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BEFORE THE ENVIRONMENTAL QUALITY COUNCIL
OF THE STATE OF WYOMING

IN THE MATTER OF THE APPEAL OF POWDER RIVER COUNCIL, AND WILLIAM F. WEST RANCH, LLC FROM WYPDES PERMIT NO. WY0094056	))))))	DOCKET NO. 09-3807

RESPONDENT STEPHEN ENERGY COMPANY LLC'S MOTION TO STRIKE TESTIMONY OF GINGER PAIGE, PHD

I. INTRODUCTION

On March 23, 1999, the United States Supreme Court decided *Kumbo Tire Co. v. Carmichael*, 119 S.Ct. 1167 (1999), the third in a series of cases dealing with the admissibility of expert testimony. The trilogy of cases began in 1993 with the seminal case of *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), a toxic tort case in which the Court promulgated a new test for the admissibility of scientific evidence. The second case in the series was *General Electric Co. v. Joinder*, 522 U.S. 136 (1997), which likewise dealt with the admissibility of scientific evidence in the context of a toxic tort suit. Even before the third case

in the trilogy was decided by the United States Supreme Court, the Wyoming Supreme Court moved to adopt the *Daubert* standards for all cases pending in Wyoming courts. *Bunting v. Jamieson,* 984 P.2d 467 (1999). There is no reason why these same standards should not be applied in administrative proceedings in Wyoming.[1]

Daubert set forth some major themes that ran through the trilogy. The Court made it crystal clear that the trial court (or here, administrative adjudicative body), is the "gatekeeper" that must screen proffered scientific testimony. The objective of this gatekeeping function is to ensure that what is admitted "is not only relevant, but reliable." *Daubert,* 509 U.S. at 589. As such, relevance as well as reliability must be examined before scientific evidence can be admitted. The gatekeeper must work to ensure that self-anointed "experts" whose views are either not supported or not accepted in the scientific community are not allowed upset the balance of fairness in the courtroom.

With regard to *relevancy,* the Court explained that expert testimony cannot assist the trier of fact unless the expert's theory is tied sufficient to the facts of the case. Dubbed the "helpfulness" standard, a valid scientific connection to the pertinent inquiry is a precondition to admissibility. *Id.* at 591-92.

To determine whether the testimony satisfies the *reliability* standard, the gatekeeper must ascertain whether the proffered testimony is "ground[ed] in the methods and procedures of science." *Id.* at 590. In other words, the theory must be tested and have been subjected to peer review or publication, and the existence of known or potential error rates and standards controlling the inquiry having been established and tested. *Id.* at 593-94. As to both the

[1] Chapter II, Section 14 of the DEQ General Rules of Practice and Procedure makes the Wyoming Rules of Civil Procedure generally applicable to matters before the Environmental Quality Council.

relevancy and reliability standards, the Wyoming Supreme Court has made clear that the *Daubert* standards apply with equal force in Wyoming.

The Petitioners in this case have named Ginger Paige as their expert witness. Dr. Paige, however, has neglected to performed **any** analysis pertaining to the facts of this case and the pertinent inquiry, has not done **any** investigation of her own, and cannot show **any** verifiable scientific evidence to support her opinions. As such, she cannot be allowed to testify under the standards the Wyoming Supreme Court has adopted for the admissibility of expert testimony and under the standards set by the Wyoming Administrative Procedures Act.

II. THE EXPERT OPINIONS SOUGHT TO BE OFFERED IN THIS CASE

A. The Expert Report Does Not Apply To The Facts Of This Case

The issue to be resolved in this matter is whether the full containment reservoirs authorized in the Stephens Permit pose a threat to the West Ranch irrigated lands. However, Petitioners' expert, Ginger Paige, offers nothing at all related to *full containment reservoirs.* She challenges DEQ's Tier II methodology in establishing EC limits, relying upon the report of Hendrickx and Buchanan for her opinions. But the Hendrickx and Buchanan report said absolutely **nothing** relating to full containment reservoirs, as Dr. Paige concedes:

> Q: A couple of quick questions on the Hendrickx Buchanan report. Would you agree that this report did not address the issue or the full containment of reservoirs but only the direct discharge of waters into the ephemeral streams or tributaries?
>
> A: I believe it was actually addressing discharge on surface water, and not containment or full containment.
>
> Q: It did not address full containment?
>
> A: Correct.

