SUPERIOR COURT OF THE STATE OF CALIFORNIA

IN AND FOR THE COUNTY OF SANTA CRUZ

HONORABLE REBECCA CONNELLY, JUDGE

MARINA COAST WATER DISTRICT, Petitioner, vs. CALIFORNIA COASTAL COMMISSION, et al, Respondent.	No. CV180839

TRANSCRIPT OF PROCEEDINGS

Courthouse, Santa Cruz, California

May 1, 2015

APPEARANCES:

For the Petitioner:	Howard F. Wilkins, III, Esq. Chris Stiles, Esq.
For Ag Land Trust:	Alison N. Norton, Esq.
For the Respondents California Coastal Commission:	Joel S. Jacobs Deputy Attorney General
For the Real Party in Interest Cal-Am:	Winston Stromberg, Esq. Christopher W. Garrett, Esq. Anthony Lombardo, Esq.
Official Pro-Tem Reporter:	Lisa A. York Meeske, CSR No. 10617

Thank you for your testimony. I appreciate it.

THE WITNESS: You're welcome.

THE COURT: All right. Okay. So then I am going to shift to the testimony of Mr. Williams that you indicated.

MR. GARRETT: Yes. I'd like to call Mr. Dennis Williams to the stand.

THE COURT: Okay. Mr. Williams, if you could come forward please.

DENNIS WILLIAMS,

called as a witness on behalf of the Respondent, being sworn by the clerk to tell the truth, the whole truth, and nothing but the truth, answered and testified under oath as follows:

THE WITNESS: I do.

THE COURT: How's our court reporter doing?

I'm going to try to limit you to half hour. I'd, actually, like you to try to see what you could do in 25 minutes, so, if the California Coastal Commission wants to ask a question, they can have five minutes. And then we can have ten minutes.

MR. GARRETT: I'll try to beat that, Your Honor.

MR. JACOBS: Your Honor, I will not have any direct examination. So I'm happy to take whatever time you're willing to give to Mr. Garrett.

MR. GARRETT: This is my witness, and I will try to move things along. And, if that -- the Court can decide what form you want the questions. It's, obviously, going to be faster if I just ask him some basic questions and move through it.

THE COURT: I'd like you to expedite it, and, you know, please, no leading questions. In the interest of time, I'm going to allow some leading questions and some leeway.

So -- and, with respect to his expertise, perhaps, we could get a stipulation with respect to that.

MR. GARRETT: Would you agree, Mr. Wilkins, that he's an expert?

MR. WILKINS: I would, yes.

DIRECT EXAMINATION

BY MR. GARRETT:

Q. Mr. Williams, first of all could you tell us how you got involved with this area and the wells.

A. My involvement in this area started probably 2009, or earlier, with the -- well, my first involvement was with the Salinas Valley Integrated Regional Groundwater Surface Water Model Waterways consulting to Monterey County Water Resources Agency as a peer reviewer of that model. So that's what we call the large scale model.

And then, when the regional project was involved with that, we developed what's called the North Marina model, which was a large scale model, and I have a slide we can show that later.

And then, more recently, the last few years have been involved with the Salinas Valley water project, where we developed a focused CEMEX model.

Q. And so who are you working for now? Who is your company working for at this point?

A. Yeah. I'm founder president of Geoscience. We have two contracts. One's with ESA, who is contracted with the PUC; and the second contract is with RBF, who is contracted with Cal-American.

THE COURT: With whom?

THE WITNESS: Cal-Am.

The first could on contract with PUC we'll be doing all of the groundwater remodeling work for the EIR, and the second contract with RBF and Cal-Am has to do with the design and the supervision of construction in monitoring the test well.

BY MR. GARRETT:

Q. And, Mr. Williams, was your company involved with any groundwater modeling that was used by the City of Marina in its preparation of the environmental documents for the test well?

A. We didn't do any work for the City of Marina, but we included in our groundwater model in scenarios some of their proposed desalination -- test wells for desalination wells. They're part of our model scenarios the EIR.

