort to either locate the interest owners in the proposed unit or to secure voluntary unitization from these interest owners?

A. Yes.

Q. And was written notice of the unitization hearing sent to all persons with current addresses?

A. Correct.

Q. And is that reflected in Exhibit 9?

A. Yes.

EXAMINER JONES: And actually, Mr. Examiner, when I was putting this -- you'll see there are two notice letters; one went to the working interest owners, and one went to the override.

It was at this point, when I was finishing up, that I ran out of ink on my page.

EXAMINER JONES: So the second letter went to the mineral interest and the overrides?

MR. BRUCE: Yes. If you'll look at page 1

of -- I mean page 2 of Exhibit 9, that letter went up to the working interest owners.

EXAMINER JONES: Okay.

MR. BRUCE: Then turn a few pages back, and you will see the letter that went out to the fee royalty and the overriding royalty interest owners.

EXAMINER JONES: Okay.

MR. BRUCE: And I've included all the green cards, except what I've gotten on those, but that's when I ran out of ink. So we can handle this a couple of ways: I hope to resupply this afternoon and copy everything.

EXAMINER JONES: Well, mine looks printed.

MR. BRUCE: Well, there should be a bunch of green cards after the first part of the working interest owners.

EXAMINER JONES: Oh.

MR. BRUCE: If it's okay, if I can resupply and copy those and get them to you this afternoon, and I will also supply the court reporter.

EXAMINER JONES: That's sounds good. You don't have to do it this afternoon.

MR. BRUCE: Okay.

Q. (By Mr. Bruce) Mr. Fling, you said you looked at Internet records, county records, whatever you could

to find interest owners. There were still some you couldn't find?

A. That's correct.

Q. And plus, some people don't claim their Certified Mail?

A. We sent tremendous numbers of Certified Mail, and we never saw them again. No green card returned. Eventually the full package comes back as Unclaimed.

Q. And as a result, was notice published in the Hobbs newspaper, which covers all the people who we did not get green cards back from?

A. Yes.

Q. And that is marked Exhibit 10.

Look at Exhibit 11, Mr. Fling. Is this regarding notice of the initial stages of a waterflood unit?

A. Yes.

Q. If you'll look at the letter and the exhibit attached to that, does that reflect the surface owners of the injection wells, the proposed injection wells, as well as all offset operators within the area of review of the initial injection wells?

A. Yes, it does.

MR. BRUCE: And Mr. Examiner, believe it or not, we did notify all of those people. So Exhibit 11

reflects that proper notice was received by them.

Q. (By Mr. Bruce) I probably shouldn't ask this question because I don't know anything about it, but I didn't hear from any of the offset operators; did Forty Acres?

A. No one contacted us. Some of the offset operators, I assume, are inside the unit.

Q. In your opinion, will the granting of these applications be in the interest of conservation and the prevention of waste and the protection of correlative rights?

A. Yes.

Q. And were Exhibits 1 through 11 either prepared by you or under your direction or compiled from company business records?

A. Yes, they were.

MR. BRUCE: Mr. Examiner, I move the admission of Exhibits 1 through 11.

EXAMINER JONES: Exhibits 1 through 11 are admitted.

MR. BRUCE: I have no further questions for the witness.

MR. BROOKS: No questions.

MR. McMILLAN: I don't have any questions.

EXAMINER JONES: So this proposed -- now

this is the first use of the name West Eumont Unit; is that correct?

THE WITNESS: Yes.

EXAMINER JONES: So it straddles Townships 2036 and 2135?

THE WITNESS: Correct.

EXAMINER JONES: And they're skewed townships?

THE WITNESS: Yes. It's a correction boundary, right.

EXAMINER JONES: Okay. So the negotiations for the meeting you had in Midland, you said not too many people in February -- not too many people showed up. What kind of talks did you have about -- you talked about the parameters?

THE WITNESS: We gave a full presentation of what our idea was and why we thought it had merit and asked for their support, participation or comments.

EXAMINER JONES: So you've laid out the whole plan to the working interest owners?

THE WITNESS: Correct, we did.

EXAMINER JONES: And to whoever showed up?

THE WITNESS: Yes.

EXAMINER JONES: And what kind of comments did you get back?

THE WITNESS: There were a couple of supporting comments. There were a couple of folks that were a little bit confused and, you know, decided that they wanted to, you know, go back and talk about it in their shop. And there was one party who didn't like our participation formula.

EXAMINER JONES: Yeah. So the formula will be talked about later, right, with the engineer?

MR. BRUCE: Correct.

EXAMINER JONES: So you're expecting 100 percent of the mineral interest to sign on, but 80 percent right now of the working interest; is that correct?

THE WITNESS: Over 80 percent.

EXAMINER JONES: Because we got more than the statutory requirement, which is 70 percent?

THE WITNESS: 75.

EXAMINER JONES: I always forget that. I keep getting it mixed up.

MR. BROOKS: Me too. We don't get enough statutory unitization cases to keep it in mind.

MR. BRUCE: If I can clarify it with Mr. Fling?

EXAMINER JONES: Sure.

Q. (By Mr. Bruce) There are multiple parties who

have ratified or will ratify the unit working interest owners?

A. Yes, working interest owners. A couple of the working interest owners that came to the meeting have already ratified and support the project.

EXAMINER JONES: Okay.

THE WITNESS: A couple of them decided that they were more interested in working the deeper zones, and they assigned us their shallow rights. And that includes the party that didn't really care too much for our formula. They decided to sell us their interest, so there are no objections, no issues surrounding any of that at this time.

EXAMINER JONES: Okay. So you would be basically taking over as operator within this proposed unit. And a lot of those wells are really old wells; is that correct?

THE WITNESS: They really are.

EXAMINER JONES: So they've got -- did you obtain any environmental issues that might exist with -- in other words, are you aware of any?

THE WITNESS: We aren't aware of any. We did acquire a number of wells from Finley Resources to start the project, and there weren't really any issues with any of those. You know, the typical, you know,

old-well issues, but no big problems anywhere.

And we have looked at all of the other wells that we'll be taking over. There's not a lot of them, there really aren't. I mean other than just that they've been out there since 1950, no significant problems on anything.

EXAMINER JONES: Okay.

THE WITNESS: And we have a good working relationship with both of the surface grazing lessees as well as surface owners, and they've shown us kind of everything as well.

EXAMINER JONES: Okay. So BLM and the State Land Office both own some surface lands out there also?

THE WITNESS: The State Land Office does on the surface lands that are all subject to grazing leases.

The BLM owns -- I believe they may own a little bit of surface up to the north. It's also subject to grazing leases.

EXAMINER JONES: Okay. So basically, you said you had state, federal and some fee lands?

THE WITNESS: Fee minerals.

EXAMINER JONES: Fee minerals. So unleased fee minerals? Everything is leased probably out there,

I would think.

THE WITNESS: There are a couple of fee interest owners that may still be unleased. We've been trying desperately to contact them. I think Scott Hall had filed an appearance on behalf of the Seth family. And obviously, he left. But we've shaken hands and we've solved that problem. They had some unleased minerals.

EXAMINER JONES: Okay. So under the Unit Agreement, how are unleased mineral owners? How are they treated?

THE WITNESS: They're treated as working interest owners.

MR. BRUCE: Well, working as to 7/8's, just like in the first pooling situation.

THE WITNESS: We think we will eventually find those folks because they're not -- we know they're alive, and we think we know where they are, which is a bonus. Because for a long time we couldn't find them.

EXAMINER JONES: Okay. So you had to do a lot of land work within the boundaries.

Did you adjust your boundaries as you went along because of the land issues that you basically could not deal with, or was it --

THE WITNESS: You mean boundaries of the

unit?

EXAMINER JONES: It was the boundaries of the unit defined by the land people, or was it defined by the geologists and engineers?