G. Paige Depo. at 25 (Exhibit A)

B. Dr. Paige Did No Investigation To Support Expert Opinions

Dr. Paige does not know even the first thing about the lands at issue in this case or the full containment reservoirs. In short, Dr. Paige has done no work to support any theory that the Stephens impoundments could pose a threat to the Wests' property. Dr. Paige testified in her deposition as follows:

> Q: Do you know what type of crops the Wests have on the ranch?
>
> A: No, I do not.
>
> Q: Do you know where the outfalls in this contested permit are in relationship to the Wests' property?
>
> A: No. My understanding is that they're up, upstream, up in the watershed.
>
> Q: Okay. And are you aware that there are discharges contained in reservoirs in this permit?
>
> A: I am. Are they lined water—lined containment or unlined?
>
> Q: They're unlined.
>
> A: So I don't know if that's fully contained.

G. Paige Depo. at 16-17. Dr. Paige also testified that she had done no field work as relating to the permit:

> Q: As relates to the permit, you said that you skimmed it. Have you ever visited the three impoundments that are authorized in that permit?
>
> A: I have not visited the impoundments, no.
>
> Q: Have you ever tested the soils or water in relation to those three impoundments?
>
> A: I have not.
>
> Q: As relates to those three impoundments, are you aware of any evidence of any breaches, leaks, seeps, or any water leaving those impoundments?

A: No, I'm not.

G. Paige Dep. at 20.

III. ARGUMENT

A. Dr. Paige Did No Investigation To Support Expert Opinions

Section 108(a) of the Wyoming Administrative Procedure Act (WAPA) provides that, in contested cases, irrelevant and immaterial evidence shall be excluded. Wyo. Stat. § 16-3-108(a). As to the reliability of evidence, Section 108(a) of the WAPA provides that evidence admitted in administrative proceedings must be "the type of evidence commonly relied upon by reasonably prudent men in the conduct of their serious affairs." These standards dovetail with the gatekeeping function expressed in *Daubert* (as adopted by the Wyoming Supreme Court) that any and all scientific testimony must not only be relevant, but reliable.

In her deposition, Dr. Paige did not know (1) what types of crops the Wests have growing; (2) where the reservoirs are in relation to the Wests' property; (3) what kind of reservoirs are at issue in the case; (4) the kind of soils or the quality of the water; or (5) whether the full containment reservoirs have ever leaked. (Deposition, G. Paige, at 16-17, 20). Without even the most rudimentary understanding of the facts of the case, Dr. Paige's testimony is not relevant.

Following the gatekeeping requirements, courts have consistently excluded experts because they did not independently collect and analyze data, but rather engaged in vague and conclusory statements that were not verifiable or reliable. *See e.g., Sunlight Saunas, Inc. v. Sundance Sauna, Inc.,* 427 F.Supp. 2d 1022, 1030 (D. Kan. 2006). Here, Dr. Paige has not independently analyzed any data. With no data or review of her own, she engages in broad,

vague, and conclusory statements. As such, her proffered testimony adds nothing to the case and should not be admitted.

B. The Expert Report Does not Apply To The Facts Of This Case

The Hendrickx and Buchanan report upon which Dr. Paige relies to challenge the Tier II methodology said **nothing** about full containment reservoirs. Yet full containment reservoirs are the only subject of the permit that the Petitioners challenge.

Under the *Daubert* standards relating to *relevancy,* expert testimony cannot assist the trier of fact unless the expert's theory is tied sufficient to the facts of the case. This is known as the "helpfulness" standard, or a consideration of "fit," i.e., fitting the facts of the case. The Court explained that expert testimony cannot assist the trier in resolving factual disputes unless the expert's theory is tied sufficiently to the facts of the case. In the words of the Supreme Court, the helpfulness standard "requires that a valid scientific connection to the pertinent inquiry is a precondition to admissibility." *Daubert, supra,* 509 U. S. at 591-92.

Here, Dr. Page fully admits that the report upon which she relies has nothing to do with full containment reservoirs (the subject of the permit and the subject of the challenge):

> Q: A couple of quick questions on the Hendrickx Buchanan report. Would you agree that this report did not address the issue or the full containment of reservoirs but only the direct discharge of waters into the ephemeral streams or tributaries?
>
> A: I believe it was actually addressing discharge on surface water, and not containment or full containment.
>
> Q: It did not address full containment?
>
> A: Correct.

