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

APPLICATION OF LOS LOBOS RENEWABLE POWER, LLC FOR APPROVAL TO INJECT INTO A GEOTHERMAL AQUIFER THROUGH TWO PROPOSED GEOTHERMAL INJECTION WELLS AT THE SITE OF THE PROPOSED LIGHTNING DOCK GEOTHERMAL POWER PROJECT, HIDALGO COUNTY, NEW MEXICO.

CASE NO. 14948

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

COMMISSION HEARING

VOLUME 3
(Morning Session)

BEFORE: JAMI BAILEY, CHAIRPERSON
TERRY WARNELL, COMMISSIONER
ROBERT S. BALCH, COMMISSIONER

March 26, 2013

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Commission on Tuesday, March 26, 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
New Mexico CCR #20
Paul Baca Professional Court Reporters
500 4th Street, Northwest, Suite 105
Albuquerque, New Mexico 87102

APPEARANCES

FOR NEW MEXICO OIL CONSERVATION COMMISSION:

CHERYL L. BADA, ESQ.
NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
Office Of General Counsel
1220 South St. Francis Drive
Santa Fe, New Mexico
(505) 476-3211
cheryl.bada@state.nm.us

FOR APPLICANT LOS LOBOS RENEWABLE POWER, LLC:

MICHELLE HENRIE, ESQ.
Post Office Box 7035
Albuquerque, New Mexico 87194-7035
(505) 842-1800
michelle@mhenrie.com

FOR PROTESTANT AMERICULTURE, INC.:

CHARLES LAKINS, ESQ.
LAKINS LAW FIRM, P.C.
Post Office Box 91357
Albuquerque, New Mexico 87109
(505) 404-9377
charleslakins@gmail.com

FOR NEW MEXICO OIL CONSERVATION DIVISION:

DAVID K. BROOKS, ESQ.
NEW MEXICO ENERGY, MINERALS & NATURAL RESOURCES DEPARTMENT
Office Of General Counsel
1220 South St. Francis Drive
Santa Fe, New Mexico
(505) 476-3211
davidk.brooks@state.nm.us

ALSO PRESENT: Florene Davidson

CHRONOLOGICAL INDEX

EXHIBITS MARKED, OFFERED AND/OR ADMITTED

(9:07 a.m.)

CHAIRPERSON BAILEY: Good morning. This is the meeting of the Oil Conservation Commission on Tuesday, March 26th. It is seven minutes after 9:00, in Porter Hall. We have Commissioner Terry Warnell, who is the designee of the Commissioner of Public Lands. We have Commissioner Dr. Robert Balch, who is designee of the Secretary of the Energy, Minerals and Natural Resources Department.

And I'm Jami Bailey. I'm the director of the Oil Conservation Division.

Cheryl Bada is our Commission counsel today.

As I recall, this is a continuation of Case Number 14948, which is the application of Los Lobos Renewable Power, LLC for approval to inject into a geothermal aquifer through two proposed geothermal injection wells at the site of the proposed Lightning Dock Geothermal project in Hidalgo County, New Mexico.

We had begun testimony by Damon Seawright.

Mr. Seawright, you are still under oath all these days.

THE WITNESS: I understand.

CHAIRPERSON BAILEY: Call for appearances to ensure we have all attorneys here.

MS. HENRIE: Michelle Henrie for Applicant Los Lobos Renewable Power.

MR. LAKINS: Good morning, Madam Chair, Commissioners. Charles Lakins on behalf of Protestant AmeriCulture.

CHAIRPERSON BAILEY: All right. Thank you.

Mr. Seawright, you may continue with your presentation.

MR. LAKINS: Thank you, Madam Chair.

DAMON E. SEAWRIGHT, Ph.D.,

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

CONTINUED DIRECT EXAMINATION

BY MR. LAKINS:

Q. Before we pick up where we left off, Mr. Seawright, I'd like you to turn to Exhibit 8 in the blue exhibit book there in front of you, kind of get the lay of the land, if you will. Okay? I'd like you to do two things for me. One, you've got the --

A. I'm missing Exhibit 8.

Q. It's up here on the --

A. Oh, okay.

Q. Use that laser pointer that's sitting there.

CHAIRPERSON BAILEY: Before you begin, Exhibit 8 is whose exhibit?

MR. LAKINS: Sorry. AmeriCulture's Exhibit 8.

Q. (BY MR. LAKINS) Now, if you would look up here on the screen, if you could, using that laser pointer, point out to us where your wells are that you're concerned about here and where your operation is.

A. This here (indicating) -- this is the primary operation site of AmeriCulture here (indicating), and we have three wells within proximity of that facility. The first is A-45-AS, which is denominated as State Well #1 for the purposes of this hearing, and A-45-A-S2 here (indicating). And then we have a domestic well, which also bears another file number we call Federal Well A-45-A-S3, here (indicating).

Just to give you a general idea of the layout of the property and the various proximities to one another, we have 15 acres of deeded property. It's bounded by this rectangle here (indicating), and a ten-acre state geothermal lease here (indicating), and then we have a considerable state land acreage off to the east and to the north.

MR. LAKINS: Move to admit Exhibit 8.

CHAIRPERSON BAILEY: Any objection?

MS. HENRIE: No objection.

CHAIRPERSON BAILEY: Exhibit 8 is admitted

then.

MR. LAKINS: Thank you, Madam Chair.

(AmeriCulture Exhibit Number 8 was offered and admitted into evidence.)

Q. (BY MR. LAKINS) And I want you to look at this next one, which is Exhibit 9. And could you point out to me where your operation is, again, in this particular --

A. Certainly. Our 15 acres are located here (indicating), State 1, State 2 and domestic well A-444,

Q. And where is the location of the three wells at issue in this case?

A. Here (indicating) -- T-55 would be located approximately here; Well 45-7 here; 53-7 here (indicating).

Q. All these other wells that are located around that area, are you familiar with what all these other wells are?

A. Yes.

Q. Can you kind of -- don't go into length in each one, but just give me a brief description.

A. All of those wells, to my knowledge, were drilled either directly or indirectly by Dale Burgett. He goes under a variety of corporate names, and the one that is recognized here is Rosette. These wells up here

(indicating), he holds a state geothermal lease to the north comprised of 320 acres, and these five wells here (indicating), including one further to the north, are his. These underlie the Lightning Dock Geothermal lease, and they were, in general, used to heat this 1.2 million square-foot geothermal rose-growing greenhouse facility.

Q. Over to the very far left, there's a -- well, it's kind of right over in this neighborhood here (indicating). Could you tell me what that well is?

A. My eyesight is not that good. If there is a designation on it, I can't read it. I presume that that is -- judging from distance, that's probably one of Rosette's freshwater wells.

Q. Well, you have -- you have a well -- another well that's over in that --

A. Yeah. In this -- yeah. There is -- we purchased a defunct rose business -- this is back in 1995 -- which occupied the larger of the three greenhouses that we now work out of.

And at that time, because roses are very sensitive to saltwater, salty water, we prefer to go to TDS water. In the center of the valley, that low TDS water is present. So there is a preexisting well, pump, pipeline, everything that was used to support the rose

business that we purchased.

MR. LAKINS: Move to admit 9.

MS. HENRIE: No objection.

CHAIRPERSON BAILEY: Actually, Mr. Lakins, these have been reversed. So we've been looking at Exhibit 8 for which you have up on the slide right now and Exhibit 9 previously. Did you mean to have them reversed such as that, or are they --

MR. LAKINS: No, Madam Chair. I did not mean to have them reversed. They kind of go hand in hand. We were, obviously, initially first talking about 9, which, in my slides here, I just have them reversed, but I would, just as a matter of record, move to admit both 8 and 9 as properly listed in the Commissioners' books.

CHAIRPERSON BAILEY: Both 8 and 9 are admitted.

(AmeriCulture Exhibit Numbers 8 and 9 were offered and admitted into evidence.)

Q. (BY MR. LAKINS) Now, Mr. Seawright, I'd like you to step over here to the dry erase board, if you would, please, and draw for me kind of the location of your Well A-444, your A-45, and then your cold water well you draw from. Just give me --

A. Sure. It will be way out of scale, because

you're talking a distance of a mile and a half here, but this rectangle is representative of surface acres, and the domestic well will be located approximately here (drawing). It's adjacent to a ten-acre parcel, which is a square, under State Trust Land. State 1 Well would be located approximately here, State Well 2 would be located approximately here (indicating), and then --

Q. And for the benefit of what you're saying here, could you mark them with the numbers on there, please?

A. Sure. And our freshwater site lies 1.6 miles to the west. There is a pipeline that connects the two (drawing).

Q. Do you know the temperature in your cold water well?

A. It's approximately 68 Fahrenheit year-round.

Q. Would you write that down there?

A. (Witness complies.)

Q. Do you know the temperature in A-444?

A. Yes, approximately 110 Fahrenheit.

Q. And the temperature in the two state wells?

A. 232 degrees Fahrenheit is the temperature of the State 1 well. State 2, we believe to be approximately the same.

Q. All right. Go ahead and sit back down, please.

I want to back up, one thing we didn't

quite finish covering the other day. You were talking about this protest/nonprotest on Well 45-7.

A. Yes.

Q. If you could turn to Exhibit 14, AmeriCulture Exhibit 14.

A. I'm there.

Q. Could you tell me what that is, please?

A. This was a letter written to me by UIC Director Daniel Sanchez. It was in response to a comment letter that we submitted in response to an application or proposal by Raser to produce water from Well 55-7 and inject into Well 45-7. I had missed the deadline for a protest. I was advised by OCD counsel, David Brooks, that I could provide comments, which I responded to.

Q. Those are those two letters we looked at last --

A. Yeah. And my initial letter was responded to by David Janney. It was very technical in nature, and so we passed on the subsequent response primarily to Jim Witcher. And then the net effect was the September 5th, 2012 letter from Daniel Sanchez to us, which summarized the claims of each party and the findings of the OCD.

Q. If you could turn to the third page of that, paragraph six, if you would, please. And have you had an opportunity to review that paragraph six?

A. Yes.
Q. Do you agree with what's written in that paragraph six?
A. Yes.
MR. LAKINS: Move to admit 14.
CHAIRPERSON BAILEY: Any objection?
MS. HENRIE: Madam Chair, I think for sake of completeness, if we're going to admit the OCD letter, we should also admit Mr. Seawright's letter and Mr. Janney's response, which I have available.
MR. LAKINS: I have no objection to doing that, Madam Chair.
CHAIRPERSON BAILEY: Then all three documents will be admitted as Exhibit 14.
(AmeriCulture Exhibit Number 14 was offered and admitted into evidence.)
MS. HENRIE: If I may give these to the court reporter.
CHAIRPERSON BAILEY: Yes.
Q. (BY MR. LAKINS) Mr. Seawright, when we left off, we were talking about the tracer test.
A. Yes.
Q. Talk to me about this slide. What does this slide show?
A. This slide was taken in mid-February, shortly

after the discovery of a contaminant in our water. And I was out of town. I received a text -- I was actually at the legislature in an effort relating to the House Bill 201, which was eventually passed into law. And on the last day of that session, I received a text message from the farm stating that all the water on the farm had turned pink. We have over 60 tanks on our facility. We had no idea what it was. It was -- had no explanation at the time.

I came back to find this condition in all of the tanks, and I was able to, within a short period of time, determine that the source of the colored water was our hot water as opposed to our fresh water. And that was clearly evident because of the color of the water coming out the tap, but also all the outlets on our farm where water pours out were all strongly pink.

I grabbed an underwater camera, and I simply snapped a picture in one of our breeding tanks. What you see here are three fish, three male breeders, and that's just the color that we observed, extremely strong.

What we observed -- and initially we did not know what it was, but we did observe that the breeders themselves show sublethal acute respiratory distress. In other words, they don't like it. They

gasp at the surface for a considerable period of time once being added to this water. And as I'll show you later, it had a significant impact on larval developing and fry survival.