THE WITNESS: No, the unit boundaries are defined by the geology and the engineering.

EXAMINER JONES: So you didn't like tell them, hey, I can't deal with you people, or --

THE WITNESS: No.

Q. (By Mr. Bruce) And let me clarify, Mr. Fling. There was one State of New Mexico tract that had to be excluded from the unit because of an expired lease, correct?

A. That's correct. We did -- you're right, Jim. We did make an adjustment at that --

EXAMINER JONES: So you would have had to nominate that lease or something and try to lease it, or -- in other words, it would delay your operation here?

THE WITNESS: It hasn't, and it's on the edge of the unit. So at such time as it's nominated, you know, if we acquire it or someone else acquires it, we'll talk to them and decide whether it should be part of the unit or not.

EXAMINER JONES: Okay. As far as the

depth, your land work that you did out here laterally but vertically, was there a difference of ownership between the Yates, Seven Rivers, Queen inside those three formations? Were there differences?

THE WITNESS: There have been some, and we allocated appropriately for that within our formula.

EXAMINER JONES: Okay.

THE WITNESS: But most of the depth severances are below the base of the Queen.

EXAMINER JONES: Below the Queen?

THE WITNESS: But there are some unusual -- I shouldn't say unusual. There were some depth severances from some old farmouts and some things like that that sort of carved up the Yates, Seven Rivers and Queen. But we've solved that problem internally by acquiring those interests. So we've been able to put it all back together.

EXAMINER JONES: Okay. So a lot of --

THE WITNESS: That was a lot of fun.

EXAMINER JONES: Yeah, I'll bet.

It sounds like a lot of the success out here of getting this project rolling is pretty much land work. You had to do the land work?

THE WITNESS: We had to do the land work before we could come see you guys. There's no doubt

about that.

EXAMINER JONES: Yeah.

MR. BRUCE: Quiet. The engineers and geologists don't like to hear that.

EXAMINER JONES: They don't like to hear that, but there's critical --

THE WITNESS: You'll give them a time to shine here in a minute.

EXAMINER JONES: Yeah. We had a statutory unit in the Queen, and I think it was -- was it Chesapeake that did one in the deep Queen about 5,000 feet deep? It was west of Hobbs several years ago, the Quail Queen Unit.

MR. BRUCE: Yeah.

EXAMINER JONES: Was that you?

MR. BRUCE: No, I didn't do it. But I was representing someone who didn't like the participation formula.

EXAMINER JONES: There's always arguments over that.

MR. BRUCE: Yeah. I think that was five or six years ago.

EXAMINER JONES: It was a long time. And I don't know if -- since Chesapeake disappeared, I don't know who's got it, probably Chevron.

MR. BRUCE: Probably Chevron.

EXAMINER JONES: But there were some issues with the wells and the different pools involved. Do you get in touch with the pool situation, or do you leave that to --

THE WITNESS: We've examined it very carefully and everything -- one of the, I think, great things about this project is that all of the these wells are in what's called the Eumont pool. So we didn't have -- even if there were some unusual or kind of weird severances, they were all part of the same pool.

EXAMINER JONES: Okay.

THE WITNESS: So everything was homogenized in that way, if you'll allow me to use an agricultural term.

EXAMINER JONES: Okay. So 9 operators, 62 different tracts. And that's divided up by differences in mineral and working interest ownership?

THE WITNESS: Uh-huh.

EXAMINER JONES: Wow. So you came up with parameters to divide 62 tracts up -- I mean to assign to 62 different tracts --

THE WITNESS: Well, just based on the unit participation factors. So yeah, each tract has its own participation factor. And then each owner in that would

be subdivided out of that.

EXAMINER JONES: Can you tell us what -- I know you don't want to talk about it, but can you tell us whether it's Phase I/Phase II-type participation?

THE WITNESS: No, it's all one phase.

EXAMINER JONES: One phase?

THE WITNESS: Right. It's all one big happy unit.

EXAMINER JONES: Okay.

MR. BRUCE: Mr. Examiner, you mentioned 60 tracts. Originally there was 62. But in the listing you'll see that Tract 44 was deleted. That's that State tract where the lease expired, so there are 61 tracts.

EXAMINER JONES: 61 tracts.

MR. BRUCE: It was easier to leave the numbering in place then edit all the unit documents.

EXAMINER JONES: Okay. Do you remember the names of all of those nine operators, or are they listed -- they're listed in one of your exhibits?

THE WITNESS: They are. Some of those nine operators are in the process of requiring them as we speak. So at the end of the day, I think there's probably going to be just a couple of other operators that we end up actually -- that actually end up as working interest owners that stay in.

EXAMINER JONES: Okay.

THE WITNESS: And we will of course take over their properties. They understand exactly what's going to go on there.

EXAMINER JONES: Okay. I'm all out. We've got five more minutes here.

MR. BROOKS: I have no questions.

EXAMINER JONES: We may think of more land questions later, though.

MR. BROOKS: We probably will.

THE WITNESS: I'm not hard to find, so I'd be delighted to answer whatever you have.

EXAMINER JONES: Thank you very much.

THE WITNESS: Sure, you bet.

[Recess taken from 11:44 a.m. to 1:34 p.m.]

MR. BRUCE: Let's go back on the record this afternoon of Case Number 15792 and 15793.

JESSICA LAMARRO

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Would you please state your name and city of residence?

A. My name is Jessica Lamarro in Tombaugh, Texas.

Q. Just for the Examiner, could you spell your last name?

A. L-a-m-a-r-r-o.

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

A. I work for Forty Acres Energy as a geologist.

Q. Have you previously testified before the Division?

A. No.

Q. Could you please summarize your educational and employment background for the Examiner?

A. All right. I received a Bachelor of Science in 2000 from the University of North Carolina at Chapel Hill, and I received my Master's of Science -- in Geology, I should say, a Bachelor's in Geology and Geology Master's in 2014 from the University of Houston.

Q. And who have you worked for?

A. I've worked for Anadarko Petroleum Corporation for a little over 15 years, first as a geotech and then as a geologist. And I've been with Forty Acres for about a year and a half.

Q. And does your area of responsibility with Forty Acres include this area of Southeast New Mexico?

A. Yes, it does.

Q. And are you familiar with the geology involved if these applications?

A. Yes.

MR. BRUCE: Mr. Examiner, I tender Ms. Lamarro as an expert petroleum geologist.

EXAMINER JONES: I used to work with a geologist named Lamar, L-a-r --

THE WITNESS: First name?

EXAMINER JONES: Bob, Robert Lamar. His wife was a geologist also.

THE WITNESS: Okay.

EXAMINER JONES: She is so qualified.

MR. McMILLAN: And that's a good school. My father graduated in geology years ago at UNC.

THE WITNESS: Oh, really?

EXAMINER JONES: Nice school.

Q. (By Mr. Bruce) Lets start off, first of all, describing the structure. Could you identify Exhibit 12 for the Examiner and discuss its contents?

A. Exhibit 12 is a structural map on the top of the lower Yates, which is one of our intervals of interest. Also, there's wells posted on there. And on the small plats -- you probably can't see, but there are well productions for each of the wells within the unit posted below each well symbol.

Also, the structure, I'd like to point out, is the sub CTVD. It climbs from the west to the east,

so that gets -- yes.

Q. It's not really a steep climb for the distance involved, is it?

A. Not too much. It flattens out a little bit more on the western side and is slightly steeper on the eastern side as you approach the Central Basin Platform.

Q. And let's digress for a moment. You said it's on top of the lower Yates, which was one of your zones of interest?

A. Yes.

Q. This is a fairly -- I mean the Eumont pool covers the Yates, Seven Rivers and Queen. Are there different zones of interest that Forty Acres is looking at in this unit?