G. Paige Dep. at 25; Ex. "A."

As to the *reliability* standard, the gatekeeper must ascertain whether the proffered testimony is "ground[ed] in the methods and procedures of science." *Daubert, supra,* at 594. In

other words, the theory must be tested and have been subjected to peer review or publication, and the existence of known or potential error rates and standards controlling the inquiry having been established and tested. *Id.* at 593-94.

Dr. Paige has done no scientific analysis, and therefore, cannot be grounded in the methods and procedures of science. Not only has Dr. Paige not done any analysis of her own for this appeal, the report she relies on is unreliable. As the court in *Dodge v. Cotter Corp.*, 328 F.3d 1212, 1222 (10th Cir. 2003), "[t]o be reliable under *Daubert*, an expert's scientific testimony must be based on scientific knowledge, which 'implies a grounding in the methods and procedures of science' based on actual knowledge, not 'subjective belief or unsupported speculation.'" (emphasis added).

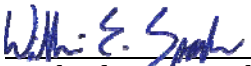
Given her unfamiliarity with the facts of the case, and having done no scientific inquiry, Dr. Paige, at most, is being offered by the Petitioners to share her personal views rather than an expert opinion. Anything she has to say is based not upon actual knowledge, but her subjective beliefs and unsupported speculation. Yet Petitioners wish to pass those subjective, personal views off as authoritative and as deriving from scientific analysis. Given the obligation to protect the integrity of the adjudicative process, Stephens ask that this body not allow the hearing process to be treated so casually.

IV. CONCLUSION

For the foregoing reasons, Stephens asks that the Environmental Quality Council enter an order barring the testimony of Dr. Ginger Paige in any way in these proceedings.

Dated this 9th day of February, 2010.

Respectfully submitted,



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Attorneys for Stephens Energy Company, LLC

CERTIFICATE OF SERVICE

I hereby certify that on this 9th day of February, 2010, I sent a copy of the foregoing via electronic mail and overnight mail to:

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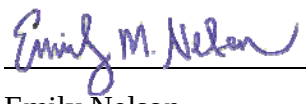

Emily Nelson

Exhibit A

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BEFORE THE ENVIRONMENTAL QUALITY COUNCIL

STATE OF WYOMING

Docket No. 09-3807

IN THE MATTER OF THE APPEAL OF POWDER RIVER BASIN RESOURCES COUNCIL, AND WILLIAM F. WEST RANCH, LLC, FROM WYPDES PERMIT NO. WY0094056

DEPOSITION OF GINGER PAIGE, Ph.D.
Wednesday, January 20, 2010
10:03 a.m.

Taken in behalf of the Respondent, pursuant to Notice, and in accordance with the Wyoming Rules of Civil Procedure, at the offices of UW Office Annex, 406 South 21st Street, Laramie, Wyoming, before Merissa Racine, Registered Diplomate Reporter and Notary Public in and for the County of Laramie, State of Wyoming.

APPEARANCES

For the Petitioner: DAVIS & CANNON
422 West 26th Street
Cheyenne WY 82001
BY: MS. KATE FOX

For Stevens Energy: BEATTY & WOZNIAK
216 Sixteenth Street
Suite 1100
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BY: MR. WILLIAM E. SPARKS

For the Respondent: MR. LUKE ESCH
Assistant Attorney General
123 Capitol Bldg.
Cheyenne, WY 82002

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P R O C E E D I N G S

GINGER PAIGE, Ph.D.,

having been first duly sworn, was examined and testified as follows, to-wit:

EXAMINATION

BY MR. ESCH:

Q. Could you identify yourself for the record, please.

A. Dr. Ginger Paige.

Q. And where are you employed?

A. University of Wyoming.

Q. And how long have you been employed there?

A. Since October of 2004.

Q. Have you ever been deposed before?

A. Yes, I have.

Q. So you're aware that if you don't understand my questions you can ask me to repeat it or rephrase it, and we can do so?

A. Yes.

Q. Could you please describe your educational background.

A. Yes. I have a Bachelor's degree in political science from the Colorado College. I have a Master's of Science degree in soils physics from the University of Massachusetts, and I have a Ph.D. in watershed hydrology management from the University of Arizona.