Q. I want to ask you first about the same slide figure nine here. Can you, first of all, briefly tell me what it is.

A. This is a slide of the five-day pumping test of the test lab well, which started April 3rd and continued to April 8.

What I plotted here was the water level drawdown, which is the change from a non-pumping level. When I have this note that it's stabilized, you see these slight wavy things. We were having trouble with the valve controlling the flow. For some reason, there was turbulence. So the fluctuation in the lower part of the chart shows the discharge rate. On average, it was like 2,004 gallons per minute for the five-day test; however, you can see -- because of this valving issue, we were having with turbulence, you can see it goes up and down.

Q. So let me just interrupt you.

So this area here, that was important to the prior witness, can you explain what you know about this; what happened there.

A. Can I touch the screen?

THE COURT: Yeah. You can use the touchscreen, and the arrow should just come right up.

THE WITNESS: Very good.

So you see this last -- these last little blips up here. There (indicating). They were, actually -- you see the discharge spiked up, then it went back down. There is a slight lag in there, because this is a -- this aquifer -- this well is producing from two aquifers. So it's producing from both.

But, essentially, the slight blips in the drawdown are due to the fluctuations in the discharge rate due to the valve issue.

But, on average, you can see that it's a nice smooth, and it's flattened out. So, in my opinion, it's reached a restabilization after about three days.

So you can't really say that this is -- when wells turn on, the cone of depression expands enough until it gets enough to recharge the well. And so, during that time, if it's drawing down, and then it gradually smooth out. And that's exactly what we see here.

BY MR. GARRETT:

Q. So you would disagree with Mr. Hopkins and conclude that the well has reached equilibrium at the end of the five days?

A. That's true.

Mr. Hopkins mistakenly interpreted this slope of the graph as different than this slope, and he said that that was a boundary effect, which is not true. This actually shows that it's receiving enough recharge to support the discharge (indicating). So it's hitting a recharge boundary. And we know that a lot of it's coming from the ocean.

Q. If the well has reached equilibrium, would you expect to see changes in water levels after that point?

A. No. They're, generally, stable like it shows here.

Q. And what affect did Mr. Hopkins use of a log-rhythmic or semi-log-rhythmic scale have upon the slopes and curves that he was showing on his slides?

A. Well, it's just a different way of plotting it. We plot it both ways. Sometimes it's easier to understand when you use a linear scale like we did here.

But he took the slope from this early time period here, and he said that that's a different slope than this, which it is, but it doesn't mean that there's any kind of boundary flow.

Q. So did this slope that he presented, which seemed to be a continuous downward slope for eight months,

was that an accurate depiction of what you believe will happen from the operation -- continued operation of the test well?

A. No.

He misinterpreted the last few points in his semi-log plot, and those were the points that were drawn down by this spike in the discharge due to the valve fluctuating.

Q. In the interest of time, I want to move to figure eight. And, first of all, Mr. Williams could you tell me what this depicts.

A. This is the drawdown at the end of the five-day test, and we have three sets of control points. Control points are what we use to draw the lines. These are actual measured data. And it's hard to see, but, near monitoring well one -- and I plotted this shallow water levels, because those were the highest drawdowns rather than the middle, just to show worse-case scenario.

Q. So the prior slide we saw before were showing results from monitoring well, the test well itself?

A. Yes, the test well itself.

Q. Okay.

A. These are drawn downs in the aquifer.

Q. Okay.

A. And so you can see here right near monitoring well one shallow, we have about eight and a half feet, and then, in here, we have measurement of one and a half feet. And then our next control point is out monitoring well four, which is the compliance point for this coastal development permit, and there was zero there (indicating).

So what we did is: We used those control points, and then, based on the analysis of the pumping test data where we could determine actual parameters, we calculated these other contours, and they're reasonable. So we had this one and a half, we have we had zero here, we had eight and a half here.

And one question -- you know, in slant wells, because they're -- they are not points in the ground. The drawdown distribution is ellipsoidal around the slant well screens. You see here the slant well screen, the vertical projection is shown by these dashed lines (indicating). So it's ellipsoidal. So this accurately depicts my opinion what the drawdown is at the end of the five-day test.

Q. If the test well has reached equilibrium, would you expect the numbers depicted on figure eight to change or stay the same?

A. No. If it's reached equilibrium they won't

change.

Q. Let's go to figure 17.

So, Mr. Williams, can you briefly tell the Court what this figure depicts.