A. Yes. If you'll look at Exhibit 17 in your packet, I have a zoom-in, so a type log for our section.

Q. Exhibit 17?

A. Yes.

Q. Okay.

A. So it has -- excuse me -- just the basic resistivity log for the State WE D Number 1, and it's on the section that covers from the top of the Yates to pretty much the base of the Queen, our interval that we're wanting to unitize here.

If you'll notice on the left-hand side of

the page, there's some units that are highlighted, like the lower Yates, Seven Rivers "C", Bowers, et cetera, and those are the multiple units we're interested in. So the structure map is on the top the lower Yates.

Q. And what you're looking at when you say several zones of interest, several producable zones that are subject to flooding?

A. Yes.

Q. Now let's go to Exhibit 13, which consists of three pages. Could you identify these and discuss them for the Examiner?

A. Okay. Exhibit 13 is three gross isopachs, one on the lower Yates section, our Bowers sand, and then the Queen Penrose sand. And so the first one is just showing -- between the three of these, it's just showing how the zones cover an entire interval.

The lower Yates is our shallowest interval of interest, and the reservoir itself thins as you go to the northeast. It also undergoes a facies change to the extreme northeast, where you lose reservoir and gain more anhydrite.

The second isopach, the Bowers sand, is part of the Seven Rivers, and it's thickest along the southern half of our unit. These reservoir sands are also thinning to the north and the east. They also

become increasingly gassy to the north and east.

Finally, the third isopach is from the Queen Penrose. And the best section -- the thickest reservoir section is on the eastern -- northern/eastern half. And it thins -- the reservoir itself thins as you go to the south and west due to a facies change as it changes, I believe, into the Goat Seep reef complex.

Q. Then let's move on to your cross-section, and there's a couple of sets of them. Let's first move to Exhibit 14, which contains two cross-sections.

Could you identify and describe those for the Examiner?

A. Yes. Two cross-sections in Exhibit 14, A-to-A prime and B-to-B prime, go from the west to the east across the unit. And you'll notice down in the right-hand corner of these two cross-sections there's a little location map that sort of highlights where on the map these cross-sections are.

Basically, Exhibit 14 just wants to illustrate the rise in structure from west to east and the continuity of all our intervals between -- you know, within the Yates, Seven Rivers and Queen.

On the western side of these cross-sections, there are not a lot of deep penetrations. Most of these wells were drilled in, you

know, the '50s, and they stopped at around 4,000 feet. So there aren't very many deeper penetrations, except for the newer wells that were looking for, say, the Morrow. Also, as you go from west to east and you approach the Central Basin Platform, some of these intervals are experiencing a facies change where you lose the reservoir sands and you begin to pick up more anhydrite dolomite. But they do that in a -- yes?

Q. And what is Exhibit 15?

A. Exhibit 15 consists of two more cross-sections, C-to-C prime and D-to-D prime. Once again, they also have a location map showing approximately where these cross-sections fall within our unit, and there are also structural cross-sections just to show the continuity of our intervals of interest from north to south, as well.

On the C-to-C prime cross-section, you'll notice most of these wells have TD'd in sort of the upper sections of the Seven Rivers, and this leads to how most of the wells didn't go deeper than 4,000 feet. The one deep well is sort of a recent Bone Spring or Morrow test, I believe. But once again, there is continuity within these sections all across, from north to south.

D-to-D prime, the same thing. But since it's a little bit -- has deeper penetration into the

formations due to the rise and structure, so you also have continuity across north to south for those deeper intervals of interest.

Q. And again, the Eumont is comprised of the Yates, Seven Rivers and Queen, correct?

A. Yes, sir.

Q. So there's three subformations, if you want to call it that. And although each one is a little different, is the Eumont continuous across the proposed unit area from west to east and north to south?

A. Yes, sir.

Q. And in your opinion, is the unit outline justified from a geologic standpoint?

A. Yes.

Q. Is there -- and looking at it from a geologic standpoint, is it a good geologic opportunity to be subjected to waterflooding for this unit?

A. Yes. We have some core data available, and you know, between core data and log data, we see that there are intervals of interest that have porosities of between, you know, we would have porosities of between 10 to 30 percent and permeabilities of 1 to 20-plus millidarcies. So we think those are floodable.

Q. And is there a fresh water zone in this general area?

A. Yes. From information that I picked up from the State Engineering Office and USGS Groundwater Report 6 from 1961, there is the Pleistocene Ogallala Unit and Triassic aged rocks of the Dockum Group. And those are approximately plus or minus 40 feet and plus or minus 250 feet in depth respectively.

Q. And are there any faults which could connect fresh water zones with the injection zones?

A. No.

Q. And then finally, you've already gone to Exhibit 17. But collectively, could you again go through Exhibits 16 and 17?

A. Yes. Exhibit 16 is just a location map for approximately where our West Eumont Unit is within New Mexico. Also, that's -- let me start over.

So Exhibit 17 is a zoom-in on the well log that is on Exhibit 16, which shows the entire interval from the Yates to the base of the Queen, which is approximately 1,200 feet.

Q. So 1,200 feet, that's fairly thick solid?

A. Yes.

Q. Which leads to there are several waterflood objectives?

A. Yes.

Q. And were Exhibits 12 through 17 prepared by you

or under your supervision?

A. Yes.

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

A. Yes.

MR. BRUCE: Mr. Examiner, I move to admit Exhibits 12 through 17.

EXAMINER JONES: Exhibits 12 through 17 are admitted.

MR. McMILLAN: Where is the closest waterflood to here?

THE WITNESS: It's right next door. It's the Eunice Monument waterflood.

MR. McMILLAN: And what's it flooding --

THE WITNESS: It is flooding the Grayburg/San Andres, and it is right along the edge of our eastern border.

MR. McMILLAN: What waterflood is geologically correlative to this?

THE WITNESS: There is one just to the north, the Reed-Sanderson waterflood. The Reed-Sanderson waterflood is just to the north, and it's flooding the Queen.

There are waterfloods farther to the south,

along the platform. The Cooper-Jal Unit is flooding some of the same zones.

MR. McMILLAN: And what is the reef -- what's the reef or reefs? You said it's -- they're flooding the Queen. Is it based on -- I'm looking at Cross-Section D. Is it upper or middle toward the interval?

THE WITNESS: The Reed, I believe, is flooding more of the middle and lower, I believe.

MR. McMILLAN: And how do the porosities in your waterflood log, for instance, compare to theirs?

THE WITNESS: Looking at the some of the logs that they have, I've seen that they tend to put perfs where there's porosity. Pretty much any porosity over 10 percent I've seen perfs.

MR. McMILLAN: But how about the net -- I mean are the porosity values in your proposed waterflood similar to theirs?

THE WITNESS: Well, I've done more work on the Cooper-Jal. And yes, for what they're doing -- for what I've seen them perfing and flooding, yes.

MR. McMILLAN: So which one has more?

THE WITNESS: More?

MR. McMILLAN: Which one has higher porosity.

THE WITNESS: Oh, which has higher porosity?

MR. McMILLAN: Yes.

THE WITNESS: Which zone has higher porosity?

MR. McMILLAN: Yeah. I'm trying to figure out --

MR. BRUCE: On the correlative --

MR. McMILLAN: On the correlative zones, is your porosity similar to theirs?

THE WITNESS: Yes.

MR. McMILLAN: And again what, 10 to 30 percent?

THE WITNESS: 10 to 30 percent porosity?

MR. McMILLAN: Yes.

THE WITNESS: Yes, sometimes higher.

MR. McMILLAN: And is the net isopach value similar?

THE WITNESS: I haven't done a net isopach specifically on those waterfloods, so I can't say 100 percent yes or no.

MR. McMILLAN: In your comparison of the proposed waterflood with others, the porosity values are going to be similar?

THE WITNESS: Yes, I mean with variations.

I mean there's always going --

MR. McMILLAN: But it's going to be close enough?

THE WITNESS: Yes.