Q. What is this next slide?

A. This is a picture of a training tank in our hatchery. Fish in the wild are generally -- naturally go onto a diet of suspended algae. And we have to deprive them of that and give them an artificial diet and train them onto -- on manmade feed. And this is what this tank is, and you can just see the color of the water is very strongly pink.

Q. Now, what's that black blotch down there?

A. What you see here is -- tilapia are maternal mouth feeders. Basically, the male and the female breed. The female lays eggs on the bottom of the tank. The male fertilizes them, and she picks them up in her mouth. We actually collect the eggs -- scare the females; they discharge the eggs; we collect them.

And so at this point in their natural development, what you see down here, each fry would be in their mother's mouth. They aren't near their mother, so they basically just cluster together near anything that looks like their mom, and that happens to be the strain screen.

So this strain screen is where the water leaves the tank. This is the inlet where the water comes into the tank.

Q. Now, what's this a picture of?

A. A few months after the discovery of the -- which we ultimately were informed by Cyrq was a tracer dye called Rhodamine WT. We saw a fairly rapid change in the color of that contaminant from pink to this (indicating) color here. I mean, it's a bright, bright green, like a melted lime popsicle. And fish dislike it, just like they did the pink -- whatever substance -- the Rhodamine WT.

Samples were collected by a subcontractor to Cyrq, and they verified that there was a different absorption spectra for whatever this is. But we don't know what it is. And the water is still green to this day, 14 months after the contamination.

Q. All right. Now, back up. When you learned of this pink water, did you contact any state agencies?

A. Yes.

Q. Who?

A. The EPA, the OCD and the Office of the State Engineer.

Q. Did any representative of any state agency come out to your location?

A. Yeah. We were visited by Haddy Phillips, who is the Animas Basin supervisor, and a colleague of hers.

Q. Now, if you would turn to AmeriCulture Exhibit 10, does that report document -- no, in the book, Exhibit 10 -- document the visit from Haddy Phillips and Bryan Stevenson at your facility?

A. Yes.

Q. Have you had a chance to review that?

A. I have.

Q. Does it accurately represent what took place when they came out and visited?

A. Yes, it's accurate.

MR. LAKINS: Move to admit Exhibit 10.

MS. HENRIE: I object to the relevance. I mean, we've allowed testimony, and I just don't understand the relevance of the State Engineer Office's report of the incident.

MR. LAKINS: The State Engineer's report, Your Honor, which we're about to get into here, shows other pictures, actual activities, documentation by a state agency of this incident, which has already been found to be relevant.

(Discussion off the record.)

CHAIRPERSON BAILEY: Can you please explain the relevance of this exhibit to the case that we have

before us, the application for the G-112?

MR. LAKINS: Yes, Madam Chair.

As we discussed, Section 19.14.26.8(A) and (B) NMAC, which is the proper sealing off of strata requirements, would apply here. But its relevance to this entire tracer test information is twofold; one being that it has happened in the past, the tracer test and the connectivity and how it's impacted our well shows this interconnectivity of the entire area. So to actually seal off and protect our well, that's one issue.

Second off, all of the impacts of this particular tracer test, which we're showing and have some more testimony on as far as the impact to the business, which is a commercial agricultural business, we would like to ensure that the Commission is cognizant and aware of the impacts that have happened, what actually did take place; and if any permit is issued, we want to ensure that there are adequate protections -- or language in any proposed permit to ensure that this doesn't happen to us again.

MS. HENRIE: May I respond, Madam Chair?

CHAIRPERSON BAILEY: Yes.

MS. HENRIE: Actually, I'd like to voir dire the witness, if I could, on this issue of the

relevance of the State Engineer's report, because I think there are some facts that have not been admitted or entered into evidence yet that really call into question (A) whether these are separate strata on the point of injection versus the point of withdrawal, whether it's separate strata or whether it's all in a shallow alluvial aquifer.

And also there's a question as to what well AmeriCulture is actually pumping from at this point in time, whether it was their well or one of the Rosette wells, which, again, I think changes the dynamics of this whole situation.

And, again, I don't think there is any different strata between those shallow wells in alluvium, and what that proves with regard to a deep-well test, I still do not see the relevance.

MR. LAKINS: May I respond to that, Madam Chair?

First, I think voir dire of my witness on the geology is completely inappropriate. If she would like -- if Ms. Henrie would like to question my witness, that's cross-exam; that's not voir dire.

Second off, the tracer test was conducted in conjunction with the pumping test that were the essential dry run of what's being proposed here, so it's

very relevant.

MS. BADA: I would allow it.

CHAIRPERSON BAILEY: Then we will allow it.

MR. LAKINS: Move to admit Exhibit 10.

CHAIRPERSON BAILEY: It is admitted.

(AmeriCulture's Exhibit Number 10 was offered and admitted into evidence.)

Q. (BY MR. LAKINS) Now, I'd like you to look at this one particular --

MR. LAKINS: And I apologize, Madam Chair. The photographs that are in all the exhibits are black and white, not all in color.

Q. (BY MR. LAKINS) Explain to me, Mr. Seawright, this particular photograph, please.

A. Well, we collected water samples of both our cold water, which was untainted, and our geothermal water, which was tainted. And after I had learned that this was Rhodamine WT, which is classified as a fluorescing dye, in my laboratory, I happened to have a black light, and so I took two samples in there just to see if there was a possibility that they were actually fluorescent. And they did, in fact. The hot water is on the left; cold water on the right.

Q. And this next picture, explain to me what that is, please.

A. This is in our breeding tanks. We adopted an extremely efficient method of thermal energy utilization. We basically pour the hot water right into the fish tanks. And just through capillary action, some of the geothermal water will migrate up around the edge of the tank. It sometimes forms precipitate, like you see here, and it is strongly pink colored. And the purpose of that picture is that the precipitate itself presented a very bright backdrop to show the pink coloration of the dye.

Q. And these next two?

A. Yeah, the same. My comments for the upper picture parallel my previous comments regarding -- the addition of water in the lower tank basically shows our lighter-colored strain of tilapia as a backdrop illustrating the color of the water.

Q. And these two here?

A. Yeah. Even our -- I was really surprised to see that actually the fish themselves were physically stained. I presume it's because of the sheer concentration of the dye in our water.

Q. Well, does this Rhodamine -- as far as you know, is it posing any danger to humans?

A. Not that I'm aware of.

Q. Did you take any action at your facility about

the -- well, let me ask you this: Was any of this water being used by humans?

A. Oh, yes. Yeah. We just -- we have our -- the hot water for the domiciles of our workers is plumbed directly into our geothermal delivery system. Our people were showering in this, until I discovered what it was, and I forbade them from showering in it after that. So I think definitely our people were exposed to it.

Q. Did the Rhodamine have any impact on your fish?

A. Yes, it did, particularly -- I've already mentioned the respiratory distress with the breeders. And what you see in the bottom picture there is a typical breeder. They're large animals, anywhere from one-and-a-half all the way up to eight pounds in size. The effect that it had on them was different than for the smaller fish.

Where we saw the most dramatic effect was in early larval development and egg survival. We saw a very strong uptick in egg mortality and increasing mortality in early larval stages as it was found in the training tanks.

Q. I want to go back to the PowerPoint presentation and this slide that you have about the effects on AmeriCulture. Could you tell me how that

tracer dye getting into your hot water affected the eggs?

A. Well --

MR. BROOKS: Excuse me, Madam Chair. I allowed one question to go on on this, but it seems to me that the effect of the Rhodamine is irrelevant to this proceeding, because my understanding is that Los Lobos is not now planning to or requesting a permit to inject this kind of dye. And while the fact of the tracer test would seem to us to be relevant to show where communication does and does not exist underground. The effect the Rhodamine has would not seem to be relevant to whether or not we would license the -- whether or not Your Honors would license the injection of the geothermal fluids into this reservoir.

CHAIRPERSON BAILEY: Do you have a response?

MR. LAKINS: Yes, Madam Chair. The impact on the business is relevant to show, you know, one, the economic harm; two, the concern about future impact on our correlative rights.

We do have a geothermal right, right now, in Well 8 [sic] and State Well 1 under permit A-45.

The concern that we have here and what I'm about to move into directly is the remediation aspect,

which, under the water quality -- under the order of the Division, Order Number R-13127, and the actual permit that was issued by Energy, Minerals for this injection and project back in July 2009, which we were told controlled this pump test, under that particular permit as well, there are sections in there that relate to water pollutants, contaminations and remediation.

And what I want to basically show is that this -- yes, this proposed injection, which was -- this pump test, which has been on the table and was conducted under the prior and currently existing permit, how the Applicant here has actually followed what it is required to do under its existing permits and its failure to have actually done so is relevant here to any protections that the Commission would deem appropriate, to include any permit that's issued.

So we don't have that it happened once; it happened the second time. We want to make sure we have a -- it happened once. Let's take steps to ensure that it doesn't happen again, because we have the impact on our business. We have the impact on water, which is well spelled out in New Mexico Administrative Code. We have the impact of the failure to seal off strata. We have a lot here. And our concern and where I'm moving into is, basically, as I say, it happened once; we want

to make sure it doesn't happen again.

MS. HENRIE: Madam Chair, if I may respond?

Charles has just cited to the permit but not actually cited any sections of the permit relating to pollutants and contamination and remediation.

Rhodamine WT is neither a pollutant nor a contaminant. It is not listed on the water quality control list of toxic pollutants or any of the water constituents requirements. It's an EPA-approved tracer.

Meanwhile, you know, we're hearing about the effects on the business, but there has been no business data, no actual numbers or actual revenues to show any actual effects on the business. All we're hearing about is -- again, I have to renew my objection to this whole line of discussion, because it's just meant to inflame the Commission against my client.

This was a problem; it did happen. And I'd like to provide evidence as to the depth of the well into which the tracer was injected as well as where AmeriCulture was pumping from, but it is all the same strata. And all this is doing is trying to -- it's trying to inflame the Commission against my client.

And if the Commission doesn't have the power to award damages or something like that. I mean, if that's where all of this is going, this is the wrong

forum. This is not the forum for that sort of thing. We have not seen any evidence tendered into an exhibit of this actual having any pecuniary harm to AmeriCulture.

CHAIRPERSON BAILEY: Mr. Brooks?

MR. BROOKS: Madam Chair, I think it's very simply. If we go beyond communication, we're trying a different case.

MR. LAKINS: I'm not asking for damages here in any way, shape or form. I'll point to paragraphs 28, 29 and 30 of the order, as well as sections -- paragraphs 18 and 19 of the permit.

Mr. Seawright is about to testify to impacts. And as I said, we just want to make sure that the record is clear that what has happened doesn't happen again.

MS. BADA: I would sustain the objection.

CHAIRPERSON BAILEY: The objection is sustained. We will move on and curtail this line of questioning. Let's focus on the application of what this case is concerned with.

MR. LAKINS: Just to be clear, for the record, as far as the remediation of the tracer test, I'm not allowed to go there?

CHAIRPERSON BAILEY: Correct.

Q. (BY MR. LAKINS) Mr. Seawright, let me back you up to 2008. Okay? Could you describe for me what you did back in 2008 concerning the initial application to inject and pump from these, basically, same wells?

A. Certainly. In 2008, we were made aware of the application by then Raser Technologies for the five production wells, three-injection-well scheme that was set forth in the original public hearing notice.

The reason that we requested a hearing, which opposing counsel will call a protest, but it was a request for a hearing, was the result of two discoveries. One, we discovered some time after learning of their intent to produce and reinject water, among their various activities involved, the proposed injection of a cocktail of a dozen or more poisonous chemicals into the groundwater. This was deeply concerning. These were chemicals that, from their perspective, would be used for antimicrobial agents, antiscaling agents for use in a cooling tower.