Q. How long have you been employed at the University of Wyoming?

A. Since October of -- well, actually since August of 2004.

Q. Do you instruct classes at UW?

A. No, not usually.

Q. What percentage of your work would be research and what percentage -- well, I guess, would be teaching?

A. Well, it's not teaching, it's actually extension.

Q. Okay.

A. Thirty percent of my appointment is research, 60 percent of my appointment is extension.

Q. Have you ever been retained as an expert for any case in front of the Environmental Quality Council before?

A. Yes, but under subpoena.

Q. Subpoena. What case was that?

A. This is a good question. It was the Pumpkin Creek case.

Q. Have you ever testified in front of the EQC in any rulemaking?

A. Yes, I have.

Q. And which rulemakings?

A. The Tier 2 evaluation, evaluation of the Tier 2 methodology. I've appeared under that. I actually appeared once briefly under the beneficial use case before them.

Q. Was it a rulemaking, or was it a case?

A. I guess -- That's a good question. I do not know. That's legal stuff.

Q. All right. I'm going to hand you a document, and I want you to tell me if you've seen that before?

A. Yes.

Q. This is the Notice of Deposition that I sent you; is that correct?

A. This is correct.

Q. And it says that, "Respondent DEQ requests that the deponent bring all documents and any other materials referenced or relied upon for the analysis, conclusions or opinions in or relating to her expert report and her expected testimony at the hearing in this case."

Did you do so in this -- today?

A. For the most part. I'm missing one book.

Q. Okay. I'll mark that as Deposition Exhibit 1. And I also have a second page.

(Thereupon Deposition 1 was marked.)

A. A student has my other book, but -- the book that's cited, and I brought a copy of the evaluation of the Tier 2 method that was done by the expert, and

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those, I believe, are the things that I cited.
Q. I don't know if you might have already done this, but could you identify for me the book that you didn't bring.
A. It's by CW Rose. Title is -- I don't think of these things by title. It's the Rose 2004 book. There's my expert scientific opinion. Yeah, it's Introduction to the Environmental Physics of Soil, Water and Watersheds, was the other book that I used and cited.
Q. Introduction to Environmental Physics?
A. Of Soil, Water and Watersheds.
MS. FOX: It's in her report, Luke.
MR. ESCH: It is.
A. It is. I have the full citation there.
Q. (By Mr. Esch) Well, thank you. Okay. Well, let's get to the expert report. I'm going to hand you a copy of what I understand to be your expert report.
A. See, this would have saved me the trouble of looking it up. Yes.
Q. Would you agree that's an accurate copy of your expert report in this case?
A. Yes.
Q. You can take your time. I'll go ahead and offer this as Deposition Exhibit 2.

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(Thereupon Deposition Exhibit 2 was marked.)
Q. So who retained you in this matter to provide this expert report?
A. Davis & Cannon.
Q. What did they provide you with to review in preparation for your report?
A. Let's see. They sent me a letter requesting that I respond to two questions regarding the permit. They did send me a copy of the permit. They also sent me copies of the Tier 2 evaluation.
Q. Tier 2 evaluation. Could you be a little more specific?
A. I believe it's the -- Oh, no, I can't, 'cause I didn't actually pay much attention to it. It's the evaluation of the background soil and water quality at the West Ranch.
Q. The Tier 2 2006 --
A. Evaluation, the 2006 evaluation.
Q. That was performed by Devon, as you understand it?
A. As I understand it.
Q. Just want to make sure we have the right one. Does your report contain all your opinions on the contested permit?
A. No. My report contains specific answers to the

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questions I was asked.
Q. Okay. What opinions are not contained in your report that you intend to offer to the council?
A. None.
Q. None. So your opinions are confined to your report?
A. Correct.
Q. Okay. I'd like to ask you a few questions now about some of the statements in your report.
A. Okay.
Q. So going through your report, as I understand it, you disagree with the way the methods were developed to arrive at these limits; is that correct?
A. Correct.
Q. Okay. So I refer you to page 1 of your report. It says, "In general, effluent limits established for WYPDES 0094056 have not been determined using a method that results in scientifically defensible or reasonable limits for EC of discharge waters that are protective of agricultural uses."
Could you explain a little bit to me about this statement, what are your bases for this statement?
A. My bases for the statement are that the effluent limits for EC were determined using Tier 2 methodology, sampling the soils within the area, and using the EC of

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the soils to determine background EC limit for the waters.
Q. Okay. And you rely heavily on the findings of Hendrickx and Buchanan for this determination?
A. Yes, as well as my own knowledge in this area.
Q. Okay.
A. I actually made statements to the EQC that this was not a scientifically defensible method before the report came out.
Q. So why is it not scientifically defensible?
A. There's no way to actually determine background water quality from soil samples of EC. It's just -- It's not possible.
Q. Could you explain a little to me about it?
A. Soil physics?
Q. All right.
A. So when water moves through the soils it has a charge, right, polarity. And it actually will pick up minerals and dissolved salts from the soils. So it will actually, depending on the soils and mineralogy of the soils, will actually change in terms of its chemical composition as it moves through the soils. So it's very common, especially in semi arid climates, for water to pick up salts from soil as it moves through. And these salts will end up moving within the soil profile with

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the wetting front. So that means as water infiltrates into the soil, moves down through the soil profile picking up salts, salts will move usually with the wetting front, with the highest sort of water concentration.