MR. McMILLAN: Have you looked at waterfloods in the Bowers and the Seven Rivers?

THE WITNESS: Along the -- I think the Cooper-Jal Unit has some -- there's several waterflooded units along the -- to the south, along the Central Basin Platform, and there are -- I can't remember. I know the Cooper-Jal is flooding in the Bowers, a little bit in the Bowers, but also in the Rocky Arroyo and the Upper Queen.

So it's sort of like a -- not just specific -- I don't have any that are specifically just -- I haven't looked at any that are specifically in that one interval.

MR. McMILLAN: Okay. But the porosity values in your proposed waterflood are similar to theirs?

THE WITNESS: Yes. Where it's thick, yes. So there are like four copies each of those things. So if you're looking for --

MR. McMILLAN: Go ahead, Will.

EXAMINER JONES: The main lithology is a

kind of sand?

THE WITNESS: So in the back reef, there's sands and dolomitic sands interbedded with tighter dolomites and anhydrites.

EXAMINER JONES: That's all mixed up?

THE WITNESS: Yeah.

EXAMINER JONES: Wow. And which interval would you flood first? I know this is an engineering question, but from your perspective?

THE WITNESS: Well ideally, we'd start at the bottom and make our way up.

EXAMINER JONES: Okay, that's a good answer. So from a geologic standpoint, how would you rate these targets? Which one is the best, and which --

THE WITNESS: Well, depending on -- some areas are better than others, but --

MR. BRUCE: Depending upon the subzone?

THE WITNESS: Depending on the subzone, but we really do like the Bowers and the Rocky Arroyo. Those are some of our favorites.

EXAMINER JONES: So those are basically Lower Seven Rivers; is that --

THE WITNESS: Yeah. But we also like the Upper Queen and this Middle Queen sand.

EXAMINER JONES: So basically, the Queen is

present here, and the reef is off to the west?

THE WITNESS: Yes.

EXAMINER JONES: How far away?

THE WITNESS: I guess you start seeing -- you know, it starts to change over probably a few miles to the west, maybe like five, maybe. I mean you start to see -- it sort of kind of creeps up from the bottom and just becomes --

EXAMINER JONES: So the HIZ map, if you look down, the nearest reef would be how many miles to the west, do you think?

THE WITNESS: For the Queen, you'd probably be almost like a mile off of the --

EXAMINER JONES: The Queen goes away about a mile away?

THE WITNESS: Yes, off of the edge of the unit. I mean it starts becoming -- you can't pick any, you know, intervals that look similar to what's up on the platform by the time you get there.

Is that answering your question?

EXAMINER JONES: Oh, yeah. As good as I can understand, it does.

So basically, if you looked straight down and you drilled your wells on down, you definitely would not see a reef? You said something about a Goat Seep?

THE WITNESS: As you go farther to the west, you start to -- you know, the interval starts to go away. So it gets thinner, and you start to lose that --

EXAMINER JONES: The Queen goes away?

THE WITNESS: The Queen starts to go away.

EXAMINER JONES: Because they're the same age, right, the Capitan --

THE WITNESS: Yeah. The facies -- well, I think the Queen facies change actually into the Goat Seep, and the Seven Rivers and the Yates and the Tansill go into the Capitan. But I think then it becomes like one big amalgamated like Capitan reef section --

EXAMINER JONES: It's a ways away to the west?

THE WITNESS: To the west. But you do start to see, not far off the edge of our unit, like a mile or two, you start to see them all changing over into the --

EXAMINER JONES: Everything is changing?

THE WITNESS: Yes.

EXAMINER JONES: But you're not concerned with injection in here going way over into that reef, are you?

THE WITNESS: No.

EXAMINER JONES: No?

THE WITNESS: No.

EXAMINER JONES: Okay. Has it got gas on the top of this --

THE WITNESS: If you look at, say, A-to-A prime on Exhibit 14, you can see that the structure does climb from west to east.

EXAMINER JONES: Okay. So some of the zones are more prospective towards the west, as far as the gas goes. You know, you wouldn't want to inject some of the upper zones. And conversely, some of the lower zones become more wet to the east --

EXAMINER JONES: Okay.

THE WITNESS: -- which is, you know --

EXAMINER JONES: To the west?

THE WITNESS: Yes.

EXAMINER JONES: Is this covered by different pools?

THE WITNESS: No. These are all one pool, the Eumont pool.

EXAMINER JONES: So you and Paul Kautz talk sometimes then, or you will be if --

THE WITNESS: I have not talked to him. I don't think I've talked to him.

EXAMINER JONES: A couple of words here and

there?

THE WITNESS: Yeah.

EXAMINER JONES: The Goat Seep is what? That's on the bottom of the reef, right, of the Capitan; is that right?

THE WITNESS: If you look at Exhibit 16 -- if you really want to look at it, at the base of Exhibit 16, there's sort of a stratigraphic cross-section through sort of the northwest shelf.

And you'll see down sort of at the bottom. Where there's a yellow kind of square, right at the bottom of that yellow square, the Goat is covered up by the yellow square. It's a Goat Seep in blue.

EXAMINER JONES: Okay. I'm sorry, I'm just trying to get oriented here. The geology gets complicated out here.

THE WITNESS: I'm sorry.

EXAMINER JONES: The wells you looked at, did you look at all the wells in this area?

THE WITNESS: I have looked at all the wells.

EXAMINER JONES: So it wasn't just the landman that did the work here?

THE WITNESS: No, no.

EXAMINER JONES: So did you have to go get

logs from cert parties and all kinds of stuff that --

THE WITNESS: I did my best to get as many logs as possible. We have probably 99 percent of the logs within this, you know, proposed unit. There's a couple that didn't have logs ever, but for the most part, I was able to get all the logs that I could.

THE WITNESS: There are a few that were drilled in the '30s. There's no log. You know, there's like one that was drilled in the '50s, and there's no log. Like they didn't log it ever. I don't know why, but yes, I looked at all the logs.

EXAMINER JONES: Oh, wow. So talk about -- on the OCD's Website, we have kind of a Don Quixote relationship between logs. We're trying to always get the logs, you know. And the rules say turn in the logs, but that didn't always happen over the years. So did you have to go get logs from third parties?

THE WITNESS: I used the OCD site when I could. I usually checked there first because I could download them for free, or I would try IHS Energy or the Midland log library or whoever else. Sometimes I'd find one. If we acquired some acreage or the wells, we'd get the well files. Wow, there's a well log, yes.

EXAMINER JONES: Okay. This is the type log -- is this going to be your type log for your unit?

THE WITNESS: I believe this is what was in the documentation that was sent in.

EXAMINER JONES: So that's in the Unit Agreement, this well?

THE WITNESS: Yes.

EXAMINER JONES: Is this log on the OCD Website?

THE WITNESS: I do not know.

EXAMINER JONES: Well, I guess it will be now, since you've got it here as an exhibit.

THE WITNESS: The State W ED Number 1.

EXAMINER JONES: So as far as the upper part of the unitized interval and the lower part of the unitized interval, you were in on the picks on that?

THE WITNESS: Well, yes.

EXAMINER JONES: It's easy to find, easy to locate those?

THE WITNESS: The base of the interval is -- the upper interval and the base of the intervals are pretty easy to pick, usually. The top of the Yates is usually easy to pick. Within our area, yes, it's easy to pick.

The base of the interval is on top of the Grayburg, the base of the Queen. That can be easy to pick, but I think some people -- I found that people

have picked it in all sorts of ways across the region.

EXAMINER JONES: Okay. That's kind of normal, I guess. But as far as on this log, this unit is going to go from the top of the Yates to the bottom of the Lower Queen Penrose, is that correct, or the bottom of the Queen?

THE WITNESS: The bottom of the Queen. So on Exhibit 16, I've got the whole interval on there with -- it has a little bit extra at the bottom. I was kind of just trying to zoom in.