And we were told by the Oil Conservation Division, at least initially by then-Director Mark Fesmire, that we were not entitled to a hearing. And our attorney at the time informed Mr. Fesmire that the state statutes that relate to anyone with property interest was entitled to a hearing.

Shortly thereafter, as we submitted a FOIA request, and as a product of that FOIA request, we uncovered an e-mail by Cyrq expert John Shomaker.

Q. Hold on just for a second, please. Would that e-mail that you're referring to -- would you turn to AmeriCulture Exhibit 4?

A. Yes.

Q. Is that the e-mail you're referring to?

A. It is.

Q. Please continue.

A. In this e-mail, which was amidst a very large FOIA file that we had come into possession of, there was a statement that was very disturbing to us.

Now, at the time, the proposal was considerably different. The proposal by Raser Technologies was considerably different than that which is before the Commission today. And it basically involved injecting -- producing copious quantities of geothermal water rates as high as 12,000 gallons per minute, injecting into a variety of injection wells. And it was our belief that that would result in an impairment of our water right for the wells in Section 7 here (indicating). And we felt that it would be very unlikely that they would have a successful project because of the impairment issue.

And in this e-mail from John Shomaker, he made a statement: "I'm planning to include" --

Q. If you could point out exactly where that is?

A. Certainly. It's in the first and only -- it's in the first paragraph --

Q. Second page of that document?

A. -- second page of that document, the largest upper paragraph, beginning line number five, three words in, and it states: "I'm planning to include in the OSE application a provision to re-inject water, at a rate to be determined for monitoring results, into an intermediate" depth -- "intermediate zone below AmeriCulture's completions, but above the geothermal production interval so as to maintain the heads in the former without introducing a water-quality problem."

Now, I'm not a geothermal hydrologist, but when I saw the cocktail of proposed chemicals to be injected, I do know that in order for an injection scheme, such as is described here in this e-mail, to have an effect on shallow groundwater, there must be a hydraulic connection with one another. And if you're injecting chemicals into a formation that is in direct hydraulic connection with our shallow formation, it is a natural conclusion that those chemicals could eventually make their way into our fish tanks. That outcome was

unacceptable.

Prior to this discovery, we had not decided whether or not we would request a hearing. We certainly requested it after, as a result of that primary discovery.

MR. LAKINS: Move to admit Exhibit 4.

(AmeriCulture Exhibit Number 4 was offered into evidence.)

MS. HENRIE: I have to object. Again, I need to ask. I believe that all of these issues that were just testified to were issues that were brought and argued fully to a conclusion at the 2008, 2009 hearings. And I don't believe that this Commission should rehear something that has already been argued and already been addressed and already been litigated to a conclusion. And that conclusion resulted in the OCD order, as well as the discharge permit, Exhibits AC-5 and AC-6.

And by rearguing and reopening this line of discussion, I think it just poses problems. It asks the Commission to second-guess or rethink something that has already been decided. And it's possible that there could be contradictory decisions or determinations made.

And for all of those reasons and for principles of judicial efficiency in trying to get these hearings concluded in a reasonable time period, I think

we just can't reopen issues that were already testified to and litigated in the 2008, 2009 proceedings.

MR. LAKINS: The G-112 applications themselves reopen the entire process. There was an existing permit from 2009, which is AmeriCulture Exhibit 6. There is a permit existing. It has been coming up on four years. The G-112 permits that were submitted are for, one, a very similar project; two, involving several of the same wells. So it's been opened.

Second, we're not going to chemicals. This is not about the proposal to inject chemicals. This is just background of what Mr. Seawright knew back then, why he got involved back then and his involvement that ultimately led to the permit that does exist.

But this isn't relitigating any issue. There is nothing that's essentially collateral estoppel here, when the fact is that we've got two G-112 permit applications on the table that just happen to pertain to wells -- two wells that were included in the prior process. The third well, 55-7, isn't in this permit. It wasn't included in the process whatsoever, and so anything related to 55-7 is brand-new.

CHAIRPERSON BAILEY: Mr. Brooks, did you have a comment?

MR. BROOKS: No, Your Honor. I take no

position on this issue.

MS. BADA: He's already testified, so at this point, all you're deciding is whether you're admitting this exhibit or not.

CHAIRPERSON BAILEY: Right.

And this exhibit does have to come from his testimony, which had to do with the cooling-tower chemicals --

MS. BADA: Right.

CHAIRPERSON BAILEY: -- that the operator has said they will not be using. So this exhibit is really irrelevant in that context.

MS. BADA: I would agree.

MR. LAKINS: Madam Chair, it may be irrelevant when it comes to the chemical, but it's not irrelevant when it comes to the hydrologic conclusion, which is what we're talking about here.

CHAIRPERSON BAILEY: Then his testimony should deal with the hydrologic relevance, not the cooling-tower chemicals.

MS. HENRIE: And, Madam Chair, I would question whether this witness is qualified to testify about the hydrology. I mean, he's experienced, certainly, as the operator of the fish farm, but he has also, I think, previously deferred testimony on geology

or hydrology that would require any sort of professional opinion.

So, again, I really don't know where this line of questioning is going except to open past history.

CHAIRPERSON BAILEY: Deny this one?

MS. BADA: (Indicating.)

CHAIRPERSON BAILEY: This exhibit will not be admitted, and let's move on.

MR. LAKINS: I can't admit this? Okay.

Q. (BY MR. LAKINS) Describe for me your involvement in that original hearing that led to the July 1st, 2009 permit, Mr. Seawright.

MS. HENRIE: Objection, Madam Chair. Again, why are we talking about the 2008, 2009 hearings?

CHAIRPERSON BAILEY: I simply don't understand the relevance to this proceeding.

MR. LAKINS: Well, let me cut to the chase, then.

Q. (BY MR. LAKINS) Could you describe for me what you know about the public notice aspect of Well 55-7?

A. Certainly. There were two public notices. First of all, the stated -- even the conditions of approval that were -- are here as exhibits, state that ultimately the outcome of any permit issued by the

Commission here must come under the WQCC permit. And T-55 was not mentioned in the original public notice requirement.

And in the original WQCC hearing, which took place on December 1st, 2008, the outcome of that original December 1st hearing was an indefinite stay issued by Examiner Brooks, because one of the three injection wells was moved subsequent to the public notice, and, therefore, were not included in the public notice. And through Wayne Price, Environmental Bureau Chief, he stated that there was a problem with public notice consistent with 20.6.2.3108, which clearly states the public notice notification requirements.

And if you look at -- there was a subsequent public notice that came out in August in preparation of the second hearing pertaining -- that's it there (indicating). You'll see that the -- in essence, that public notice states that there are going to be production wells and injection wells. Production wells will be in three of the four quarter sections of Section 7. The injection wells will be located in 18. And then it goes on to state that production wells can become injection wells and vice versa.

There is a -- you'll notice -- if you look at the quarter sections, the southwest quarter,

northwest quarter and northeast quarter in Section 7, T-55 is located in the southeast quarter of Section 7, and, therefore, it could not have possibly been included in this public notice.

MR. BROOKS: Excuse me, Madam Chair. We object to this line of testimony because the issue of public notice under the Water Quality Control Act and whether it's required is an issue of law for the Court to -- for the Commission to address. We have filed a brief on that subject. We do not believe it is. And if it is not, then -- and even if it is, the question of what public notice was given in a former proceeding would be irrelevant because the question is what notice is required in this proceeding, not what notice was given in the former proceeding.

MS. HENRIE: Madam Chair, to add to that point, the question of what notice is required prior to the issuance of a discharge permit under the water quality control regulations is different than the question of what's happening here in this proceeding relating to the geothermal regulations. Those are two different sets of regulations.

A discharge permit was noticed. It went through the process. The discharge permit was issued. After the discharge permit was issued, there could be

minor modifications made to the discharge permit. And our position is, that is what has happened in the past with regard to Well 63-7, which has been permitted by the agency. It is also not in the discharge permit. It was a minor modification. It was a replacement of Well 51-7 with injection Well 63-7. So minor modifications of the discharge permit are different than the original notice relating to the discharge permit in the first place.

And with regard to 55-7, that's a similar situation as what is going on with what Mr. Brooks said, though. The important thing in this proceeding -- the question is whether those G-112 applications are acceptable as applied under the Geothermal Resources Conservation Act.

So it's apples and oranges, Water Quality Control Commission versus the Geothermal Resources Conservation Act, and I think we need to stick with the scope of what this hearing is. What was noticed in this hearing was solely the Geothermal Resources Conservation Act. We are expanding the scope of this hearing improperly to bring in these questions of the past and water control regs and notice required for the discharge permit. So I have to agree with the Division's objection.

MR. LAKINS: A whole new well, an entirely different quarter section is not a minor modification, in our opinion.

Second off, this is not a minor issue. The proposed permit conditions say that water quality control regulations will apply to any activities. If the water quality control regulations apply, they should apply in full, and there was no public notice for any type of discharge permit for this Well 55-7.

If Los Lobos is operating under the discharge permit that was issued through the water quality control regulations and through the process and through the hearing that took place, that they said this is what controls and what they will intend to operate under, adding a whole new well in a section that was never public-noticed and essentially attempting to grandfather it in without having complied with the statutory scheme of notice, which is well set out, the whole reason for public notice, is an issue. It is an issue of whether or not that can or cannot be done under this existing permit that they propose to operate under.

CHAIRPERSON BAILEY: The objection is sustained for the reasons given by the attorneys.

Q. (BY MR. LAKINS) Mr. Seawright, can you summarize the problem you have with the current G-112

applications? In other words, why are we here today?

A. Yes. Of course, I have a long history tracking the proposed power plant development project by Raser Technologies, now Cyrq. And what was basically presented before the Oil Conservation Division and the public and ultimately embodied largely an injection -- in the discharge permit, was a production and injection scheme that operated independent of shallow groundwater.

If you look at the language of the discharge permit, it was carefully crafted to prevent the use of intermediate-depth injection wells, wells that were in communication with shallow groundwater. These wells were all yet future. T-55 predated the application by nearly 25 years. Carefully crafted. Each injection well was to be constructed in collaboration with the Oil Conservation Division, in conjunction and in real time with realtime geological data. The net effect was, ideally, an environmentally benign -- other than the internal effects on the resource, an environmentally benign geothermal project.

Now, this has somehow morphed into the current proposal, which is the projection from the deep injection well into two injection wells. The one that is our greatest concern, that injection well is directly connected to shallow groundwater.

I mean, there were statements we heard from Mr. La Rocher [sic]. One week ago, he said that equilibrium is a moving target. They're always switching how wells operate, constant tweaking of system; we will see changes and make adjustments. David Janney said: We fully expect changes in water surface.

That is a radically different picture than what's painted and ultimately permitted by the WQCC, and we are deeply concerned about, primarily, T-55, because we have demonstrated direct hydraulic connection between that well and our wells. They have -- Raser has not closed the door on using cooling-tower chemicals. They have simply stated they don't intend to. And there are other effects that could significantly impact our business. So this is a different -- this is a totally different proposal than what was permitted and what was presented to the public.

Q. Now, you said something about a connection between the shallow and the 55-7. Tell me about that.

A. Back in the early 2000s, we conducted a -- what was initially intended on being a 24-hour flow test on a state geothermal well here (indicating). The flow rate there was a bit over 1,000 gallons a minute for 24 hours, initially. And we decided at the end of the 24-hour period that we would look at a multiple-well

flow impact on reservoir qualities. And so we ran the test another 48 -- another 24 hours, and included two Rosette wells, which were located approximately here and here (indicating).

And what we observed -- now, Dale Burgett, who is the proprietor of Rosette, had installed, in Well 55-7, a sounding cord attached to a float. And in the first 24 hours, approximately a six-foot drawdown was observed in 55-7, which I would need the benefit of a map, but it's a third of a mile to the south, southwest of our well. And that demonstrated the connection between those two wells, since we were the primary well pumping at that time and the water level in 55-7 achieved full recovery after the cessation of our pump test.