A. This figure is a model prediction, actually, before we started pumping -- before we did the test well, I should say. And it shows the slant well, the dash lines of the screen, vertical projection of the screen, underlying the land and the ocean. And these are what we call backward particle tracking showing the source of water to the test slant well. You can see, by looking at these arrows here, they're all -- most of them are coming from the ocean (indicating).

Q. So this was a prediction from the groundwater well that you created several years ago; right?

A. The groundwater model, yeah, the focused model.

Q. Did you see anything in the results so far from the test well that would contradict this model?

A. No, I haven't.

Q. So do you agree or disagree with Mr. Hopkins when he says that the results from the test well show are inconsistent with the model?

A. No, I disagree with that. They're close.

Of course, the normal procedure is, in any of these projects -- and what we did at Dana Point for -- ten years ago for the Doheney (phonetic) first test well. We did the borings on the beach, then we drilled the test well, and we pumped it for two years. And, during that time, we developed parameters and updated and refined our groundwater model, so then we would accurately, more accurately, predict the inland impacts. That's the procedure we followed then. That's the procedure we're following now.

So we will take the data from the testing and refine the groundwater model and predict impacts.

Q. So, by my calculation, I have about five minutes here to stay true to my time estimate. I'd like to move to figure 12, please.

THE COURT: I think you have a few minutes.

MR. GARRETT: I'm going to leave some time for your questions.

THE WITNESS: This figure, seawater intrusion occurs because, if you look at this one well, it's probably easier to see. This one's bigger. This would be the ocean over here, and you have this -- what's called an interface. There's salt water over here on the left. Fresh water here (indicating). Seawater is heavier than fresh water. There's a density difference.

But there's a principle called a Ghyben Herzberg principle that says, one foot of fresh water above sea level will stabilize 40 feet below sea level.

So, when Mr. Hopkins said the protected elevation is two and a half feet, he was dividing a hundred feet into the dune sand by 40. He got two and a half.

BY MR. GARRETT:

Q. When Mr. Hopkins said that, prior to the operation of test well, the dune sand layer in the 180-foot aquifer levels were above the protective level, protected elevation, you're saying Mr. Hopkins' testimony was incorrect?

A. Yes.

MR. WILKINS: Objection; misstates prior testimony.

THE COURT: I'm sorry. I didn't hear what was the objection.

MR. WILKINS: Objection; misstates prior testimony.

THE COURT: All right. Overruled.

THE WITNESS: The calculation was correct. A hundred divided by 40 is two and a half; however, if you look at where mean sea level is, which is down where this blue line is (indicating), all of our reference points are

what's called is NAVD88, North American Datum of 1998. So sea level is actually plus three feet of NAVD88. And you can see that the protected elevation for dune sand is plus five and a half. It's three plus two and a half. And then protective elevation for the 180 aquifer is nine feet.

Now, if you look at the actual water levels, you see that the shallow dune sand levels, even before pumping, were below their protective elevation, which said there was seawater intrusion occurring, and the same with the deeper one.

Now, this is supported by the water level quality, the poor water level quality, that we see in, both, the dune sand and the 180, as well as the 400-foot aquifer.

BY MR. GARRETT:

Q. Okay. I'd like to go to figure two.

THE COURT: Just, while we're looking at this figure, is that then -- how do you explain that they -- according to Mr. Hopkins, they found water that wasn't degraded that looked like it was fresh water?

THE WITNESS: Well, that's quite a ways inland. If you're looking at MW-5, that's two miles inland.

You know, it's incorrect to say that I have an elevation 35 feet two miles inland. Where you get

seawater intrusion is at the coast. That would be like saying, well, the water levels in King City and the Salinas Valley are very high. But why do we have seawater intrusion in Salinas is because the coastal pumping. That's the same thing we see here.

You have to look at the protected elevations at the coast, and those the ones that are important.

BY MR. GARRETT:

Q. So I have figure two up now. And, Mr. Williams, maybe you could indicate your prior testimony about the levels and the aquifers being below the protective levels in allowing seawater intrusion.

What area were you talking about when you --

A. Well, that was -- lots my arrow here.

THE COURT: So it's not a drag screen. It's a touchscreen. You should just be able to go immediately to the spot you want.

THE WITNESS: Thank you.

THE COURT: Yes.