EXAMINER JONES: Okay. That's the same log, too?

THE WITNESS: Yeah.

EXAMINER JONES: That is it, then. That's the top of and the bottom?

THE WITNESS: Yes.

EXAMINER JONES: Okay. What about cores out here? Do you have --

THE WITNESS: We have several, about -- let me see -- one, two, three, four cores. Not the actual core, but the core data from the cores that gave us porosity and permeability information and one other set of core data that just only had lithology data. But I know that when we drill, there's a plan to take some core.

EXAMINER JONES: Okay. So you're going to do some coring, then?

THE WITNESS: That is my plan.

EXAMINER JONES: Well, if you can talk your manager into it, that sounds good. He might be sitting right over here --

THE WITNESS: Yeah, he's right there.

MR. Fling: We'll take all the support we can get.

MR. SONG: We'll have to look at the cost.

EXAMINER JONES: But you were able to use whatever core data you found to kind of fine-tune your logs and see what --

THE WITNESS: Yeah. There's a lot of older logs. Most of them are your basic gamma neutron. Some of the really older resistivities are not a lot of the new, fancy log sweeps within the area. So when we start drilling injection wells --

EXAMINER JONES: So you're going to drill injection wells? You're going to drill some in the fields' entire spacing for injection?

THE WITNESS: Yeah, which the engineer will talk about some more. But we will be able to get better logs to do better calculations with.

EXAMINER JONES: Okay. But the wells that

are out here are really old and are almost at the end of their life?

THE WITNESS: Yes, a lot of them. I know the engineer can talk a little bit more about the production, but a lot of them have been -- there's a lot of wells that have been P&As, I believe, over the field, and then there's wells that are just limping along.

EXAMINER JONES: Yeah. What about the salt? How far above the Yates is the Rustler and the Salado and all that?

THE WITNESS: I'm trying to visualize how -- if you'll look at Exhibit 14, I have the Tansill marked on that on sort of the very top formation, the top marked. So that's the top of the Tansill, the base of the -- I think the Salado.

EXAMINER JONES: So that might be at least 150 feet up to the top of the Tansill?

THE WITNESS: Yes. And the upper part of the Yates is sort of all tight dolomite and anhydrite. So that is also kind of buffer to the salt, if you will.

EXAMINER JONES: Okay. Is this area a salt flow area? Did you see records of terrible salt flows in the past?

THE WITNESS: I have not seen those.

EXAMINER JONES: Okay. Thanks very much.

MR. BROOKS: No questions.

MR. McMILLAN: I don't have any questions.

EXAMINER JONES: Okay, thank you.

MR. BRUCE: I do have one history question, which I presume that Mr. Brooks will know. Who was the Queen Penrose Sand named after?

MR. BROOKS: I'm afraid I do not know.

MR. McMILLAN: A Texas Tech guy.

MR. BRUCE: Neville Penrose.

EXAMINER JONES: Who was Neville Penrose?

MR. BRUCE: He owned a lot of property in Southeast New Mexico in the '30s and '40s and made a lot of money.

MR. McMILLAN: And George Asquith was an Endowed Chair.

[Discussion off the record.]

HUXLEY SONG

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q. Would you please state your name and city of residence?

A. Huxley Song. I live in Houston.

Q. And who do you work for, and in what capacity?

A. Forty Acres Energy. And I'm the CEO, but also the de facto engineer.

Q. Have you previously testified before the Division?

A. I have not.

Q. Could you please summarize your educational and employment history for the Examiner?

A. Sure. I graduated from the University of Texas at Austin in 2003 in petroleum engineering and started working at OXY right out of school and worked at OXY for about ten years.

In 2012, I joined a company called Midstates Petroleum. I worked there for three years. And a couple of years ago, I started this company, Forty Acres Energy.

Q. And was Forty Acres formed to look for waterfront prospects in the Permian and other areas?

A. It was.

Q. And are you familiar -- obviously, you're the manager of the company. Your area of responsibility covers everything that the company does?

A. Yes, sir.

Q. And are you familiar with the engineering related to this prospect?

A. Yes.

MR. BRUCE: Mr. Examiner, I tender Mr. Song as an expert in petroleum.

EXAMINER JONES: Yeah. With that OXY background, you're a waterflood person.

THE WITNESS: I am.

EXAMINER JONES: He's qualified.

Q. (By Mr. Bruce) Have you made calculations for this project regarding the secondary recovery and economics of the project?

A. Sure. Yes. As Jessica mentioned, we've looked at all of the logs that we could get out hands on from all sources that we know are available. And we've certainly looked at all of the production that's available, going back to the inception of the field. We've got monthly production data on every well. Most of the wells were drilled in the 1950s, so we've got monthly production going to back to then.

And as far as from a waterflood feasibility standpoint, we've looked at it a couple of ways. We looked at it first from a standalone sort of theoretical standpoint.

We looked at the drive mechanism of the field, the permeability of the field from the core data, the primary recoveries of the wells, and had a third-party waterflood engineering firm put that all

together. And they came up with a secondary to primary EUR ratio of about 1.5 from a pure sort of standalone technical or theoretical basis.

And the other way that we looked at it was there are about 30 other Yates, Seven Rivers, Queen waterfloods on the western edge of the Central Basin Platform, which is where we are. We looked at the analogies and the comparisons of, you know, the production per well, the production of the total unit, some of the individual logs from the unit, and compared that to what we have in our unit, as well as other things that may affect waterflood feasibility, like the mobility ratio, the water production, which could be inferred as being proportional to the water saturation.

We feel like the mobility ratios that we're seeing in all of these other successful older fields line up with ours with pretty much the same depth. The reservoir qualities are the same. So from an analogy standpoint, we feel like that really backs up the third-party engineering data, and we think we'll have a pretty good waterflood on our hands.

The average secondary-to-primary ratio of those floods that I'm talking about that have one producer and one injector per 40-acre tract is about 1.5, which lines up with the third-party engineering

data. So when you put that through an economics package with the cost, we have about 4,000-foot wells, so the costs for the wells aren't very high.

When you put all that together, it's a pretty economic package, which we'll get into a little bit more detail.

Q. Okay. And just for an introductory matter, what is Exhibit 18? In looking at this, I probably put the exhibit sticker on the wrong place. But is this simply a legal description of what's in the Eumont pool?

A. Yes. And it shows, I think at the upper right, the formation, the date of the formation of the Eumont pool in 1983, just as you said, Jim.

Q. It's a large pool with -- besides looking at all the data in your proposed unit area, you obviously looked at other data in the Eumont pool?

A. Yeah, we looked at a lot of data. We looked at all the data that we could. This project has been about one year in the works, so we've had a lot of time to look at all the analogies and look at all the production in the area.

So I think from just a brief history of the Eumont pool and our unit specifically, I could probably point you to Exhibit 20. You know, we skipped 19, but we'll get back to that. So Exhibit 20 has a full

production history of the field on page 1. So the green line is oil, the red line is gas, and the blue line is water. So that's the full field production going back to the -- basically the 1950s, with a little bit of data before that.

And then the other page I'd like to point you to is page 3 of the same exhibit. And page 3 of that exhibit shows when wells were spud within the Eumont Unit, as far as Eumont pool wells, and also when wells were plugged and abandoned. You could see from this chart the blue bars are when wells were spud. 109 wells of the approximately 140 wells were spud in the 1950s. The vast majority of development was then.

You can see, in the last three decades, not a lot of activity. One well spud, and it looks like something like 45 wells have been plugged and abandoned in the last three decades.

Q. The last three decades has been mainly P&A wells?

A. Mainly P&A activity. I think before we took this area over, it was definitely trending towards wells becoming stripper wells and then being abandoned when they can no longer economically produce.

Q. Well, let's move on to production, and it's a two-page exhibit, Exhibit 19. Could you briefly

describe what is reflected on that?