Q. Your well, State Well 1 there, could you describe for me your water right that you have in that?

MS. HENRIE: Objection.

MR. LAKINS: Well, hold on.

Q. (BY MR. LAKINS) Because it's a geothermal right; it's not just a water right?

A. Yeah. We are -- we hold --

MR. LAKINS: I'm sorry.

CHAIRPERSON BAILEY: There is an objection.

MR. LAKINS: Hold on.

MS. HENRIE: Madam Chair, I believe that it's a water right, permitted through the State Engineer's Office, characterized for geothermal use. There's beneficial use of water, and that beneficial use could be irrigation. It could be domestic. It could be geothermal. If it's geothermal use, that's just the designation of the beneficial use, and it doesn't -- and Charles well knows that because he's litigated this for Rosette. It's what the quality of the water rights are. Those qualities do not include -- do not include heat. That's a geothermal component. And the fact that the nature of the beneficial use relates to geothermal activities, again, I'm not sure of the relevance. If we want to talk about heat, let's talk about heat, but water rights are something different.

MR. LAKINS: The water right that we're going to get into is related to geothermal. Mr. Seawright happens to have a State Engineer-issued water right that is for geothermal use. Geothermal is what is at issue here, impairment of geothermal.

It's kind of a unique situation because he has a State Engineer-issued water permit that happens to be expressly -- that happens to expressly include geothermal use, kind of an interesting but different but existing water right.

The water right that he has, when it pertains to geothermal and the potential impairment of his water right for geothermal use, is directly related to correlative rights here and impairment of correlative rights.

CHAIRPERSON BAILEY: Objection overruled.

Q. (BY MR. LAKINS) Could you explain to me -- I'm just going to put this up here real quick. Have you seen this document, this A-45-A document?

A. I have.

Q. And can you tell me which well that applies to?

A. Well, this permit, A-45-A enlarged, pertains to State Well #1.

Q. Can you tell me, what's the purpose of use of that?

A. The purpose of use is the nonconsumptive geothermal power production to support aquaculture and agriculture.

Q. Do you use that well to support agriculture and aquaculture?

A. Primarily aquaculture.

Q. Now, one of the things that was brought out by Los Lobos -- you've read their motion to expedite decision? Yes? No?

A. I have. It's been some time.

Q. They bring out that you are intending to use a personal-use geothermal power plant. Do you intend to build a geothermal use -- personal-use geothermal power plant?

A. Eventually, yes.

Q. But that would be within your -- using that within your existing water right -- geothermal water right, correct?

A. Yes. And it's necessarily a one megawatt or less geothermal power plant simply by the flow limitations permitted by the geothermal permit. But that was our intention.

Q. Let me ask you: Do you have any other concerns about the impact of this project as it concerns to your domestic Well A-444?

A. Certainly.

Q. Describe those for me, please.

A. Well, AmeriCulture's water resources are -- at AmeriCulture, we don't often use the word "unique," because it means there's only one, but in this case, I think unique is an appropriate descriptor.

We have a cold-water, very high-quality freshwater resource, and we have a high-temperature, super-heated geothermal resource, approximately 232 degrees Fahrenheit. There is a general -- and we'll go

into some more with detail on this during his testimony, but there is some sort of boundary that exists between the higher-temperature resource and the resource that lies underneath the western edge of our property.

This domestic well is unusual in that it has -- it has a much lower fluoride content that our state geothermal water. The water contained in State Well #1 has a fluoride content of approximately ten.

Q. Would you write that up there, please?

A. Sure.

Now, if we were to take geothermal water from State Well #1, cool it off to the optimal temperature for tilapia, which is between 82 and 85 Fahrenheit, and grow those tilapia in that water directly, they would not grow well. In fact, they would show gross skeletal deformities. Basically, the fish would grow on a skeletal fluorosis.

Tilapia cannot tolerate the fluoride concentrations of ten milligrams per liter in their water. It is one of the reasons that we blend water between fresh, low-fluoride-containing water and our high-fluoride-containing geothermal water.

For several years, this domestic well, which is also under A-45-A-S3 -- we have a licensed valid permit to use it for aquaculture and agriculture.

This was one of our primary wells. The fluoride content of this well is 5.6 milligrams per liter, again. And we have demonstrated that the fish can be grown directly in that water without any negative impacts. This is a very important water resource to us. It's one that we have today in the existing well.

What we plan -- there is future probable development in this area (indicating), because this water is very important. It's modestly thermal, so it's a very good thermal energy resource in the spring, fall and even summer, and it has very low fluoride content that is compatible with fresh growth.

And one of the concerns that we have is that -- there was considerable discussion. I heard this term several times last week in testimony, this concept of mounding, well mounding. My understanding of mounding is simply an increase in the static water level that is the result of injection activity.

If that high-fluoride-containing water were to pour over whatever boundary that it's affecting the intercommunication between those two and to fluorate [sic] that water, it would render it unusable for our agriculture, commercial and domestic purposes.

Q. Now, that A-444 well, just to make sure, do you have that -- is it permitted for domestic use, also?

A. It is.

Q. And what I ask you to do is turn to AmeriCulture Exhibit 15. Can you tell me what this is?

A. Yeah. This is change of a ownership of water right from Tom McCants to AmeriCulture.

Q. Is that for that Well A-444?

A. It is.

Q. That's permitted for domestic use, correct?

A. It is.

Q. And you also -- have you ever used it in past for agriculture -- aquaculture?

A. Yes.

Q. Tell me about that.

A. We used it for -- we got into a commercial aquaculture production. We built a very large system. This is back in the mid-2000s. And it required considerably more water than we were using at the time, and we just -- we began pumping large quantities of water, and did for years, from that well directly into our production systems.

Q. Do you have plans to use that in the future?

A. Certainly.

MR. LAKINS: Do you have your exhibits? Could you put them over there for the witness?

MS. HENRIE: Do I have my exhibits?

MR. LAKINS: Your exhibits, the witness copy of your exhibits.

MS. HENRIE: Which?

MR. LAKINS: The witness copy of your exhibits.

MS. HENRIE: Which of my exhibits would you like?

MR. LAKINS: The Joint Facility Operating Agreement.

MS. HENRIE: I don't know that -- I don't. Do you have one in there? Oh, yeah, yeah, yeah, yeah.

May I approach?

CHAIRPERSON BAILEY: Yes.

MR. LAKINS: And your Exhibit 5 he is going to need, too.

Q. (BY MR. LAKINS) Before we go off this line of questioning about Well A-444, do you remember Mr. Janney's testimony where he basically said "So what" to the mixing of the water? Do you recall that?

A. Oh, I do recall that statement.

Q. Do you have a response to that as it pertains to your Well A-444?

A. Yeah. This is the "what."

Q. What do you mean by that?

A. This is the -- that exists -- that water -- the

water contained in A-444, which is drawn from between 60 feet and its total depth of 233 feet, we believe is a different reservoir, as indicated by the different chemistry and unique fluoride content.

Q. If the fluoride content jumped up in that well to the others, the 10, 11, et cetera that we've seen, would that affect your ability to use that well?

A. Certainly.

Q. Let's go to Exhibit 9, the Joint Facility Operating Agreement. This is Los Lobos Exhibit 9. Do you recall Mr. Smiley's testimony about this?

A. I do.

Q. Do you agree with what he said?

A. I do not.

Q. And could you tell me why?

A. Sure. At its face, this agreement states that it pertains to 15 surface acres. These are the 15 heated acres here (indicating), which is adjacent to this ten acres of State Trust Land, which is connected with our state geothermal lease. But beyond that, an interesting factor is that this could not -- in Mr. Janney's testimony --

Q. Mr. Smiley's testimony?

A. I'm sorry. Mr. Smiley's testimony. There was some ambiguity as to whether or not this would apply to

our state geothermal lease, and the simple answer is, it cannot. And the reason it cannot is, if you look at the date of this Joint Facility Operating Agreement, 6/1 of 1995, as of that date -- that's the date of the signing of this agreement -- AmeriCulture did not have a geothermal lease. We did not have a geothermal lease for another four-and-a-half months after this date. The date was January 23rd, 1996.

Q. And if you could turn to Los Lobos Exhibit 5 that's there in front of you. Is that shown there on that last page -- last two pages of that?

A. Yes.

Q. Okay. Please continue.

A. So, of course, the state wells we have were not drilled at that time. At the date of the signing of the JFOA, we did not have a geothermal lease. And so it was -- for it to have encumbered our future state geothermal lease and the wells that are on it, it's not possible.

Q. I'm going to ask you to turn to one last slide from your PowerPoint presentation. Could you explain to me what this is?

A. Yes. Raser Technologies conducted an -- what they called an interference test. Its duration was approximately 30 days, and it consisted of the pumping

of three wells. One of the wells was T-55, and it included two of the Rosette state wells. And we were aware when this pumping test was to begin, and we actually have a sampling port, which is welded onto our production casing for State Number --

CHAIRPERSON BAILEY: Can you please reference that?

MR. LAKINS: Oh, I'm sorry. This is in AmeriCulture Exhibit 16, Madam Chair. It's one of the slides. It's about four from the back.

CHAIRPERSON BAILEY: Yes. Thank you.

Q. (BY MR. LAKINS) Please continue, Mr. Seawright.

A. Yeah. Raser Technologies conducted a multipump pump test over the period of those 30 days, turning on and turning off various wells, and we were aware that this test was taking place. And we have a sampling port on our State Well #1 which allows us to take sounding directly from the casing. We just basically lower a cord attached to a float, and we can tell when that float rests on the water, and we can take very accurate water-level measurements.

And you can see here at time zero, our water table was approximately 80 feet, and what we observed was a dramatic drop in our water table. It reached its minimum there at approximately the 3rd --

2nd or 3rd of December 2010. Our water table dropped 42 feet in 30 days, in essence.

Now, what was -- I know we'll be covering this, probably, through cross-examination with Ms. Henrie, but during this period of time, one of the disturbing impacts was that our pumping rate from our geothermal well which was installed -- or our pump which was installed in State Well #1, went from approximately 100 gallons a minute down to 50 gallons a minute. We naturally attributed this simply to the loss in the static water level.

What was interesting, though, is when the pump test ended and the water table fully recovered, our pumping rate remained at 50 gallons per minute. Our pump did not recover.

Sometime later, the pump actually fully failed and upon the removal of that pump, it was looked at by the pump manufacturer, and by us as well, and we found that the inside of the impeller bowls were encrusted with crystals. And the bottom stay, which holds the shaft which transects the pump bowls, that stay was shattered off. There was massive damage to the impellers, and the impellers were shattered in some cases; and it was clearly a result of flashing.

And one of the pros of super-heated water

is that it contains a lot of energy. One of the cons, or one of the challenges that geothermal producers face when they produce super-heated water, is that they have to keep that water under pressure to prevent flashing.

In pump impellers, there is a different -- there is a difference in pressure across each impeller. That's how a mine-shaft-driven pump works. Each impeller adds a certain amount of pressure head, and you stack those pump impellers until you get sufficient pressure to lift it to the surface and give you the delivery pressure you want. We have to keep 50 -- 40 to 50 feet of back pressure on the pump head to keep the water from flashing in the pump.

So we believe that what happened during this period of time when that water table dropped 42 feet -- we did not make an adjustment to the head pressure of that pump. And the reason that we didn't is because we were strangely fortunate that when we pumped from that well into a three-inch delivery line that goes to our storage tanks, that system was naturally in that range of 40 to 50 psi. We didn't need a valve to regulate pressure.

So with that 42-foot drop, we believe that what we got was flashing. And the evidence of the flashing is the crystals that are left in the aftermath

of flashing, which were encrusted on the inside of the bowls. In other words, this interference test really did interfere. It eventually led to the breaking down of our pump. And because our pump -- when it broke down, we did have to go onto another water source that may come up later in testimony.