THE WITNESS: This is the area of the test slant well. And those drawdowns that we had on that previous are all focused right in here, with MW-4 being zero (indicating). So they're quite localized.

Most of the water, in my opinion, is coming from the ocean. It's not extending out into other areas.

BY MR. GARRETT:

Q. In the testimony that Mr. Hopkins gave in his declarations about there being potable water, where did the data come from for that conclusion?

A. Well, he was talking about this well here, MW-5, which is almost two miles from this -- from the coast (indicating). And that's really not potable if you look at the actual -- the nitrates and TDS and everything. TDS is high, but it's within secondary standard. Probably the nitrate is above the maximum-contaminant level, due to the agricultural fertilizer and so on that's got in the soil.

Q. Where's the closest well on that map where people are using -- taking water from?

A. I'm not quite sure where the pumping wells are for potable supply.

Q. Can you, generally, indicate where the Marina Coast Water District --

A. These are Marina Coast wells down here. I think there's 7 and 12 are over in this case area (indicating). But they're several miles away.

And we also are, you know, going to have some more monitoring wells constructed here and some other areas here and here (indicating).

But the Marina Coast is down in this area

(indicating).

MR. GARRETT: So, before I run completely out of time, Your Honor, I would like to move the figures which Mr. Williams has discussed, and I've had referred to by number into evidence.

THE COURT: Only the ones he's discussed?

MR. GARRETT: Yes.

THE COURT: Do you have a copy of only those ones that you'd like to present to my clerk so it can be labeled?

MR. GARRETT: Yes. We can create that.

THE COURT: All right. Because there's other ones in the packet you gave me that you didn't discuss.

MR. GARRETT: That's right. I just want to be sure Mr. Wilkins didn't have any objections, because I would use my remaining time to lay a foundation for it.

MR. WILKINS: I will stipulate that the witness has laid a foundation for the documents.

THE COURT: All right. So the exhibits -- and we're going to call those, collectively, Defendant's A -- or do you have 1?

THE CLERK: Respondent's A as a group.

THE COURT: Respondent's A as a group.

And then I had a question about -- Mr. Hopkins testified that he showed a figure that was attached that

showed the water movement that he saw was coming from, say, the area where the MW-5 well is shown on what I'm seeing as figure two, which is Respondent's 1, figure two. And you were saying that the -- or he provided testimony that the water was moving towards the ocean, and there wasn't any recharge going on.

THE WITNESS: Yes, Your Honor. He said, MW-5, that the elevation in the dune sand was 30 feet, which it is, and there is a seaward flow of water; however, at the coast, the elevation drops below the protective elevations, actually, below sea level, close to. So, yeah, there is a seaward flow, a natural grading.

THE COURT: What -- so, because it's below that protected area, are you saying -- I think we can hear your phone buzzing, because it's up against -- I'm not sure. At least I can hear it.

Do you disagree with his opinion that no recharge is happening? That what's happening is that -- I understood his testimony to be that, in the area where MW-1, MW-3, and MW-4 is, since you were taking water out of there, the level of the water was dropping. There's no seawater recharging, and so the water was pulling fresh water, or whatever water, whatever mix of water was pulling from the area of -- designated as MW-5.

THE WITNESS: No, I disagree with that.

If I had that one slide showing the seawater intrusion control, it kind of illustrates what Your Honor was talking about.

MR. GARRETT: Figure 12?

THE COURT: Has that been admitted?

MR. GARRETT: Yes.

THE WITNESS: No. One more. It's the one -- that one.

MR. GARRETT: This one we did not use, Your Honor. It's background information on how you discuss seawater intrusion.

THE COURT: Would you --

MR. GARRETT: I'd like to offer it into evidence.

THE COURT: Okay.

MR. GARRETT: If it's relevant to his answer to your question, I don't see a problem.

THE COURT: All right. Then let's have it marked as Respondent's next in order.

THE WITNESS: Yeah. This is what's happening under the coast. The slant well is intercepting seawater and drawing high percentage of its recharge from the seawater. So you have these localized depressions close to the coast.

Now, there is a seaward flow, but most of the

recharge is coming from the ocean. So these, actually, intercept seawater, actually, preventing seawater intrusion, because they're pumping well troughs. It's like we have pumping injection well barriers along Southern California. We also have extraction troughs. And that's what these slant wells will do, they'll intercept seawater to protect the intercoastal access.