A. Yes, sir. Exhibit 19 shows -- I know it's tough to read. We may have a larger version over there. But this is a cume oil bubble map of each of the individual wells on primary production in the unit. And I'll briefly describe the legend because it's also kind of hard to see. The cooler colors are lower cumes? And then we have, in increments of about 20,000 barrels, the different colors down to the red color, which is the hottest color on the map, which is everything over 120,000 barrels.

And when you look at all the wells in the unit, the average production of every well within the unit outline is about 80,000 barrels.

Q. Now, was the secondary recovery project proposed as a method of extending the life of this declining reservoir?

A. Absolutely.

Q. And what is the drive mechanism of the pool?

A. It's a solution gas drive.

Q. And we'll get into this a little bit more with the C 108, which you'll go over, but let's go back to Exhibit 20. Go to page -- you've already described page 1.

Does page 20 contain information on the

existing wells within the unit area?

A. Yes.

Q. And again, I think you mentioned it. How many wells were -- how many Eumont wells were within the proposed unit area at one point or another?

A. Approximately 140 wells have been drilled within the unit area in the Eumont pool. There are a handful of other deeper wells, which I'm not counting in that figure.

Q. How many are currently active?

A. Fifty-two.

Q. Now -- and again, we can get into this again. But when Forty Acres bought its interest, did it go in and redevelop some of the existing wells?

A. Yes, sir. So you could see on Exhibit 20, page 1, the production profile and the trend of the production over time. In late 2014, when oil prices started coming down, you could see a proportional decrease in the production in this field, and that's because a lot of these wells are sort of at stripper state, one to three barrels a day. And with the sort of drop in revenue of roughly 50 percent in the last few years, the wells that failed would not -- have not been put back on.

And when Forty Acres acquired this area in

July of 2016, we came in and spent, between the acquisition and some workovers, about $5 million reworking wells and doing some different projects to get production where it is today. When we took over the field, our operative production was about 30 barrels a day, and today it's about 80 barrels a day.

Q. The Hearing Examiner asked about this. But at least in the vast majority of the initial stages of the unit, will you be using existing wells as producers?

A. Yes. All of our existing wells will be producers, as they are today, and we will drill all new injectors. So we will not reenter a well to convert it to injection. The older wells, that presents a little bit of mechanical integrity risk. But also, we'd like to downspace to basically 40-acre five-spots all across the unit, and so we'd like to do that with brand new injectors.

Q. How many additional barrels of oil do you anticipate recovering as a result of the secondary recovery project?

A. We think a lot. So the two different ways that we looked at the study both kind of came to a secondary-to-primary ratio of 1.5, and this field is trending towards about a 10-million-barrel primary recovery. We think we've got some other opportunities

to deepen wells into zones that still have some primary recovery left, so we think ultimately we'll get about 12 million barrels of primary recovery. And then if you put a 1.5 STP ratio on the 12 million barrels, you get something like 18 million barrels. I think I would guide you to something like 15 to 20 million barrels as a pretty reasonable range.

Q. Okay, as a range. And you already got into this, but please discuss how you calculated reserves to be recovered by the waterflood project.

A. Right. So we did that two different ways: One is we got just the standalone pure data from this area, including all the log and core data that we had. The third-party engineering firm put that into a simulator and came up with a secondary primary ratio of 1.5.

And then again, just repeating myself, we've looked at about 30 other Yates, Seven Rivers, Queen waterfloods all in the same area, along the western edge of the Central Basin Platform. And the average of the wells that are going to be -- that will have one producer and one injector per 40-acre tract has an STP of about 1.5, so that's how we came up with that.

Q. So that's a pretty common factor in the various Yates, Seven Rivers, Queen waterfloods that you looked at?

A. That's the average of all the wells that we looked at, that's right. Some were higher, some were lower.

Q. And what do you estimate is the life of project?

A. We think, based on analogy, looking at all of the fields that were unitized in the '60s and '70s, we're going to have about a 40-year life span. And that's compared to maybe a two-or-three-year life span if nothing were to happen in this field.

Q. And again on page 2 of Exhibit 20, does this also discuss the cost of redevelopment of the field?

A. Yes, sir. So on page 2 of Exhibit 20 -- let me just describe this exhibit. On the left, you have a map that has the existing producers in circles, and they're colored by the primary zone that were our interest in that area. So you have your Yates in kind of yellow/orange, the blue represents Seven Rivers producers, and then the purple represents Queen producers. And then in the triangles you have our proposed injectors.

So we come right in the middle of those producers almost symmetrically throughout the field and form 40-acre five-spots, so that will be a map of full development. That's not how it looks today. And the

way I think we propose to do that is to do a few pilots.

An example of a pilot cost would be us putting in a central tank battery or a facility and then drilling some injectors and then deepening some producers. Because as I mentioned, we think we have some deeper potential primary production that hasn't been tapped that we'd like to waterflood.

One example of a pilot, which I think will be pretty close to most of the pilots we do, would be about $7 million. We've got several pilots identified that we'd like to do. And from a full field development cost, if we one day end up getting the map to look like this, it'll be about $117 million for full development, capital.

And then the economics are on the bottom right table of this exhibit. We think we'll generate, at $50 WTI, about $700 million if we use $117 million in capital, and we have probably about $300 million of LOE in taxes with, I think, reasonable assumptions, we'll make, you know, something like $250 to $300 million in total cash flow from this project.

Q. Will this project be economical?

A. Yes.

Q. We're talking about injectors. You're not going to totally redevelop everything within the next

year; you're going to do the waterflood thing in phases?

A. We're going to do them in different pilot areas so we see what's working first. I guess like a lot of people that come through here, we're a commercial company, and we want to put our capital to work in the best way that we can, so we'll do several pilot areas. And whichever ones are working better, we'll probably expand upon those areas before we expand upon the others and sort of sequentially go down.

Q. And do you request permission to, when you develop new pilot areas, to do that administratively, rather than go to hearing?

A. Yes, sir.

Q. And is the project area -- the total project area is so depleted that it's prudent to apply an enhanced recovery program at this time?

A. Yes.

Q. And is the project economically and technologically feasible?

A. Yes.

Q. And will the value of the oil and gas recovered by unit operations exceed the unit cost plus a reasonable profit?

A. Very much so.

Q. Will enhanced recovery operations result in the

recovery of substantially more hydrocarbons from this portion of the pool than would be recovered solely by primary?

A. Yes.

Q. Will unitization and secondary recovery benefit the working interest and royalty owners in the unit?

A. Yes.

Q. And is unitized management and operation of this reservoir reasonably necessary to effectively carry on enhanced recovery operations?

A. Yes.

Q. It would be difficult to do this without unitization?

A. I don't think you could.

Q. And because of the estimated additional production, do the wells in the proposed unit qualify for the recovered oil tax rate?

A. Yes.

Q. Now let's discuss the tract allocation formula. Could you describe what it is for the Examiners and describe why you chose these perimeters?

A. Sure. So the formula is 80 percent current rate. And we chose a timeframe when we were putting the unit together of October of 2016 to March of 2017 -- that's a six-month timeframe -- because we thought we

would have all the production data through March when we did this hearing, so we chose that timeframe.

So it's 80 percent weighted by current production, 10 percent weighted by acreage, and 10 percent weighted by cume oil. So I think that probably the best way for me to describe how we came to this equation is to just go back on what I touched on earlier and look at the field history.

Most of these wells were again drilled in the 1950s, with very little activity post 1950 as far as new wells drilled. And the operators in the last 30 to 40 years have really just been milking the field for cash flow, not investing a lot into it. And that's why you see the production on Exhibit 20 being the way that it is over the last, you know, 20 or 30 years basically just declining on a natural decline because not a lot of capital investment has come into the area.