Q. What does all this mean to us today?

A. Well, what it means is that these wells are highly interconnected. During our pump test, which was referenced earlier, when we -- pumping at a little over 1.000 gallons a minute, we saw measurable drawdown in a well more than 800 feet away in six minutes. In six minutes, we saw a measurable drawdown. These wells are so interconnected that the pumping -- that any effects on the water level in one well are quickly reflected in the water levels in other wells.

And just to kind of bring this home -- you know, the testimony of Mr. La Rocher [sic] and Mr. Janney these, you know, "equilibrium is a moving target", "constantly tweaking the system" -- we don't want to get into a situation where we're forced to call Mr. Smiley and say, you know, Our water table's plummeting. We're running out of geothermal. Can you tweak the system? We don't want to be that dependent upon their activities. So I guess that's the primary

end message of this test.

Q. Is there anything else further that you would like to add to your testimony? About this, not everything. About this.

A. Yeah. After this interference test, there was a County Commission meeting in which Mr. Hayter, Michael Hayter, who represented Raser, was there, and he was basically describing the need for a transmission line easement for their planned power plant. And in that, he made a statement that was particularly disturbing that I responded to, and that statement was, in effect, that there was no significant impact on neighboring wells.

I don't believe Mike Hayter expected me to be present at that meeting, but I stood up and I said to the County Commission that -- while I did not provide empirical data that I was in possession of, I did state that the drop in our water table was nothing short of alarming.

Q. Are you concerned about the diminishment of the temperature in this geothermal resource as far as how it might affect you?

A. Oh, certainly.

Q. Could you describe for me why that is?

A. Yeah. There are several reasons. The cooler the temperature, the more you have to use, the closer to

the permissible fluoride window you get for growing our fish.

And also, a pumping method that we are soon to employ is flash-assisted airlifting. We are actually going to air -- it's very common, after the completion of well drilling, that wells are pumped and tested for flow capacity by injecting pressurized air down into the wellbore. And because of the super-heated nature of the water, that water, for every cubic foot of compressed air you have, more than a cubic foot of steam generation. And really it assists in lifting that water up and out of the well. We're going to actually use that method to pump water in the future because of its physical simplicity.

As I mentioned, these line shaft turbine pumps have to be maintained at a back pressure of approximately 40 to 50 psi. It's extremely wasteful of electrical energy. At some point, that pressurized water has to come down to a spheric [sic] pressure, and you lose -- you pay to get the 40 to 50 psi, and you get no benefit from it.

Furthermore, there are lots of moving parts: Bearings, shaft, turbines, seals, motors. A lot of things can go wrong. And lastly, they're oil lubricated. There is a continuous stream of oil that

drips down inside the oil tube lubricating the bearings and the shaft, and ultimately it makes its way up inside the casing. And so for environmental stewardship reasons, we're very interested in shifting to an alternative method.

Now, I just called it flash-assisted airlift pumping. It is dependent on the water being super heated and strongly super heated. You can't do it effectively or efficiently with water that is below boiling or even close to boiling point.

Q. Anything further?

A. Yes. As it refers to the nonconsumptive geothermal power use to support the agriculture and aquaculture permit we have, that is intended on being used to generate power. And as Mr. La Rocher [sic] showed in his table, that there is a very strong impact on resource temperature, on power plant efficiency.

And we do intend on installing a small modular geothermal power plant not for the purpose of producing power and selling it. These plants, at this particular temperature and that size, it could, quite fairly, be argued that they're subeconomic. But the form of aquaculture that we utilize is very power consuming. We have a lot of pumps, a lot of air blowers, a lot of oxygen-generation equipment, and we

need thermal energy. And it's a natural marriage of technologies, a geothermal power plant, because of the extreme thermal emissions. Not only would you be able to generate electricity, but you can use the thermal waste stream to heat your fish.

And just as a point of comparison, if you look at -- I have ancillary experience in this, because I've been involved in two Department of Energy-sponsored grant programs whose objective was looking at the feasibility of small modular power plants on our property. And as far as jobs per megawatt, if you're just a dedicated power plant, it's about one job per megawatt, plus or minus, depending on the scale.

If you take that thermal energy, still producing electricity, but utilize that electricity for producing fish and hydroponically grown vegetables, with the technology that we're familiar with, that's 250 jobs per megawatt. That's a significant impact on the economy when compared to direct geothermal power generation, which we're not interested in, and that permit is for geothermal power production to support agriculture.

MR. LAKINS: Pass the witness.

CHAIRPERSON BAILEY: Let's take a ten-minute break and reconvene at a quarter till.

(Break taken, 10:32 p.m. to 10:43 p.m.)

CHAIRPERSON BAILEY: Ms. Henrie, do you have questions of this witness?

MS. HENRIE: I do, Madam Chair. And I apologize; I think we want to put up some slides, so we're still getting prepared.

CROSS-EXAMINATION

BY MS. HENRIE:

Q. I've got several questions, and I'm trying to get them organized in my mind. I apologize for that.

There's a lot that's been discussed. So, Mr. Seawright, my understanding is that the well that you've located there as A-444 is also the same well known as the AmeriCulture Federal 1 well; is that correct?

A. It is correct.

Q. And it's your understanding that that Federal 1 well is on the other side of the structural boundary?

A. That was Jim Witcher's interpretation, and I accept that interpretation.

Q. You believe that interpretation to be true?

A. I accept his interpretation.

Q. Okay. You also testified, I believe, that that well was used for a time as AmeriCulture's source of geothermal heat?

A. It was -- the purpose of using that was primarily for the bulk water need, but it happens to be thermal, but it's not very high temperature.

Q. I understand, and I see you've labeled it "110 degrees Fahrenheit." My question was: You did use it for a while in AmeriCulture's operations. Is that what you testified to? How many years; do you remember?

A. Several. Two or more.

Q. Two or more. Okay.

And were you using it as a downhole heat exchanger or using the actual water in your operations when you used that water?

A. We were actually using the water.

Q. Is that well in use now?

A. It is not.

Q. How long has it not been in use?

A. Since the summer of 2000.

Q. Summer of 2000. And that's the Federal 1 well?

A. Yes.

MR. LAKINS: Could you speak up just a little bit, Mr. Seawright?

THE WITNESS: Certainly.

Q. (BY MS. HENRIE) This is a left-handed map, so (laughter) -- you also testified, Mr. Seawright, that you have participated in several DOE proposals to do a

small scale -- small scale --

MS. HENRIE: Technical difficulties (laughter).

Q. (BY MS. HENRIE) So this was -- is this one of the reports from one of those relationships with the DOE? Does that look familiar?

A. Yeah. That's the Pre-Decisional Draft Environmental Assessment that was drafted by the Department of Energy in our own laboratory.

Q. And the date on that?

A. I see "June 2002" on that slide.

Q. Thank you.

MR. LAKINS: Madame Chair, I'd just ask if this is going to be made a exhibit or not, and if it is, I'd like a copy.

MS. HENRIE: Oh, I had meant to do that. I apologize.

MR. LAKINS: And I have a little bit of a problem because that document says it's 104 pages.

MS. HENRIE: Right.

MR. LAKINS: And if we're going to talk about any pages that aren't in here, I'm going to have a problem with that.

MS. HENRIE: I agree. I agree that's not fair. I didn't actually just scan these pages. I have

the whole thing, which is from the OCD file.

Q. (BY MS. HENRIE) So on page 2-6 --

MS. HENRIE: In fact, I'd like to go ahead and move admission of Exhibit 12 [sic] at this time, so the Commissioners can have a copy as well.

MR. LAKINS: No objection, Madam Chair.

(Los Lobos Exhibit Number 12 was offered into evidence.)

MS. HENRIE: May I approach?

CHAIRPERSON BAILEY: You may approach.

MS. HENRIE: Is it appropriate to give the witness a copy as well? That'd be easier.

Q. (BY MS. HENRIE) So I would like to refer to page 2-6 and the second paragraph. Mr. Seawright, would you read that second paragraph, the one that starts "other wells"?

A. "Others wells in the immediate vicinity include an AmeriCulture geothermal well (AmeriCulture Federal 1) to the west of the hatchery, which is unused, and the Burgett wells (Burgett "A," Burgett "B" and Burgett "C") to the east, which supply geothermal fluid used to heat the Burgett greenhouses and produce power in Burgett's turbine/generator."

Q. Thank you.

Would you agree that as of 2002 this well

was not being used?

A. I would agree with that.

Q. Thank you.

And staying on that same page, under 2.3, Proposed Action, the last sentence in that paragraph.

A. "The spent geothermal fluid would be reinjected into a new well that would be drilled north-northeast of the AmeriCulture site."

Q. So for your power plant proposal, the proposal was to drill an injection well. Can you locate where that injection well would be?

A. Yeah. And we're grossly out of scale here.

Q. Yeah.

A. Yeah. It would be approximately three-quarters of a mile to the -- it would be the north-northwest, this particular well up here on State Trust Land.

Q. And why did you locate so far away?

A. We located it so far away because the heat flow anomaly of this resource demonstrates that we are thoroughly in the shallow outflow of the thermal resource. And to prevent any impact on the geothermal resource, our intent was to pump from and reinject into the shallow outflow of the resource.

Q. So the proposal was to take the hot fluid from one side of the structural boundary and move that

geothermal fluid and then dispose of it in a different reservoir?

A. Would you restate the form of the question, please?

Q. Was your proposal to reinject that fluid in a different reservoir?

A. No. The proposal was to reinject into the shallow outflow plume. And as far as the boundary that we've -- again, I don't want to get into a situation where we're suffering from an inaccurate scale here.

Q. Sure.

A. But I am under no means projecting the existence of this partition to the north in between our State #1 well and the proposed injection well.

Q. So the very last paragraph on this page, at the end, it says: "This depleted geothermal fluid would be used to heat the fish tanks." Was that the proposal?

A. Through heat exchange.

Q. Please explain.

A. Thermal energy -- there is a considerable amount of thermal energy, as you are fully aware, in the outflow of these geothermal power plants. This particular technology that we -- we're not proposing to employ. It was what we were looking at, investigating. The clean cycle is a very unusual and, you know, unique

technology employed in an ammonia-water mixture and was very highly efficient. So the discharge temperature in the power plant was presumed to be much lower than the resource temperature but still usable for thermal energy use.

And in the spirit of efficient utilization of that thermal energy, we were left open the option to run that through hermetically sealed heat exchange units in our fish farm.

MS. HENRIE: Do you have page 213 in your packet, Charles?

MR. LAKINS: Yes.

Q. (BY MS. HENRIE) At page 2-13, 2.3.4, Direct Use of Geothermal Fluid, what that paragraph says is: "After use at the hatchery, the exiting geothermal fluid, cooled to approximately 100 degrees Fahrenheit, would be mixed with the blowdown water and would pipe to the new injection well." And right before that, it says: "According to current plans, the direct-use application would use the 140 degrees Fahrenheit geothermal fluid exiting the power plant for heating the hatchery fish tanks."

You wouldn't actually -- is it your testimony that that would be a heat exchange proposal as opposed to the fish actually residing in the

geothermal -- the geothermal effluent from the power plant?

A. I would have to refresh my memory on the details. It's over a decade ago.

Q. Sure.

A. But I will state that based on the date of this document, June 2002, our A-45-A enlarged nonconsumptive geothermal permit, which requires the use of heat exchange because it's nonconsumptive, that was issued later in October of that year. And so I'd have to refresh my memory on the ultimate result.

If we were to use any of that water for direct abition [phonetic;sic] into the fish, it would be decadent [phonetic;sic] against our existing water right in that well. But under no circumstances would tainted water that had come in communication with anything from inside of a pipe or the inside of a power plant would have been reinjected.