Q. Is that what you mean, wetting front?

A. Wetting front.

Q. Okay.

A. And it's also the front part, if you picture a column of water just moving through soil, wetting front is that first part of the water as it moves through, if it's a dry soil.

Q. Okay.

A. So the salts will move with the water, and so if it -- you only have a certain amount of water, it might move maybe, oh, anywhere from 5 centimeters to 30 centimeters into the soil profile, depending upon the amount of water that's applied, or rainfall application or irrigation.

And then when water stops moving into the soil, it's subjected to evapotranspiration forces, and will move up, so you'll actually see water then moving up and down within the soil profile, moving salts within the soil profile, soluble salts.

Q. Okay.

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A. So it's a dynamic process. And this happens with natural rainwater, water that doesn't have high EC or SAR; you see the same phenomena occurring. So you will end up, in a climate like this, a semi arid climate like Wyoming, Arizona, with salts building up in the soil profile. It's a natural occurrence even under very good water -- water quality applications.

Q. So just the natural occurrence in nature, soils will build up in soil profiles?

A. Depending on where you are in a watershed, where you are in the soil, the soil texture, depth to water, where you are in the season, --

Q. Well --

A. -- many factors.

Q. I apologize.

A. But, yes.

Q. You refer to it being a natural phenomena --

A. Correct.

Q. -- and happens. So in an ephemeral drainage, not in Wyoming, but in a semi arid climate it's possible these soils would salinize naturally?

A. Or build up salts, not necessarily become salinized, which -- but will actually end up with layers with salt accumulation, calcic horizon, pedocalcic horizon. It's very common.

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Q. For my benefit what's a calcic horizon?

A. Calcium carbonate dominating the soil horizon.

Q. All right. And I did see in your report that you refer to the Hendrickx Buchanan report, the May 2009 report. I'd like to ask you a few questions about that report.

A. Okay.

Q. Do you have that in front of you?

A. I do.

Q. Well, I made a copy for you just in case.

A. Okay.

Q. And go ahead and offer this one as Deposition Exhibit 3.

(Thereupon Deposition Exhibit 3 was marked.)

MS. FOX: Do you have another one, Luke?

MR. ESCH: I got another one, but I just didn't have a stapler.

MS. FOX: I can take care of that. Thank you.

Q. (By Mr. Esch) I'm going to ask you a few questions about this report, and basically I'm going to pull some sentences, some phrases out of this report, and ask if you agree or disagree with those statements.

A. All right.

Q. I refer you to page 10. And in the first

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paragraph it says, the sentence begins, "On the Contrary, pre-existing background water quality appears to be a minor factor or none at all."

Would you agree with that statement? And you can read the whole paragraph to provide context.

MS. FOX: I'm going to object to the form of that question as being vague.

(Brief pause.)

A. Does that mean I still answer?

MS. FOX: Yeah.

A. Sorry. It is vague. I find it to be a factor. In this case I think they're talking about the fact that it's one of many. That doesn't mean that applying water of bad quality is good, but it means that there's many other factors besides the background water quality that have to be taken into account.

Q. (By Mr. Esch) Okay. And same, similar question, in the second paragraph, says, "The Tier 2 assumption is scientifically flawed for several reasons. Effluent water quality that is better than preexisting background water quality could still cause severe soil salinity." And do you agree with that statement?