In July of last year, we came into the area and immediately put some capital to work. As far as we know, we're the only operator in the area that has put that amount of capital to work. So we thought we shouldn't be diluted immediately after spending millions of dollars after -- you know, over the past 30 years, no money has been put into the field. And we thought that could happen if the current production isn't weighted

how it is.

So we basically took this field from no cash flow initially to making a significant amount of cash flow relative to us today. And then 10 percent for the acreage is just so that everybody within the unit outline that owns acreage gets a share of the unit. And then the cume oil list adjusts that by what we think are better areas in the unit. Higher cume oil areas will yield higher secondary recoveries than very lower cume oil areas.

Q. And far as you can tell, over the last 30, 40 years at least, no operator has come forth trying to unitize this pool -- this portion of the pool and subject it to enhanced recovery operations?

A. That's exactly right.

Q. Okay. Let's discuss the injection operations. Just briefly, what is Exhibit 21?

A. Exhibit 21 is the C 108 packet and all of the auxiliary documents that relate to the C 108.

MR. BRUCE: Okay. I had the foresight to number the pages in the C 108, Mr. Examiner.

EXAMINER JONES: Say again.

MR. BRUCE: I've had the foresight, due to other things I've done in front of another Hearing Examiner, to number the pages of the C 108.

MR. BROOKS: I congratulate you.

Q. (By Mr. Bruce) If you could start at page 36, actually, Mr. Song?

A. Sure.

Q. You've already mentioned that the injectors will be new wells. Pages 36 and 37 are simply the well information sheets.

Does page 38 represent -- I think there's actually two initial project areas. But are these the seven wells you intend at this point to initially -- you know, the injection wells you intend to initially drill?

A. Yes.

Q. And they're in what, the southeast part of the unit, roughly?

A. They are -- let's see if I can point to them on an exhibit. If you'll look at Exhibit 19 and look on page 2 of Exhibit 19, I'll briefly describe this exhibit for you.

The very small green circles are the existing producers in the unit. The larger blue circles will be the full development injectors. And then the red circles are the first seven injectors that Mr. Bruce just referenced, which will be our first two pilot areas.

Q. Well, then if you would refer to page 39 and

describe how the new drill injectors will be drilling on --

A. Sure. So the new well injectors, as we mentioned, will be brand new wells. We'll have a surface casing stream and a production stream. The surface casing will be set at about 1,650 feet to cover all of the fresh water zones, and then we'll circulate cement to surface. We'll then run 5 1/2-inch casing to TD, which will be our production casing, although it will be injector, which will vary. But in most cases, right around 4,000 feet is where we'll TD.

And then we'll perforate the zones of interest. Like Jessica mentioned, we'll probably start at the bottom on most injectors and work our way up. We'll generally acidize these wells, not frac them, for conformance and sweep efficiency purposes.

Q. And then if you'll turn back to page 6, does this page set forth information on the wells within the area of review of these initial seven injectors?

A. Yes, it does.

Q. And are any of these wells P&As?

A. Well -- sorry. I'm trying to read this.

Q. And I refer you to page 15 forward.

A. Yes, some of these wells in the area of interest are plugged outside. I was just trying to read

some of the well names here. But if you look on columns 1, 2, 3, 4, 5, on page 6, you'll see the status of the wells. And the wells that say plug oil are the wells that are plugged. Those wells have well board diagrams within the C 108 packet starting at page 15. And there are, I believe, 14 wells that -- yes, there are 14 --

Q. Pages 15 through 28, I believe?

A. Yep, 14 wells. So pages 15 through 28 represent one well per page, obviously, and shows each one of the wells plugged on the well board diagrams.

Q. And this was from information taken from the ODC files and other files that you had access to?

A. Yes, sir.

Q. And are all of these wells preferably P&A'd, in your opinion?

A. Yes.

Q. And they will not be a conduit for fluids to move from one zone to another?

A. That's right.

Q. And as to the nonplugged wells, are they also properly drilled and completed so that they will not serve as a conduit, either?

A. Yes.

Q. Did you also contain or include in the C 108, starting at page 7, all wells within two miles of the

injectors?

A. Yes. Starting on page 7 is a listing of the wells within a two-mile radius.

Q. And is that included for informational purposes for the Division?

A. Yes.

Q. Let's move to page 3 of the C 108. Could you go over the -- summarize the proposed injection operation?

A. Sure. So page 3, Roman Numeral VII, I guess, Section 7, spells out the proposed injection operations. But I think initially, with the current pressure in the reservoir, we'll be injecting at somewhere near vacuum, so the reservoir will need to fill up for some time.

We won't have much reservoir pressure at the surface. But of course, over time we'll increase pressure, and we'll obviously abide by the point -- the .2 psi per foot gradient to the top perf, which we don't expect to reach that pressure for a little while, at least a year, probably more.

And we expect that the wells take 350 to 500 barrels a day. Certainly until we inject, we won't know that number exactly. But that's our expectation, based on the analog fields that we looked at.

Q. And again, you said you'll acidize the wells

only?

A. Yes. We'll acidize the injectors, probably perforate with something like 2 to 4 shots per foot, and acidize with 20 to 50 gallons per foot of acid.

Q. And what is the source of the injection water?

A. So we're talking to Rice Operating Company out of Hobbs to use their current disposal water as our supply water. So within the last few years we've gotten water samples from their disposal system, compared them to water samples and mixed them in the lab with produced water from our system. They're very compatible waters, and we'll be able to do that much capital efficiently than if we were to have to drill water supply wells. And we already have their infrastructure in our unit area, as we dispose of water through their system today. So we'll use our own produced water and make up from the Rice system.

Q. And is the recently acquired information of the water samples at pages 35-A through 35-A of the C 108?

A. 35-A, yes. That's an example of produced water within our build.

Q. And then starting at pages 29 through 35, is that data on various wells, fresh water wells, in the area acquired from the State Engineer Office?

A. Yes, it is.

Q. And again, the water that would be injected, there is no compatibility with formation -- compatibility issues with formation water?

A. Surprisingly, very compatible waters. A good thing for us.

Q. Yes, considering Rice takes water from a lot of --

A. Rice takes water from basically the same zones all over sort of the Western Central Basin Platform.

They also take water from the Blinebry and Drinkard and San Andres and various areas. But in our local area, a lot of the water comes from the same zones that we produce.

Q. In your opinion, is the granting of these applications in the interest of conservation and the prevention of waste?

A. Yes.

Q. And were Exhibits 18 through 21 either prepared by you, under your supervision, or compiled from company business records?

A. Yes.

MR. BRUCE: Mr. Examiner, I'd move the admission of Exhibits 18 through 21.

EXAMINER JONES: Exhibits 18 through 21 are admitted.

MR. BRUCE: I pass the witness.
MR. BROOKS: No questions.
EXAMINER JONES: So there's no barium or anything in their water?
THE WITNESS: There's no barium. That's the first thing we looked at. We definitely didn't want barium scale.
EXAMINER JONES: What kind of original pressure do you think they had out here?
THE WITNESS: They had about 1,500 psi original pressure at around 4,000 feet, so it's very slightly under pressure.
EXAMINER JONES: So it's slightly under, but real close?
THE WITNESS: Uh-huh.
EXAMINER JONES: And the peak rate that they produced?
THE WITNESS: The peak rate that they produced back in the '50s was about 2,500 a day, and all these wells were on allowables of about 30 barrels a day. Some of these produced 30 barrels a day for three years. So actually, the peak production could have been much higher, but everybody stuck to their allowable.
EXAMINER JONES: Do you expect to get back to the peak?

THE WITNESS: No. I think that would probably be not as successful of a case for us. I actually think we could make than the peak production, and it really depends on our capital pace.

We've got so many injector patterns that we could put into place. I think if we do that fairly quickly, we can get up to something like 5- to 8,000 barrels a day.

EXAMINER JONES: Are there any salt water disposals in this interval in the unit area?