THE COURT: Was the seawater supposed to be recharging the well?

THE WITNESS: The seawater is. It's producing most of the water from the ocean. It's leaking to the sea floor and then offshore inflow from the subsurface aquifers, subsea aquifers.

MR. GARRETT: Maybe just to clarify, Your Honor.

BY MR. GARRETT:

Q. The purpose of this test slant well is to determine if it will be recharged by seawater; is that correct?

A. It's one of the things we're looking at. Two, what are the inland impacts? And, three, what is the percentage of water from ocean water sources?

THE COURT: Okay.

MR. GARRETT: One last question, Your Honor?

THE COURT: Okay.

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BY MR. GARRETT:

Q. Mr. Williams, based on the test results that you've seen so far, what do you think will happen in the next day 90 days to the groundwater in the area?

A. Well, I think there may be some slight propagation, but what we've seen from the five-day test, and then we started pumping the well again. We're nine days into it since the 22nd. We see the same trends. We see no change at four and the same slopes we see in the coastal wells, like MW-3 closest.

THE COURT: And, well four, that's where the -- it drops down below 1.5. There has to be -- then pumping has to stop?

THE WITNESS: That's correct.

THE COURT: All right. So I'm going to allow for cross-examination. I'd like you to try to limit it to ten minutes, but I'll try to be flexible.

CROSS-EXAMINATION

BY MR. WILKINS:

Q. So you were just referring to anyone days of additional data. Is that information publicly available that you're testifying about?

A. We will be putting out another monitor report next week. It will contain the data up through, I believe, today.

Q. Do you know why there wasn't a weekly monitoring report this week?

A. There was. There was. The one went out last week.

Q. I meant this week.

A. It will all be coming out, I think, Monday or Tuesday.

Q. If we could go to figure 12 if you don't mind.

In addition to the lines you have here, you also have hand measurements drawn out on this graph, it appears?

A. That's correct.

Q. And, at the beginning of your monitoring, can you tell me whether the dune sand aquifer was above the protective layer.

A. Well, based on the hand levels, the dune sand was. And --

THE COURT: And where are the hand levels?

THE WITNESS: Yes. It's kind of hard to see. But they're the little triangles. For example, the shallow is the triangle. So you see the triangle is slightly above protected elevation, and then, the hand levels, there's some variability. But, basically, the protective elevation, it's calculated. The actual levels

are at that or below that.

But, you know, forget all of these calculations. If you just look at the water quality, there is intrusion, historical intrusion. The cause -- you know, existing there. The shallow aquifer has a TDS of about 25,000 and the deeper aquifer has a --

MR. WILKINS: I'm good to object, because I have very limited amount of time. This is nonresponsive.

THE COURT: I'm going to allow him to finish his answer, and I'm not going on penalize you with respect to your time.

THE WITNESS: In the middle aquifer, which you can see is quite below the protective elevation, is very salty. It has a TDS of about 35,000.

So the evidence here just confirms what we've been seeing in our actual lab samples of these monitoring wells.

BY MR. WILKINS:

Q. Based on this graph, if you look at the hand level measurements for the dune sand aquifer, would you agree that, until there was the beginning of pumping at well, that it was at or very close to the protective layer?

A. Based on the calculation. But this is just one estimate.

THE COURT: And hold on. So, if you could just focus on responding to his answer. And you could use the touchscreen in front of you too. I'm assuming that it's right there starting where it says, "Start of five-day pumping."

MR. WILKINS: No. Because they were pumping before that.

THE COURT: So that's why it's helpful for you to show me where you're talking about.

MR. WILKINS: I apologize, Your Honor.

BY MR. WILKINS:

Q. So, when they started to do any pumping at the test well, would you agree that, prior to that, the hand-well measurements indicated that, in the dune sand aquifer, it was at or very close to a protective level?

A. Yes. If you look at that, it is, actually, below it here. Back in February, it was a little bit above it. But, here, again, this is just one estimate of -- we're assuming that the dune sand's a hundred feet. What if it's 80 feet or so on? You have to -- or maybe deeper.