(The court reporter requested the witness speak louder.)

Q. So if you could back up to page to 2-11, I believe you have that as well, 2.3.2, Cooling Towers.

MR. LAKINS: You know, I'm going to object. What's the relevance of a proposed design 11 years ago relevant to this?

MS. HENRIE: Well, Madam Chair, I think what's good for the goose is good for the gander. And the fact that AmeriCulture had proposed a geothermal power plant very similar to the power plant that we're proposing and whether there were the same sorts of things in place with regard to that proposal as they've been arguing should be in place for our proposal, I think that is relevant.

For example, we've talked about an injection well, and I'm curious about the nature of the permitting of that well.

And I think it is relevant that with this proposal was a water-cooled tower. I mean, these are all things we've heard Mr. Seawright testify are -- let's see what the words were. He was environmentally offended by our proposal. And I just think the Commission is entitled to hear the other side of the story.

MR. BROOKS: Madam Chair, we join in the objection.

CHAIRPERSON BAILEY: I would like for us to keep to the application and not to these other issues that are not part of the decision-making of the Commission for these applications. And if both parties can confine themselves to those topics, instead of

spending time on these other issues that cannot, will not be decided by this Commission.

So the objection is sustained.

Q. (BY MS. HENRIE) Let me go back to that comment about being environmentally offended with our proposal and the position that AmeriCulture has taken with regard to that water quality control regulations apply to an injection well.

Mr. Seawright, do you have a discharge permit for the injection well that was proposed and permitted as part of this power plant?

A. I just have a question. If we're going to talk about the term "environmentally offended," I would appreciate a re-reading of that from the testimony for the sake of accuracy.

MS. HENRIE: I have no objection, Madam Chair, if -- and that was -- the context was at the beginning of Mr. Seawright's testimony. It was last week, not today, and the quote was "environmentally offensive" to me that low TDS water might be potentially contaminated with salinated geothermal water that has high fluoride in it. That's the context that I recall.

CHAIRPERSON BAILEY: And that was not today? That was last week?

MS. HENRIE: Yes.

CHAIRPERSON BAILEY: It would be difficult, wouldn't it, for you (indicating) to go back to find those exact words?

I don't believe that we need to spend the time for that. If you would please use another phrase that may not be so inflammatory.

MS. HENRIE: Okay. Very good.

Q. (BY MS. HENRIE) The question was whether AmeriCulture has a discharge permit in connection with the injection well that was permitted on State Trust Land in connection with the power plant.

MR. LAKINS: Relevance? We're back to this (indicating) --

MS. HENRIE: Mr. Lakins has argued that the discharge permit that Los Lobos was granted is very important in any decisions that the Commission is making. And I'm just inquiring whether AmeriCulture has a discharge permit. Well, let me change the question.

Q. (BY MS. HENRIE) Does AmeriCulture have a discharge permit for its fish facility?

A. I believe we do, pertaining to geothermal discharge.

MR. LAKINS: Mr. Seawright, I'm going to say, please, for the benefit of everyone here, speak up.

A. Okay. We do, I believe, for geothermal

discharge to the surface.

Q. (BY MS. HENRIE) So your discharge from the fish farm is limited to geothermal waters?

A. No.

Q. Is it fresh water blended with the geothermal water?

A. It is.

Q. And that's discharged to the surface?

A. It is.

Q. And you believe that you have a discharge permit for that?

A. I believe we have a discharge permit for surface discharge of geothermal. I might add that that water is also fully permitted for aquaculture and agriculture use despite the fact that it has useful thermal energy.

MS. HENRIE: I would like to offer -- Charles.

Q. (BY MS. HENRIE) What I've handed your attorney, Mr. Seawright, is a discharge permit application for the plant back in 2005 -- the permit -- the renewal in 2001. And that is what I received in response to an exhibit request for OCD for a current discharge permit. I've also handed your attorney a response from the Environment Department, which governs the fresh water,

regarding a discharge permit for the facility.

MS. HENRIE: And I'd like to tender these as an exhibit. I've lost track of my exhibit numbers.

MR. LAKINS: I'm going to object, Madam Chair. This discharge permit says it expires October 23rd, 2005, and the second is a letter from Diane D. Sandoval at Ground Water just saying they couldn't find a document in their file. I'm going to object to both of those on the grounds of -- the first one is completely irrelevant because it's from more than seven years ago. And an e-mail from the Ground Water Quality Bureau just saying they couldn't find something in a response to a record request, to me, is not relevant to what's at issue here.

MR. BROOKS: The Division joins in the objection.

MS. HENRIE: Madam Chair, the relevance is that AmeriCulture is surface discharging water that is filled with nitrates. I mean, fish swim in it. It's going right on the surface. It's going right into the shallow groundwater. And the claim that my client is somehow interfering with domestic Well A-444 by injecting native geothermal water into the geothermal water when AmeriCulture is pouring on the surface water that has environmental concerns to it -- as I said

before, what's good for the goose is good for the gander. And I'm not -- you know, I'm just questioning whether there is a double standard here.

CHAIRPERSON BAILEY: The objection is sustained. We do not need to go down the path of discharge plans. We agreed that we would shift your focus to those areas that are at issue in this application.

Q. (BY MS. HENRIE) Mr. Seawright, you talked about the pump test of AmeriCulture State 1 in 2001, and your contention is that the well test shows that the shallow aquifer in 55-7 is connected; is that correct?

A. The shallow aquifer that State Well #1 taps --

Q. Fair enough.

A. -- appears to be in connection with the reservoir that Well 55 taps, which is cased Well 55-7. It's cased solidly at 1,050 feet, if I'm correct. So it shows a connection from a fairly deep geothermal or shallow geothermal well.

Q. And you described -- you said that you decided at the end of the 24-hour -- or the team decided at the end of the 24-hour well test to do a multiflow test and to bump that up to 48 hours. Do you recall that?

A. I do recall that.

Q. What I understood is that a cold front came in,

and so Mr. Burgett needed the heat, so he turned on his wells independent of what you guys had planned for the test. So there were unexpected wells pumping at that time; is that correct?

MR. LAKINS: I'm going to object to the form of the question. She's asking if what she just said, in his mind, is correct. That's an inappropriate question.

CHAIRPERSON BAILEY: Would you like to rephrase the question?

MS. HENRIE: I would. Thank you.

Q. (BY MS. HENRIE) Do you know how many wells were pumping during that 48-hour test in the area?

A. If there were more than the two geothermal state wells that are held by Rosette, I'm unaware presently.

Q. Can you say with certainty no other wells were pumped?

A. No, I cannot.

Q. And so can you say with certainty that any effect on 55-7 was necessarily related to State Well 1?

A. We can say -- of course, I'm a scientist, and scientists deal with probabilities. It's highly unlikely the effect seen in Well 55-7 was attributable, initially in first 24 hours, to anything else other than

the pumping of State Well 1. We were staying in very close communication with Dale Burgett, Rosette -- we were staying in very close communication with Dale Burgett of Rosette at that time, and Jim Witcher would have contemplated the impacts of additional pumping on the interpretation of our findings.

Q. So what I'm looking at is Appendix 8 from Mr. Witcher's report.

Ms. HENRIE: And I'd actually like to move this report as an exhibit, Charles. Charles? Mr. Lakins?

MR. LAKINS: Yes.

MS. HENRIE: Do you have any objection to entering Mr. Witcher's report into evidence as an exhibit?

MR. LAKINS: The -- the --

MS. HENRIE: 2001 report.

MR. LAKINS: The full, complete --

MS. HENRIE: Yeah.

MR. LAKINS: No. In fact, I plan to do the same thing in the matter of completeness, so I have copies here if you don't.

MS. HENRIE: I don't.

MR. LAKINS: Madam chair?

CHAIRPERSON BAILEY: Yes, you may approach.

MS. HENRIE: I have tendered the power plant Draft EA as Exhibit 10 [sic], Applicant's Exhibit 10 [sic].

MR. LAKINS: No objection.

MS. HENRIE: And so let's offer Mr. Witcher's 2001 report as Applicant's 11.

CHAIRPERSON BAILEY: Don't we already have Exhibit 10, which is the chart of "Fluid Flow Required to Generate"?

COMMISSIONER BALCH: We do.

MR. LAKINS: Yes, from Mr. De Rocher.

MS. HENRIE: I'm sorry. My error. You are correct, Madam Chair.

So Exhibit 11 will be the Draft Environmental Assessment, and Exhibit 12 will be Mr. Witcher's report.

CHAIRPERSON BAILEY: It is admitted.

(Los Lobos Exhibit Numbers 11 and 12 were offered and admitted into evidence.)

Q. (BY MS. HENRIE) Mr. Seawright, was there any injection occurring in connection with the 2001 pumping test?

A. No.

Q. So Exhibit 8, which is up on the screen, shows, I believe, the drawdown level to Well 55-7; is that

correct?

MR. LAKINS: This is from where? His report?

MS. HENRIE: Yes. It's Appendix 8.

A. Well, this data represents drawdown data for Well 55-7. At the very end, if you look at the time in there, 10/9 -- if I'm not mistaken, it began on the 7th; looks like about 11:30 or so on the 7th. And at the very tail end of the 48 hours represented -- if you look at 8:30 to 1330 there, you're looking at a period, I guess, of seven hours. I don't even know when their well was turned off, when the Burgett well was turned off. It looks like maybe 11:55 or so. It's a very brief period of time. So to the extent that it represents a very brief snapshot of the overall duration of the 48-hour pump test, yes.

Q. (BY MS. HENRIE) And your testimony was that there was six foot of drawdown at 55-7?

A. From the beginning -- from the beginning of the testing on the 7th, to its maximum drawdown.

Q. Then why isn't that data presented in this report?

A. I don't know.

Q. Because what we see here in Appendix 8 is not listed as drawdown. It's a maximum -- .71 foot of

drawdown?

A. In an hour and a half, but -- but that does not take into consideration the drawdown that occurred before then.

Q. And I believe the negative numbers represent mounding or an inflation of the water table, a rise in the water table? Do you know?

A. That would be an excellent question for Jim Witcher.

Q. And I believe you testified as well that a measurement was taken through a cord attached to a float. Do you recall?

A. Yes, by Dale Burgett. Dale Burgett was the one that installed that float and cord in that well.

Q. Any problems with the nature of that data collection?

A. Well, in order for a sounding method to be reliable, it needs a cord that is nonstretchable, inelastic and a float that is sufficiently heavy to keep the cord taut, buoyant enough to float.

Now, mind you, the water table at the beginning of our pump test was in the upper 40-feet bracket, which is not much deeper than the width of this room. So one merely needed to look down the well casing to verify that the stretch -- the cord was not

stretching and the float was floating where it was supposed to be. So it's accurate.

Q. In the Acknowledgements of this test, it mentions that "Gary Seawright provided key well level measurement assistance during the test at all hours of the day and night." Is that your recollection?

A. He was involved. The exact nature of his involvement is, to be honest, beyond my present recollection.

Q. Were there any qualified technicians actually taking measurements?

A. Jim Witcher was on site.

Q. Did he take the measurements?

A. I don't recall who was the person taking the respective measurements. That data may very well exist in records, but, like I said, I'm not -- ten years after the fact, I'm not current.

And I would stress, again, the water table is so near the surface, you can simply look down the well and see that everything is working. There is no speculation as to whether your sounding method is working or not. You can see it.

Q. Is it calibrated?

A. Calibrated? It is. The way it was done was the float, together with the string -- at the end of the

process, various marks were made at various times, and then that string or cord is brought to the surface and measured against a measuring tape.

Q. So that's a no?

MR. LAKINS: Objection.

CHAIRPERSON BAILEY: Sustained.

Q. (BY MS. HENRIE) Mr. Seawright, you testified -- put up a slide regarding a 2010 -- it's called "Raser Interference Test," presented to the Commission.