THE WITNESS: Not within the unit area. The Rice -- the closest Rice SWD is a couple of miles to the east.

EXAMINER JONES: What zone is it in?

THE WITNESS: I believe it's in the San Andres.

EXAMINER JONES: Okay. So it's down below your unit?

THE WITNESS: It's down below our unit, and it's far off to the east.

EXAMINER JONES: Okay. So you'll be sending in some injection pressure increases if you need them later on, step rate tests and stuff?

THE WITNESS: Yes.

EXAMINER JONES: So this business about

reaching fill-up, that's always a question on these waterfloods, it seems?

THE WITNESS: It's always a question. But luckily, we do have a lot of waterfloods that we've looked at with similar reservoir parameters.

A lot of these floods -- some were at 40-acre spacing. We're going to do our flood -- I don't want this term to be thought of in different -- but we'll be at sort of double that spacing. We'll be at 20-acre spacing. We'll have 40-acre patterns and a producer and injector per 40-acre tract.

EXAMINER JONES: Okay. So 20-acre well density?

THE WITNESS: Well density, that's probably the right word. We'll be at a tighter spacing. So we'll have a smaller area to fill up per injector, versus a lot of the wells were at 40-acre density. That's the right word.

EXAMINER JONES: Our pressure limit, we can make that to where you go .2 to the top perf, instead of the top of the unitized interval. You know, that's what you would request, right?

THE WITNESS: I think so, yes.

EXAMINER JONES: So that way, if you want to just hit the lower zone first in a pilot area, you

would get your .2 down to that level, instead of the .2 up to the top of the Yates or something?

THE WITNESS: Exactly. Yeah, that would give us sometimes 1,000 more feet to play with, so that would be good.

EXAMINER JONES: Are you going to plan on doing the bottom first on some of these pilots?

THE WITNESS: We are. We definitely are. So I've worked a lot of waterfloods, and I've had more sort of definite success when you focus on one zone and start at the bottom. If you start above the bottom zone, it's difficult to control your injection water to go into the bottom zone where you might want it to go later on down the road. So we're going to start from the bottom and come up to make sure that we hit all the zones.

EXAMINER JONES: You say it was solution gas drives pretty much in all these reservoirs that you're looking at?

THE WITNESS: Yes.

EXAMINER JONES: I think the water sat -- the initial water saturation in these reservoirs, was some of them a lot higher than others? In other words, your mobility ratio should be kind of -- your success was sweeping oil. You know, there should be some kind

of relationship there.

I mean if you've got a -- you're not in an area that's marginally productive primarily -- primary production, correct? It was decent primary production through most of these?

THE WITNESS: About 80,000 barrels per well for 4,000-foot wells.

EXAMINER JONES: Okay.

THE WITNESS: Even back in the '50s, they were happy with the wells.

EXAMINER JONES: That was back -- do you remember the oil price back then?

THE WITNESS: I don't.

MR. BRUCE: Max $3.

THE WITNESS: And they were still making money because they weren't producing much water. And actually, today we could handle a lot more water than they could back then.

EXAMINER JONES: Okay.

THE WITNESS: But to answer your water saturation question, initially the first few decades of the field was pretty low water production. So you could see on this graph maybe 2- to 3-, 400 barrels a day of water production versus, you know, initially a couple thousand barrels a day, kind of dropping down to 3-, 4-,

500 barrels a day of oil. There's always more oil production than water production in the field, so a little bit of connate water production.

The west side, as you kind of go down, dips a little bit more, produces a little bit more water than the east side, but generally, not that much water.

EXAMINER JONES: Okay, but you chose these pilots in a certain area for a reason. I guess it must have been around some of your best production?

THE WITNESS: It was around some of our best production. And some of our best looking logs -- I guess a combination of some of our best looking logs and some of our best cume primary production.

EXAMINER JONES: So did you do an oil in place and -- in other words, you calculated all the void space, and so you know the voidage that you need to fill up with water before you really reach one-to-one displacement?

THE WITNESS: Yeah. So we think that will happen -- the answer may be two things. One is the vast majority of these wells being drilled in the 1950s, we just had gamma ray and neutron, so we didn't have porosity logs for the vast majority of these wells.

There were some wells, when you go back and look at Exhibit 20, that were drilled in the '70s and

the '80s. So there were 10 wells drilled in the '70s and 12 wells drilled in the '80s near the center of the field where we did do those calculations because we had density logs.

EXAMINER JONES: Okay.

THE WITNESS: So then we had to extrapolate that sort of thinking for the rest of our field. And we think probably 12 months will fill our voidage and allows us to see our first response.

EXAMINER JONES: Yeah. I can't believe you did all this in one year. You think that's a lot of time, but it seems to me like it would have taken a lot longer to study this and put it together.

You must have been pushing your team pretty hard here.

THE WITNESS: Jessica did most of the work. She's working long hours.

EXAMINER JONES: Okay. Where's your nearest CO2 line from here?

THE WITNESS: I don't know. I'm not thinking that far ahead, but that certainly could be something that, in the future, could yield some more oil out of the field.

EXAMINER JONES: Okay. So what's your timing on getting started on this?

THE WITNESS: We'd like to get started as soon as the unit is approved.

EXAMINER JONES: Well, he's always bugging us to get our orders out soon.

MR. BRUCE: Is Friday okay?

EXAMINER JONES: Yeah, Friday.

But this Eumont is not related to the Langley pool at all, is it, or is it? Did you guys look at that?

THE WITNESS: I'm not familiar with the Langley pool at all.

EXAMINER JONES: It's a different animal.

MR. Fling: A different environment.

EXAMINER JONES: There are other questions we were supposed to ask here, but I don't remember. I think I'm going to miss most of them.

We have to go through this checklist when we approve injection wells -- we call them UIC permits also -- with the EPA. We got primacy on the Class 2s to do those also, so every one of these -- but you want to call this a waterflood, not a pressure maintenance project, right? It's a waterflood?

Q. (By Mr. Bruce) And I suppose I'll ask the question: This is strictly stripper production, right?

A. As it sits here today, it's strictly stripper

production, and we think the waterflood is what's going to create the value here.

EXAMINER JONES: Okay. So yeah, we have this strange rule in our --

MR. BRUCE: They're not quite stripper.

EXAMINER JONES: Okay. So by OCD rules, we would call it a waterflood because of what you just said, although the professors nowadays say that you should start your waterflood right off the bat, which is --

MR. BRUCE: Not easy.

EXAMINER JONES: -- different from what they said in the old days, I think.

MR. BROOKS: The authors of the OCD rule obviously didn't agree to that.

EXAMINER JONES: Yeah, they didn't, because it doesn't state that, does it?

MR. BROOKS: It requires that it be exclusively stripper production, but we have had to interpret that somewhat loosely recently.

EXAMINER JONES: And it's going to be called -- I guess you're going to have to rename these wells, I guess, once we --

THE WITNESS: We are.

EXAMINER JONES: -- permits.

So what are we going to call this, Mr. Song's unit?

THE WITNESS: No. We're going to call this the West Eumont Unit, and --

EXAMINER JONES: West Eumont Unit. The project will be the West Eumont waterflood project, and it will be in the West Eumont Unit?

MR. BRUCE: Correct.

EXAMINER JONES: Okay. We'll try to get this out as soon possible, and then you guys can proceed.

THE WITNESS: Thank you. We appreciate it.

EXAMINER JONES: Thank you for all your work.

That's Case Numbers 15792 and 15793, and we're taking those under advisement.

The hearing is adjourned.

[The proceedings concluded at 2:47 p.m.]

STATE OF NEW MEXICO

COUNTY OF BERNALILLO

CERTIFICATE OF COURT REPORTER

I, DEBRA ANN FRIETZE, Certified Court Reporter, New Mexico Certified Court Reporter No. 251, 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.

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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.

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