But the thing is: You want to look at both of them. You want to look at the water level elevation to make sure it makes sense. But, most important, you want to look at the actual measured water quality, which is

what we're doing. And the water quality is very salty in the 180, and very salty, 25,000 parts per million in the dune sand.

Q. And --

A. Excuse me. It reflects historical intrusion.

Q. And you heard Mr. -- first off, have you reviewed the declarations that have been filed by Mr. Feeney and Mr. Hopkins in this matter?

A. Yes.

Q. And you've seen the testimony that there is a fresh water source that was not anticipated in any of the studies or reports that you have prepared on the project; is that correct?

A. Can you explain what a fresh water source is and where you're referring.

Q. I probably would need the prior exhibits. I would need to --

THE COURT: Aren't they exhibits to your -- Mr. Hopkins's declaration?

MR. WILKINS: To show him.

THE COURT: Here. You can use mine. I'll hand them to him.

What one do you want to hand him?

MR. WILKINS: I believe it's A-1 that I'm

referring to.

THE COURT: A-1 from his original or from the reply?

MR. WILKINS: No. I'm sorry. From his reply declaration.

THE COURT: All right. I have A -- this is Exhibit A figure 51. I don't know. I'm not sure. But you may have to stand up to make sure he's looking at the exhibit you want him to.

MR. WILKINS: I will do that.

THE COURT: Or we could switch back.

MR. WILKINS: If we could switch back I could definitely --

THE COURT: No. If you just stand up.

This is the original one. Is that the one?

MR. WILKINS: That one will work, yes, Your Honor.

THE COURT: Okay.

BY MR. WILKINS:

Q. Do you see where MW-5 is located?

A. I do.

Q. And would you agree that the -- I believe you've already testified the area there is not seawater intrusive to the level that it would be deemed contaminated by saltwater intrusion; correct?

A. I'm sorry. Could you rephrase that, please.

Q. Perhaps the -- what level of TDS would you deem to be contaminated by seawater intrusion?

A. Well, the criteria is 500 milligrams per liter of chloride levels, which is what this shows. These are -- MW-5 is not -- it's got brackish water in it. It's got poor water quality.

Q. It's your testimony that MW-5 has brackish water quality?

A. No. Well, it depends on what your definition of brackish.

But, if you look at the inset -- inset charts on here, you can see that the -- it's hard to see this. Yeah. It's about 2,500.

Q. In which aquifer?

A. That's the upper curve, which is --

Q. Can you tell --

A. It's hard to see what that is.

But I think the -- the deep; and then the middle aquifer is about 700, and then the shallow's about a thousand. So these are within secondary standards of total dissolved solids.

Q. For drinking water?

A. For drinking water, yes.

Q. So would you agree that this is a fresh groundwater source, as opposed to a contaminate seawater-intruded source of water?

A. Well, it reflects an increase in salts somewhere. It's getting it somewhere. It's not like, if you go farther inland, it gets fresher and fresher until you get around 400, 450. So it's receiving salts from something.

Q. Do you believe that this water is getting worser instead of better based on the efforts to reduce pumping at this place?

A. You mean due to the Salinas Valley water project?

Q. That, and Marina Coast efforts to curb pumping and all the other information and declarations that a lot of efforts have gone to reducing pumping in this area of the coast?

A. I know that's the intent. I haven't reviewed that to look at the changes in Marina Coast as to what they were doing, how they reduced it, and how the water quality changed. I didn't look at that.

Q. Do you believe, in fact, that there is water here that has lower -- significantly lower than contaminated seawater, TDS, offers protection to wells that are further inland?

A. Let me just maybe answer that in two parts.

First thing that there's a natural transition from salty water near the coast where the aquifers are intruded to fresh water inland. And what you're seeing here, MW-5 is quite a ways. It's almost two miles from the coast. So it is fresher just due to that. So you keep going farther east, it gets fresher still. So that -- that is just what happens. We see that all up and down the Salinas Valley.

Q. Do you know where, between MW-5 and the slant well, the water is no longer fresh or no longer within limits?

A. Well, it certainly isn't within -- within -- TDS certainly isn't within four. It certainly isn't within three or one. So there's no control force between that. We will be putting in some more monitoring wells. And that's the whole purposes of the monitoring, so we can understand what's going on.