A. Yes.

Q. I wanted to ask you a couple of questions related to that. Are you aware of whether there was any simultaneous injection happening in connection with that test?

A. No. I'd have to refresh my memory on that.

Q. And where is your pump -- at what level is your pump set in State Well #1?

A. It is approximately 250 feet, plus or minus.

Q. Was it set at that level in 2010?

A. I believe so.

Q. And your testimony, I believe, is the water was drawdown 40-some feet?

A. 42 feet.

Q. But your pump was set at a depth of 250 feet?

A. Correct.

Q. I don't know the answer to this question. Did you ever bring to Raser or Cyrq's attention what happened to your pump?

A. No.

Q. What temperature does your -- in your fish farm, what is the optimal temperature for the tilapia?

A. Well, it depends on the system and the functionality of that particular system. Breeders require a temperature of approximately 85. That same similar temperature regime, perhaps, between 82 and 85 Fahrenheit is required for the young fish, up to the point that we sell them. And other unessential fish that are simply being bred for future breeding purposes can be held at a diminished temperature, in the upper 70s.

Q. So if I understand correctly, you take water from the well that's in Section 12, which is identified on the map as being 68 degrees Fahrenheit; is that correct?

A. Yes, we do.

Q. And the name of that is A-45-A?

A. Correct.

Q. How far is that from the fish facility?

A. 1.6 miles.

Q. So that water is blended with the water from

State Well 1 to reach your 80 degree-ish temperature; is that correct?

A. Yeah. Yes, that's a fair characterization of it.

Q. And so if there was a depletion in heat of State Well 1, would that mean you would be blending less?

A. Rephrase the question, some specificity with regard to source.

Q. The source of the heat right now is State Well 1, correct?

A. Yes.

Q. So if the heat were diminished with regard to State Well 1, the blending between the Section 12 well and the State Well 1 would still occur, but it would occur at a different ratio, perhaps, if the heat were diminished in State Well 1?

A. Well, you'll have to be more specific as to the magnitude of the diminishment in temperature.

Q. Well, I think the Commission can probably see the difference between 232 degrees and 80 degrees quite good.

What is the source of domestic water now for the fish facility?

A. A-45-A. Oh, domestic water for my -- well, for

the fish facility?

Q. Let's start with the fish facility, yeah.

A. A-45-A is run continuously, and it has since we arrived.

Q. So drinking water -- that's a source of drinking water?

A. It is.

Q. Are there any other sources of drinking water now for your operations?

A. Are there any other sources? Please elaborate.

Q. Are there any other wells used for drinking water at AmeriCulture given the current plumbing and infrastructure?

A. AmeriCulture, for drinking water, uses A-45-A as its source today, despite AmeriCulture having a domestic well put in.

Q. So you're talking about A-444 as being your permitted domestic well?

A. It is a permitted domestic well.

Q. But you don't use it for a domestic well right now?

A. We do not. It's not being pumped currently.

Q. So is it your position that it's both a geothermal well and a domestic well?

A. Correct. It's just analogous to the State 1

Well being both a geothermal nonconsumptive water use well, as well as a water well.

Q. And the fluoride content in A-444 is what? Do you know?

A. 5.6, the last time it was measured.

Q. Do you know if that's over the drinking-water standard?

A. It is.

Q. By a lot?

A. By a lot.

Q. So to actually use that water, you would need to treat it?

A. Not necessarily.

Q. For your well in Section 12, cold water well, do you know if it is above or below the standard -- the drinking-water standard in fluoride?

A. It's near. It's near. Back in the '80s, which was the first analyses that I've seen for that well, its level was about one. There have been, in the last couple years, two analyses done, and if I recall correctly, the levels were approximately 1.7 and 2. So, yes. The 1.7 analyses was conducted by Cyrq.

CHAIRPERSON BAILEY: Ms. Henrie, do you have much more?

MS. HENRIE: Sorry, Madam Chair. I think

we'll be done before noon.

Madam Chair, I'd like to offer as Exhibit -- are we on 13 -- the purchase agreement between Mr. and Mrs. McCants and AmeriCulture from 1995.

MR. LAKINS: Once again, relevance. And I don't know what part of this entire document, one paragraph, the whole thing, et cetera, she's even intending to use.

MS. HENRIE: Well, Madam Chair, the issue of this Joint Facility Operating Agreement between my client and AmeriCulture came up, and AmeriCulture was allowed to testify that its position is that that agreement did not pertain to its geothermal lease on state lands because that geothermal lease on state lands had not been entered into yet. This document shows that there was an intention to enter into that lease at the time that AmeriCulture signed the agreement and that it intended, as well, to generate electricity.

MR. LAKINS: Whatever intent may be in here is a legal question. But, once again, what's the relevance to this application?

MS. HENRIE: Madam Chair, the relevance is that my client has stated on the record that it relieves that any harm that occurs during the program build-out and it has a duty to mitigate that harm by providing

effluent heat to AmeriCulture. AmeriCulture has taken the position that somehow that obligation is not their obligation, and I would just like to rebut that position.

CHAIRPERSON BAILEY: Objection overruled. I'd like to hear this.

MS. HENRIE: Madam Chair, if I could move into evidence Exhibit 14.

CHAIRPERSON BAILEY: Exhibit admitted.

(Los Lobos Exhibit 14 was offered and admitted into evidence.)

Q. (BY MS. HENRIE) Mr. Seawright, are you familiar with this agreement?

A. I am.

Q. One thing I find interesting to get into is on page 2, well file number, A-444, and that's paragraph B, and on paragraph C, it references a different well file number, A-45-S3, over in Section 12. Is it your testimony that those are one and the same well as opposed to two different wells?

A. Well, A-444 is a -- it's a filed number. And on page 2, paragraph C, "1 acre more or less constituting a cold water well site containing the water well having file number A-45-S3." Based on the context, I would assume that that is the prior designation under

the ownership of Thomas and Martha McCants. And it would be -- based on my reading of that particular paragraph, I would come to the conclusion that that is equivalent to our A-45-A well in Section 12, since it mentions Section 12.

Q. Different numbering?

A. Numbering prior to the change in ownership compared to the numbering after the change in ownership.

Q. And if I could call your attention to page 11, paragraph 19, "Future Obligations of Buyer." So AmeriCulture would have been the buyer; is that correct?

A. Yes. The original agreement itself, if I recall, was -- yeah. Yes, it is.

Q. And so it says: "Upon the closing of the transactions provided above and so long as the Real Estate is used for aquaculture business" --

A. Will you please tell me where you're reading?

Q. Oh, I'm sorry. Paragraph 19: "Future Obligations of Buyer."

A. Okay.

Q. Subparagraph A. Could you read subparagraph A for me?

A. "Consult with Seller before siting on the portion of the State Lease acquired hereunder by Buyer any geothermal well or wells to be used for the

generation of electricity, and such wells will be sited in conformance with geothermal regulations published by the State of New Mexico."

Q. Was this agreement entered into before or after the Joint Facility Operating Agreement?

A. It was -- it was entered into on the 10th day of July 1, 1995, which --

Q. Do you know whether that was before or after the Joint Facility Operating Agreement?

A. It was before, but there were provisions, of course, that the execution of this agreement are subject to, such as page 3, paragraph B. "Subject to New Mexico Land Office approval of Seller's rights with respect to the ten acres." It was the state geothermal lease. That was a contested application. It was not a foregone conclusion, as I recall, at the time of this agreement.

Q. So when you entered into the purchase agreement, though, you were aware of -- you were aware of the federal lease, at the time, held by Lightning Dock Geothermal, Inc.?

MR. LAKINS: I'm going to object to the form of the question, because he didn't sign this lease. She said, You entered into this lease. He didn't enter into this lease or purchase agreement.

CHAIRPERSON BAILEY: Would you like to

rephrase?

MS. HENRIE: I would. Thank you, Madam Chair.

Q. (BY MS. HENRIE) AmeriCulture, having entered into this purchase agreement, was aware of the federal geothermal lease or was not aware of the federal geothermal lease that was held by Lightning Dock Geothermal, Inc.?

A. We were aware.

Q. What's up on the screen is a hearing, October 4th, 1995, before the State Land office, and this is with regards to the ten-acre state geothermal lease which you just said was a contested hearing.

MS. HENRIE: Let's scroll down.

Dr. Bailey, you may have been at that hearing (laughter).

MR. LAKINS: For the purpose of the record, I'm going to object to this entire line of questioning. This is inappropriate, new exhibits entered in here that should have been provided early on if they included the Joint Facility Operating Agreement and they had intent to testify to their intent of it.

All of these documents, this one, the Real Estate and Geothermal Rights Purchase Agreement and anything else -- looking at this up here, all of this

should have been provided well in advance of hearing, and I am basically being blindsided by facts and issues that were obviously contemplated to be addressed prior to hearing. And it's inappropriate, and that's my objection.

MS. HENRIE: Madam Chair, these are rebuttal exhibits. What's on the screen I'm not offering as an exhibit. I'm offering on the screen -- there is plenty of information on the screen previously in connection with things that were not exhibits.

MR. LAKINS: A rebuttal exhibit is something that you cannot anticipate testimony about ahead of time. They had the Joint Facility Operating Agreement as a listed exhibit. This is definitely not rebuttal.

MS. HENRIE: It's already been moved into evidence, I believe.

MR. LAKINS: Over objection.

MS. BADA: In these hearings, the rules of evidence don't strictly apply. The Commission needs to decide if it's relevant to this application and if they want to consider it.

CHAIRPERSON BAILEY: I think this morning, when Mr. Seawright said that he did not believe that the Joint Facility Operating Agreement was applicable now

because of the date -- when he brought up the date, that, in my mind, opened the door to a rebuttal of that date.

MS. BADA: But further testimony about the State Land Office hearing is irrelevant. While the initial document may have been, the Commission needs to decide whether the path it's leading down is.

CHAIRPERSON BAILEY: Exactly.

So the testimony about State Land Office hearing is not relevant to the issue at hand.

MS. HENRIE: Thank you.

Bear with me. I'm sorting through questions to make sure we've asked everything.

Q. (BY MS. HENRIE) Mr. Seawright, you testified to the original injection wells proposed for the project, including 51-7. Are you familiar with that well?

A. Are you referring to the request for hearing that I submitted on behalf of AmeriCulture in 2008?

Q. No, I'm not. I was actually referring to Injection Well 51-7, which was one of the wells that was involved in that protest in the hearing in 2008. Are you familiar with where that well was located?

A. I would need to be shown it on a map. There are a number of wells that circuit -- that spud it.

Q. When you protested with the State Engineer in

2011, do you remember whether your protest included the Injection Well 51-7?

A. Is it appropriate to ask the opposing attorney a question? I mean, I'm just trying -- what -- what application are you referring to, if you could be more clear?

Q. This is the letter, Mr. Seawright (indicating).

A. That's very helpful.

Q. And I was just curious why AmeriCulture did not protest Injection Well 51-7 in connection with the State Engineer protest?

A. Oh. Glad you put that up there. It has refreshed my memory. The reason we did not is because we did not understand the intention behind Raser Technologies' moving one of their original well locations into my horse pen in my backyard. And we decided that we did not want to protest that. We did not want to be construed as having opposed any rights that you have under the Joint Facility Operating Agreement. That was located on our 15 acres. We did not oppose that, although we did oppose others.

Q. Mr. Seawright, at the end of your testimony, you talked about a flash-type system to produce water. And I'm not sure I understood what you were describing in the context of how that fits into your operations.

Could you walk me through that?

A. Certainly. As I mentioned before, line shaft turbine pumps at the Lightning Dock Geothermal resource represent the primary technology that's used to lift water to the surface. And the super-heated nature of the water adds challenges above and beyond those typifying line shaft turbine pumps in that you have to keep the chamber between the shaft and the bearings pressurized to force the oil to go downward to resist the steam pressure that is naturally generated in the process of stirring up geothermal water. And these wells can be problematic and unreliable in some cases.