A. Yes. In a certain context. Not without caveats thrown in.

Q. Please go ahead and describe some of the caveats

for me.
A. It's the same thing as why we don't drink distilled water, because drinking distilled water, one has the feeling that it would be great. But what it does is it leaches you more -- leaches all the minerals out of you more than actually replenishing you. So that's the reason that when you buy sort of treated water in a grocery store, they've actually added minerals back into the water, not only because it tastes better, because it decreases the leaching potential of water. So in that context it's very important to know what's going on.
And also I think the context that they're talking about is that it is a complex interaction. So it really depends on soil profile, the amount of water, the chemical composition of the soil, cation exchange capacity of the soil, the amount of sodium, the amount of magnesium will all influence this, but it is true.
Q. Okay.
A. But it has to be viewed within the context of what -- It doesn't mean that all of a sudden bad water is much better, bad quality water. It just means, oh, you have to do it in site specific, application specific.
Q. So it's definitely site specific, there's a lot

of factors involved?
A. Yeah.
Q. Okay. So --
A. And I also believe it to be sort of a minor caveat.
Q. Could you explain that, a minor caveat?
A. Meaning that in some cases it's true that, you know, applying water with a different chemical composition might infiltrate better, but that's probably not the norm. It's probably the exception, but it's good to know.
Q. So these are very site specific conditions, a lot of factors taken?
A. Yeah.
Q. Okay. Let's go to the next statement then the "effluent water quality that is worse than the preexisting background quality may be used beneficially on artificially irrigated lands." Do you agree with that statement?
A. Again, it depends on the situation specifically, as to whether it will be more beneficial or less.
Q. More managed situation?
A. Whether it's -- No. Whether it's beneficial will depend on the type of management, the type of application, how it's applied, where you are. But, yes,

I do agree.
Q. Okay. I refer you to page 22 of the same document. And the last paragraph of the page it says, "The use of Tier 1 can be continued since it's conservative and has been accepted by the community." Would you agree with that statement?
A. Oh, in general. I think there are also limitations with the Tier 1 method as it's being applied, but in general I find the method to set the limits to be much better in Tier 1 than they were in Tier 2.
Q. Okay. Would you agree with this statement: "A threshold EC value of 4 decimeters per meter in the root zone is acceptable for alfalfa in Wyoming"?
A. No.
Q. Is alfalfa a sensitive species for EC?
A. It is.
Q. Do you know what type of crops the Wests have on the ranch?
A. No, I do not.
Q. Do you know where the outfalls in this contested permit are in relationship to the Wests' property?
A. No. My understanding is that they're up, upstream, up in the watershed.
Q. Okay. And are you aware that there are

discharges contained in reservoirs in this permit?
A. I am. Are they lined water -- lined containment or unlined?
Q. They're unlined.
A. So I don't know if that's fully contained.
Q. Okay. Have you discussed this case with any of your colleagues?
A. No, I have not.
Q. Have you discussed the findings of the Hendrickx -- the 2009 May Hendrickx Buchanan report with any of your colleagues?
A. Oh, yes.
Q. Could you identify them for me?
A. Yes. Dr. Larry Munn, Dr. George Vance.
Q. Those are the -- your only colleagues that you've discussed this with?
A. Probably Dr. Ann Hild and Dr. Scott Miller.
Q. All right. Have you discussed this case with any members of the EQC?
A. No, I have not.
Q. Have you discussed this, the findings of the Hendrickx Buchanan May 2009 report with any members of the EQC?
A. Yes, I have.
Q. Who have you discussed it with?

A. Tim Flitner.
Q. Flitner. So, finally, does this report contain all of your opinions regarding the contested permit?
A. The -- Which report?
Q. Your expert report.
A. It actually contains my responses to the questions I was asked.
Q. So if you were called to testify at the hearing what else would you testify about?
A. I don't know.
Q. You don't have any expected testimony?
A. No, I do not.
Q. This is the opportunity I get to ask you about your opinions in this case, so I am trying to get an idea of what you would testify to so I can ask some questions about that.
A. Okay. Well, actually I was asked to -- for my expert opinion on two questions, and so I offered my expert -- I offered responses, expert question (sic).
Q. So you don't anticipate to testify to anything outside the scope of your expert report?
A. Not that I'm aware of. These are the questions I was asked to offer opinions on, and I did so.
MR. ESCH: All right. Well, that is all I have. Thank you.

A. Okay.
EXAMINATION
BY MR. SPARKS:
Q. Hi. My name is Bill Sparks. I represent Stevens Energy in this appeal. How did you go about preparing for this deposition?
A. Actually I didn't do a lot to prepare for this deposition. I reread my report that I had sent, and I reread the expert scientific opinion on the Tier 2 methodology last week so that I made sure that it was sort of forefront in my head.
Q. Did you review the permit prior to this deposition?
A. I did not.
Q. Prior to your expert report did you read the permit?
A. I glanced through it, but I did not study it.
Q. Prior to your expert report did you read the Section 20 compliance that Devon prepared?
A. I glanced through it. Again, I did not study it 'cause I was really just asked to -- for my expert opinion on two questions.
Q. So in that regard you did not assist in responding to discovery in this case either, you only answered those two questions?