Q. Do you think you have enough monitoring wells at this time to, actually, determine whether you're effecting all portions of the basin that may have fresh water in them?

A. Yes, all portions of the basin in this area.

Q. Did you review Mr. Feeney's criticism of

Mr. Hopkins that no one, I believe -- I will quote this for the record so I don't misstate it "Five-Day pumping test" -- stated, "The five-day pumping tests are insufficient to support Mr. Hopkins' opinion, or anybody else's opinion, because developing valve aquifer response data in this setting requires a longer-term testing of the slant well."

Do you agree with Mr. Feeney's statement?

A. Well, we purposely can't ever have enough data, and that's why we want to do the long-term test. And we will use the data from the long-term test to refine the groundwater model to make more accurate predictions of the future condition as it changes.

MR. WILKINS: If we can go to the exhibit where you show the three-day.

THE COURT: And so this is figure nine of Respondent's -- is it 1?

THE CLERK: A.

THE COURT: Respondent's A.

BY MR. WILKINS:

Q. You testified, I believe -- and I don't mean to misquote you if I do -- that there was some valve problem that led to some fluctuations that led Mr. Feeney to miscalculate the potential drawdown in the well; is that correct?

A. No. Mr. Hopkins you mean.

Q. I'm sorry. Mr. Hopkins.

A. Yes. You can see it clearly here, and that's why I had them plot these. You can see, at this point right here, that there is a drop in the water level and due to a spike in discharge. And it goes back down to where this recovers (indicating).

So, overall, when you're looking at these, you can't just be focused on one or two points, especially when you know you have some trouble regulating the flow.

I mean, it wasn't changing very much, but, overall, it did average about 2,000 -- a little over 2,000 gallons a minute.

But, if you just look at one or two points, it went down, like Mr. Hopkins did. It's really not fair to draw a slope of a line just based on those two points. You've got to look at the overall trends. And that's what we do. As a member of the HWG, this is what we have been doing. We've been closely communication, watching all this data.

Q. Is there any way that any member of the public or anyone trying to determine what was happening to this well would have known what -- that the valves were malfunctioning, as you described?

A. Any one of the public?

Q. Yeah.

The monitoring that's published as opposed to what's public; is that correct?

A. This is the way -- when wells are constructed and pumps are operating, you always have fluctuations. I mean, this is normal. This is just normal procedures.

Q. But the data that you're publishing doesn't allow anyone outside the hydrological working group to assess what you're describing here; isn't that correct?

A. The data's been made available every week.

Q. Is the data on the bottom of this graph report?

A. Yes. It's just chart rate. It's chart rate. This is available.

Q. And how would anyone know there was a valve malfunction, so to speak, that resulted in these changes?

A. I don't think it was reported in the monitoring reports, but it's certainly available on all of our field data sheets.

Q. And where are those published?

A. I'm not sure we put those on the site, but they're the ones that are tabulated.

Q. Mr. Hopkins used a log-rhythmic graph, and I believe you testified that that was not a valid -- did

you testify that was not a valid way to look at this?

A. No, I didn't say that.

I said we do it both ways. You use a log-rhythmic scale for a time when you're trying to do things, like analyze for aquifer tests and parameters, or you do a linear scale, like we did here. We do both ways. Sometimes one's easier to understand than another, because, for example, like Mr. Hopkins showed, at the last few points of this drop here were bunched up, and he interpreted that as a change in slope or used that for control for a change in slope, which wasn't really the case of what was happening.

Q. Mr. Hopkins testified he plugged in the data from your monitoring reports to calculate his graph. Do you believe that's a scientifically-valid way to calculate this information?

A. Well, I'm not sure what you're asking me.

But, yes, he used the data, which, if he had plotted a linear scale, he would have got exactly this.

Q. But why would this -- isn't it correct that a log-rhythmic graph shows both longer terms, and that's standard in the industry for trying to determine your drawdown over the longer period of time?

A. It depends on what you're trying to do. We use a log rhythmic, semi-log rhythmic, plots to determine

aquifer parameters, which we did public those in the baseline report for the HWG.

But sometimes, for illustrations, it's easier to understand this.

Q. You wouldn't use this to, actually -- this figure nine to, actually, assess whether there was equilibrium; isn't that correct?