There are wells out there that -- Dale Burgett has a well that's been running for 20 years; hasn't since he ceased operations, but at the time it was functioning. And there are other wells that don't last much time at all. And so in an effort to reduce risk for our company and our shareholders, we are always interested in looking at alternative methods for bringing water safely, efficiently to the surface for our utilization.

One method is submersible pumps. Submersible pumps are expensive, particularly those that are designed for high-temperature thermal water. And so our intent is to actually use air lift, to lift up water

from our resource into an insulated storage tank and use it much like we do today.

Q. Is there flashing in connection with the airlift?

A. There is.

Q. So you would end up with a net water loss?

A. Yes, which is, of course, backed by our water rights, which are extensive.

Q. But your geothermal water rights, I think you characterized them as nonconsumptive?

A. There is a -- we have a permit under A-45-A enlarged for nonconsumptive geothermal power use to support aquaculture and agriculture. That is a stand-alone permit for a given purpose. We also have State Engineer Permit A-45-A-S2, which allows us to divert, up to our water right holdings, water from that well and use it for aquaculture and agriculture purposes.

Q. So what you are saying? Are you saying that consumptive use of water falls under the permit?

A. You're calling it consumptive use. I'm not calling it consumptive use. I'm calling it use of water for aquaculture and agriculture.

Q. Okay. What does that mean? I'm sorry.

A. Meaning that, as far as steam loss in the tank

is no different than water dripping on the ground. It's part of aquaculture.

Q. You mentioned your water rights a couple of times, and I think it's fair for the Commission to have a copy of those. Let's see if I brought them with me.

MR. LAKINS: Madam Chair, for the purpose of the record and judicial efficiency, we just ask the Commission to take judicial notice of the public information available for Mr. Seawright's water rights, instead of waiting --

CHAIRPERSON BAILEY: We concur.

MS. HENRIE: Okay. Fair enough.

CHAIRPERSON BAILEY: It is now ten until 12:00. This would be a good stopping point so that we can allow these three public commenters to be able to comment in time to head back home, if they need to, after lunch.

Why don't we go ahead and allow Mr. Seawright to take a break for lunch, and we will listen to the commenters, five-minute limit each, before we go to lunch.

Jim Victor.

Please come to the witness stand. Would you like to give sworn or unsworn testimony?

MR. VICTOR: Sworn.

JIM VICTOR,

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

MR. VICTOR: My name is Jim Victor, and we have a farm that would be just south of the property that's being proposed for the permit for the well.

First, I'd like to start off with some of the reasons we came today. We're new to the area, approximately three years. We have bought a large farm, approximately 3,000 acres, and we started off with farming cotton. Our plans are to farm pecan trees.

Anyway, one of the reasons we came to the area was climate, good soils, primarily water. We came to the area because there was a good water supply. That was one of the things I did in my due diligence before we bought; I spent some time with the water logs throughout the past years. And so that is one of the concerns we have.

We have vested about -- approximately $8 million of our money into the -- I have a family of ten. Also, we have others coming to the area, employees. We plan to farm pecans. We plan to put in a processing facility and bring jobs to the area, a store for the community. That's one thing we appreciate, the community we have there. We have a good community.

One of the things that -- I think is of utmost importance is the fact that some of these things have not been made public. There are some things that have, but the more part has not been made completely public. We have not known what was going on. We're right up against them. I think there was a lot of promises, things that we've used in the past, I've been involved, together with some legislation and stuff that had happened there. There was some things that were implemented for accountability. It seems like some of those things have not come to pass.

Also, I would like to speak up for some of the residents, too, there. There are quite a few that don't really know what's going on and understand the magnitude of what's happening. Also, I've spoke to them. They would -- also have been their agreement that I would, as I've come -- if I would have time to come, that I would represent them, also. And we have a growing area of farming coming back, and that's -- that's something that I grew up with and have interest, and also what it's going to create in future.

And I would like to say that I have a big concern, of listening here, also with the knowledge that I already have also during the legislation time, of these wells being tied together and knowing that the

groundwater source there is very much tied together.

Also, at my farm there, they would be right at my back door. I could see the operations going on there. We have wells just south of there, and that's where our wells start there. So we have a number of wells on the property that would be on the south end of the farm. Again, I'd just like to state my concern for that.

And, also, we just appreciate to have this time to be able to share here today, and we will be hoping for the best and what you would have in your decisions.

Thank you.

CHAIRPERSON BAILEY: Thank you.

Ricky Massey.

COMMISSIONER BALCH: I have a question.

CHAIRPERSON BAILEY: Oh, I'm sorry.

COMMISSIONER BALCH: Oh, sorry.

Cross-exam.

CHAIRPERSON BAILEY: Since he was sworn.

CROSS-EXAMINATION

BY MS. HENRIE:

Q. Mr. Victor, could we monitor your wells during drilling, come around to do testing to see what the effect is?

A. I would be open.

Q. Thank you.

CHAIRPERSON BAILEY: Any other questions?

Okay. Now you may be excused.

MR. VICTOR: Thank you.

CHAIRPERSON BAILEY: Ricky Massey.

Would you like to give sworn or unsworn testimony?

MR. MASSEY: Excuse me?

CHAIRPERSON BAILEY: Would you like to give sworn or unsworn testimony?

MR. MASSEY: Sworn.

RICKY MASSEY,

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

CHAIRPERSON BAILEY: Please state your name.

MR. MASSEY: Yes. My name is Ricky Massey, and I own and operate one of the larger family farms in the Animas Valley. We're five generations and hope to be there a long time.

Raser came to us before they had any public meetings, and we helped them set up their first public meetings. And I have attended just about every one they've had, including the ones that were up at the

roundhouse last year with the OCD, Michelle and the State Engineer and everybody that was there. Anyway, at all of these meetings, we were told by Raser or Cyrq and everybody in that company that the water would always be pulled from 3,000 feet, run through pipes and put down 3,000 feet at the exact place they took it out.

And they gave us handouts on it, if you would like to see them, whatever, showing how the wells would be done, because the concern of the people was always protecting our water -- surface water and the mixing of any of the ground waters. And they always assured that that would be the top priority, to make sure this wasn't done. And to do it, they presented these papers, along with slide shows, and this later became six-foot posters at every meeting, showing how the wells would be cased with steel casing and cemented-grouted so that there could never be any mixing of waters.

And my understanding here, they're wanting you to help them break these promises that they made to all the people in all the meetings. I mean, if this meeting was at the Animas auditorium, there would be a lot of irate people there wanting to know why these promises are being broken by this company.

And I guess if I had any questions of Raser

or Cyrq, it would be: Why all of a sudden none of this is important to them anymore, when it was the top discussion at all of the meetings, and we were assured all the time that it would never happen? So that's basically what I have to say.

CHAIRPERSON BAILEY: Okay. Questions of this public commenter?

MS. HENRIE: I do have two questions, Madam Chair.

CROSS-EXAMINATION

BY MS. HENRIE:

Q. Hi, Mr. Massey.

A. Hi.

Q. I don't quite understand how you feel that what we're proposing now is different than what we told you before. So if you could just talk more about how you think the plans have changed.

A. Well, it has always been the concern of -- from day one, the mixing of this water. When you start changing it down there, nobody really knows what effect is going to happen; you know, you open fissures or do something that can't be undone.

And like I said, we were assured that -- they were only interested in what was down there. They were going to take the heat, put it back, and by sealing

off all the stratas, it seemed you could do that. I mean, sure. I mean, everybody's wanting some green energy and so forth. But why the change? I mean, why is it not important to keep these stratas separate anymore when for three years it's been top priority? I don't know. It makes no sense to me about -- it seems wrong.

Q. So is it your understanding that the wells are no longer cased or cemented or drawing from and reinjecting into the depths?

A. Yeah. Isn't that what this is about? They're asking to use an existing well that is not at these standards that they have been telling us? Is it cased and cemented and secured down to the -- looks like around 2,700 feet or something? I mean, is this -- am I wrong? Would you like them? Let me give --

Q. I know what you have, and I don't mind you sharing with the Commissioners.

MR. MASSEY: Would you like -- is this okay or not?

CHAIRPERSON BAILEY: We cannot accept that, sir.

MR. MASSEY: Thank you.

Q. (BY MS. HENRIE) Thank you, Mr. Massey.

My second question is: We do plan to

monitor wells -- we plan testing and monitoring wells throughout the Valley, and would you be open to Los Lobos monitoring your wells as well?

A. Sure. I mean, we've talked to the State Engineer about this many times. In fact, I insist on it. I mean, I told the local state engineers that we need to get these figures. We're just trying to look out for the Valley. I don't --

Q. And one more question, if I may. Where is your farm located, south of the project or north of the project?

A. We have property that's about a half a mile north and a mile or so west. We have property that's probably, as the crow flies, directly south -- what is it -- three-and-a-half miles, and then the home place is at Animas, which would be, what, 17 miles, maybe.

CROSS-EXAMINATION

BY MR. LAKINS:

Q. Mr. Massey, thank you for coming up here today.

The document that you have handed --

MR. LAKINS: Madam Chair, this is actually part of my Exhibit 16.

Q. (BY MR. LAKINS) Mr. Massey, is this basically what you were presented at all these public meetings? Is that essentially what you're saying here?

A. Yes, sir. That was on the back side of this paper. It was a continuation of this same piece of paper.

Q. And so that what your concern -- let me kind of paraphrase, see if I got you right. Your concern was that what they -- what you were -- what you saw at public meetings was that everything would be circulated way down deep, and there would be no interconnection with shallow; is that correct?

A. Yes. Yes, that is correct.

Q. And your concern here is that you've heard that that's -- that there is a connection between the deep and the shallow?

A. Yes, sir.

MR. LAKINS: That's my only questions.

CHAIRPERSON BAILEY: Mr. Warnell?

COMMISSIONER WARNELL: No questions.

CHAIRPERSON BAILEY: Commissioner Balch?

CROSS-EXAMINATION

BY COMMISSIONER BALCH:

Q. Your nearby wells, are they --

A. Sorry?

Q. Are your nearby wells thermal or cold water for irrigation?

A. It's cold water. Down in the Animas, just to

the west of us, they've got some that's a little warmer, you know, like 80 degrees or something like that, but it's not what we consider geothermal. It was good to go take a swim in and --

Q. Thank you, Mr. Massey.

CHAIRPERSON BAILEY: You may be excused.

MR. MASSEY: Thank you. And thank you for allowing.

CHAIRPERSON BAILEY: Sam Hagley?

MR. HAGLEY: I don't wish to be sworn in. Thank you.

CHAIRPERSON BAILEY: Please state your name.

MR. HAGLEY: My name is Sam Hagley. I own and operate PMW Farms in the Animas Valley. I'm here representing the three families that work and make a living on our farm.

We're very concerned with the new turn of events of Cyrq's application to use a well that is connected with our groundwater. In all the meetings I went to, along with them (indicating), we were always told that they were all going to be cased and sealed down to 3,000 feet, However depth -- whatever depth they pulled it from is where they were going to case and seal it back to. And so now this was a guarantee that they

gave everybody down there. Speaking for myself and my friends and my neighbors, at those public meetings, Cyrq swore they would protect the groundwater with sealed concrete wells. You know, water is our livelihood and the blood of our family, you know, blood of our valley. And that's all I really have to say.

Thank you.

CHAIRPERSON BAILEY: Thank you.

And those are all of the people who have signed up for public comment.

Let's take a lunch break and come back at 1:20.

(Break taken, 12:04 p.m. to 1:20 p.m.)

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 C. Hankins

MARY C. HANKINS, CCR, RPR
Paul Baca Court Reporters
New Mexico CCR No. 20
Date of CCR Expiration: 12/31/2013

d2237740-0ac1-407c-91cc-6b088429aad0