A. Correct.
Q. As relates to the permit, you said that you skimmed it. Have you ever visited the three impoundments that are authorized in that permit?
A. I have not visited the impoundments, no.
Q. Have you ever tested soils or water in relation to those three impoundments?
A. I have not.
Q. Have you personally tested water or soil on that west property?
A. I have not.
Q. As relates to those three impoundments, are you aware of any evidence of any breaches, leaks, seeps or any water leaving those impoundments?
A. No, I'm not.
Q. Earlier you said that you -- Mr. Esch asked you a question about if you were aware that the impoundments were fully contained, and you -- what was your response to that again?
A. I asked if the impoundments were lined.
Q. And he advised that they were not?
A. Correct.
Q. And your response to that was?
A. Then they may not be fully contained.
Q. What do you mean by that, can you explain that?

If they're not lined then how does that equate to not fully contained?
A. Because water will actually infiltrate and leach from the bottom of some of these ponds.
Q. How far, how much? Do you have any --
A. It will actually depend on the surrounding soils, where they are in the watershed, the amount of water, the hydraulic pressure, pore size distribution in the soils, and the chemistry of the water.
Q. Do you know, have you ever -- Do you know any of those types of qualities for these soils or these waters?
A. Not specifically, no.
Q. So you cannot give an opinion on how much the water there will leach?
A. No, I cannot.
Q. Do you know how much water is discharged into the three impoundments?
A. No, I don't.
Q. You said that you had -- you take issue with the methodology that was used to establish the EC for this permit. Do you know what the EC for this permit is?
A. At one point I did. I don't recall.
Q. This is a copy of the permit. We can mark it as Exhibit 4.

MS. FOX: Could we go off the record for a second?
MR. SPARKS: Sure.
(Off the record discussion.)
MS. FOX: Can we not mark it again?
MR. SPARKS: That's fine. 2600; is that right, Luke?
MR. ESCH: 2680.
Q. (By Mr. Sparks) 2680, does that sound right?
MS. FOX: What page you looking at, Bill?
MR. ESCH: Bottom of page 2.
MR. SPARKS: 2680.
(Brief pause.)
MS. FOX: What was your question, Bill?
Q. (By Mr. Sparks) I was asking you if you knew what the EC limit was?
A. I didn't then, and I do now, I just read it.
Q. That's all I was asking. In your opinion is that limit too low?
A. Too low?
Q. Um-hum. Or is it too high?
A. I'm not at liberty to actually respond directly to the limit. I'm talking about the process of determining the limit.
Q. Okay. Would the limit matter if all water was

contained in the impoundment?
A. No. If you could prove that all the water was to be contained, no, it wouldn't matter.
Q. Do you have any evidence that for this area, water would go through the bottom of the impoundment, resurface 11 miles downstream?
A. Do I have any evidence that it will do that? Let's see. It's an interesting way to put it. I do not have direct evidence that it will, but probability is that it will if the soils are similar to other impoundments in the Powder River Basin.
Q. Can you explain how that process would work, how would it infiltrate into the soils and then resurface 11 miles away?
A. Water moves into the soil just based on pressure head and the fact that water has polarity and gravity acting on it, and the soils actually have what they call matrix potential. They actually pull water into them, they actually have charge. So that's how water moves into the soil. So if you put enough water on top of soil it will actually move in, unless it's treated to not infiltrate in. It's just what happens.
Q. Okay.
A. As to how it moves through the soil, a lot of our water in Wyoming moves not over the surface but

subsurface. This is how a lot of our base flow occurs within our drainage systems. Our snow melt will slowly melt into the soils, move through the soil system into our channels and streams and surface water. It's very common. And this moves by a mix of gravity flow and matrix, so it will move both vertically and horizontally, and it will move to the easiest route. So as water moves through, if it meets something that has sort of less infiltration capacity it will actually then move in the direction of least resistance, which is usually downstream. And if it's -- Common here is we have usually coarser texture soils above more infiltration limited soils, so water will often sort of -- sort of build up along that interface, and then move horizontally through the system. It's very common.
Q. Okay. But you've never done any research or sampling or other studies regarding the soils in this area of the Powder River Basin?
A. Not at this specific site, correct.
Q. So you have no opinion on how far, with what rate or other types of actions the water would move --
A. No.
Q. -- at this location?
A. You would have to measure the gradient and the potential.