A. Yes, I use this to say that the pumping level has stabilized.

Q. You could use just this particular graph and assess that the pumping level had reached stabilization? Is that what you're --

A. Yeah. I did this because I knew that we had fluctuations, and I didn't want to use a semi-log rhythmic like Mr. Hopkins did. And this kind of filters out that data. And you can see that, even though you had a little up and down due to the valve-control problem, that you do see, in general, the last two days of pumping was solid.

Q. What level, with certainty, do you have that the pumping stabilized after three days?

A. Well, based on this chart, I'm a hundred-percent certainty.

Q. And so this chart will be sufficient for you to give a hundred-percent certainty that the well has

reached a stabilized level after three days?

A. Between three days and five days, yes.

THE COURT: All right. And I've allowed you five extra minutes of your time.

MR. WILKINS: Can I confer with my witness for one --

THE COURT: You may.

Mr. Williams, could you give me your first name one more time.

THE WITNESS: Dennis Williams.

THE COURT: Thank you.

BY MR. WILKINS:

Q. Can I ask you to turn to figure eight of the technical memorandum, which I will -- I don't -- I believe this is in somebody's declaration somewhere, and I'll hand it to you.

THE COURT: It's here. I have it in --

MR. WILKINS: It's this one right here.

THE COURT: I have it here in the Ag Land Trust second request for judicial notice. Is that the Geotechnical?

MR. WILKINS: Yes.

THE COURT: And it is Exhibit A to the request for judicial notice.

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BY MR. WILKINS:

Q. I'll ask that first.

Have you seen this?

THE COURT: What page are you referring to?

MR. WILKINS: I'm referring to figure eight. Unfortunately, it's not paginated.

THE WITNESS: Yes, I have it.

THE COURT: Is it showing on this screen as well?

MR. WILKINS: It does appear to be what I'm looking at.

THE COURT: Excellent. Thank you.

BY MR. WILKINS:

Q. Can you describe for the Court very briefly what this is.

A. This is a semi-log rhythmic plot of monitoring well one, which is the closest well to the pumping well, and it shows the time drawdown distribution of this plot. And we do this because we are interested in the straight line of these portions of that.

Now, that -- this is not the pumping well drawdown, which was different, when I said the well stabilized. This well is not the pumping well. It is a monitoring well, and there's, actually, two monitoring wells shown here. There's the shallow and -- shallow in

the middle. Sorry. And, these wells, if -- the tests, the five-day tests, that's all that's plotted here.

Q. At the end of the five-day test, does this graph show a level of equilibrium at these monitoring well locations?

A. Actually, if you look closely at the end of the data -- but we're waiting on longer period of testing to validate that -- this kind of shows a flattening in slope right here (indicating), even on the semi-log chart, but we wanted longer data. So this may indicate a leakage effect. It's not unexpected that this monitoring well, the shallow monitoring well -- and the middle monitor well, may stabilized as we get more test data.

Q. So looking at MW-1. I see a diagonal line. Can you describe where you see a leveling off there.

A. Well, if you look at the shallow, which is the most permeable zone, you see at the end there -- it's kind of up and down a little bit. But the very end -- and this is why sometimes it's useful to use, not only semi-log, because a difference between these last two points is, you know, like a whole day or so. So you need to have longer -- more data, and that's what we're -- we're trying to get with this to see if that equilibrates also to indicate there's a recharge effect.

Q. Based on this graph, how certain are you

that the well has reached equilibrium?

A. I'm basing that on the pumping well.

This well is the monitoring well, and there's a lag time between stabilization. I don't know yet. That's what we're trying to learn about the aquifer, whether this gives a traditional S-shaped curve, which indicates leaky conditions. That's why the long-term test is very important. Because these are parameters that we get from this information, then we put into our groundwater models, and then refine the models and make predictions of potential impacts.

THE COURT: Okay. And thank you.

So thank you for your testimony.

THE WITNESS: You're welcome.

THE COURT: All right. Then Court is going to find that it has heard sufficient evidence from the parties or it's exceeded the time limit within which I've set to hear the evidence.

And I don't need any further argument based upon the evidence that I've seen.

I appreciate that -- I appreciate that the parties have brought live testimony.

I'm concerned about the public interest that would be implicated if the Court was concerned that the evidence established that the use of the slant well was