Q. But you have not been asked to do that?
A. I have not.
Q. A couple of quick questions on the Hendrickx Buchanan report. Would you agree that this report did not address the issue or the full containment of reservoirs but only the direct discharge of waters into ephemeral streams or tributaries?
A. I believe it was actually addressing discharge on surface water, and not containment or full containment.
Q. It did not address full containment?
A. Correct.
Q. Just so I'm clear, other than water leaching through the soils, would it matter what the EC and SAR is in regards to water becoming surface water into a tributary?
A. Yes, if it can spill over the top. So there's two methods that water can -- discharge water cannot be contained, right? So there's leaching out of the bottom of the unlined pond or there's overflow. So it depends on how large the containment is, and what size storm it's been built for.
Q. So ignoring the possibility of leaching, --
A. Okay.
Q. -- and if water never escaped the impoundment, would it matter what the EC and SAR limits are?

A. If it never escaped there, no. You'd end up with a nice giant saline pond, but, no. Which everybody loves.
Q. And, again, you have no evidence that -- or no knowledge that my client, Stevens, has ever discharged water out of the impoundments?
A. I have no direct knowledge of that.
MR. SPARKS: I think that's all that I have.
EXAMINATION
BY MS. FOX:
Q. I do have a couple of questions for you. You have done no study in the Spotted Horse Creek. Have you done studies related to infiltration in other drainages in the Powder River Basin?
A. Not directly measuring infiltration, but I have looked at areas that have been subjected to CBM water in the Powder River Basin, and I have taken soil and water samples there.
Q. Then are you familiar, generally, with reservoir infiltration patterns in that area?
A. Not through direct measurements of mine but through measurements of my colleagues, yes.
Q. And is it your assumption that -- and do you think it's a valid assumption that a reservoir in the Powder River Basin is likely to result in infiltration

unless it's lined?
A. Yes.
Q. Also relating to this Spotted Horse drainage, do you have any knowledge about other reservoirs or other sources of water in that drainage, other than the three impoundments at issue in this permit?
A. No, I don't have knowledge.
Q. And if there were other sources of water, would you consider that as a factor in the possibility of infiltrated water making its way 11 miles downstream?
A. Oh, absolutely.
Q. Because of the cumulative effects?
A. Absolutely. And we've seen this in other drainages. SA Creek is a drainage where that's absolutely happened.
MS. FOX: That's all I have. Thanks.
MR. ESCH: Nothing further.
(Proceedings concluded 10:42 a.m.)

DEPONENT'S CERTIFICATE

I, GINGER PAIGE, Ph.D., do hereby certify that I have read the foregoing deposition, and that the foregoing transcript and accompanying amendment sheets, if any, constitute a true and complete transcript of my testimony.

_____
GINGER PAIGE, Ph.D. - Deponent

( ) No changes ( ) Changes attached

Subscribed and sworn to before me this _____ day of _____, 2010.

_____
Notary Public

My Commission Expires _____.

REPORTER'S CERTIFICATE
State of Wyoming)
: SS
County of Laramie)

I, Merissa Racine, Registered Diplomate Reporter and Notary Public in and for the First Judicial District, State of Wyoming, hereby certify that there came before me, as hereinbefore noted, GINGER PAIGE, Ph.D., who was by me duly sworn according to law to give testimony relative to the above-captioned cause; that said testimony and proceedings were reported in stenotype by me; that the foregoing 1 - 29 pages, inclusive, constitute a true, correct, and complete transcript of my stenographic notes as reduced to print by means of computer-aided transcription.
I further certify that I am not related to any party herein or their counsel and have no interest in the result of this litigation.
Dated this 21st day of January, 2010.

_____
MERISSA RACINE
Registered Diplomate Reporter

to Merissa Racine JAN 29 2010 cc: Luketsch Bill Sparks

DEPONENT'S CERTIFICATE

I, GINGER PAIGE, Ph.D., do hereby certify that I have read the foregoing deposition, and that the foregoing transcript and accompanying amendment sheets, if any, constitute a true and complete transcript of my testimony.

Ginger Paige

GINGER PAIGE, Ph.D. - Deponent

(X) No changes ( ) Changes attached

Subscribed and sworn to before me this 26th day of January, 2010.

Leah Marie Hanson

Notary Public

My Commission Expires July 1, 2010.

LEAH MARIE HANSON-NOTARY PUBLIC
County of Albany
State of Wyoming
My Commission Expires July 1, 2010