

UNIVERSITY OF WYOMING

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October 31, 2009

J. Mark Stewart
Davis and Cannon, LLP
422 W. 26th Street
P.O. Box 43
Cheyenne, WY 82003

Re: Expert opinion on Tier-2.

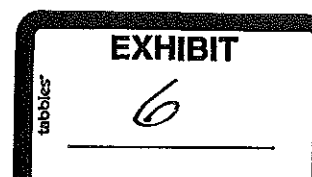
Dear Mr. Stewart:

This letter is a response to your engagement letter of October 27th, 2009. The law firm of Davis and Cannon, LLP is working for the Powder River Basin Resource Council and the William F. West Ranch in connection with the Appeal of WYPDES 0094056. In general, you have asked me to consult with you on the issue of whether the effluent limits established in WYPDES 0094056, under the Wyoming DEQ Tier 2 methodology are protective of irrigation uses. Specifically, you asked for my expert opinion on two questions:

- 1) Whether Tier 2 is an appropriate scientific method for establishing numeric effluent limits for EC and SAR that ensure no measurable decrease in crop production; and
- 2) Whether Tier 2 is a reasonable and scientifically valid method for determining EC of water that can be discharged to an intermittent or ephemeral drainage so that degradation of the receiving water will not be of such an extent as to cause a measurable decrease in crop production.

My responses are as follows:

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 agriculture uses. Wyoming DEQ established the effluent limits for the WYPDES 0094056 discharge permit using a procedure outlined in



their Agricultural Use Protection Policy. Chapter 1, Section 20 of the Wyoming Water Quality Standards prohibits degradation of waters to the extent that it would result in a 'measurable decrease in production.' The Agricultural Use Protection Policy allows for establishing effluent limits for salinity (ECw) and sodicity (SAR, sodium absorption ratio) equal to historic background water quality if the product water does not meet Tier-1 standards. The methodology used in Tier 2 is to sample soils in the area of question and "backout" or calculate historic water quality (specifically electrical conductivity –ECw) from the soil salinity (WY DEQ, 2008). This method was recently evaluated by Scientific Experts hired by the WY Environmental Quality Council (EQC) and found to be scientifically invalid (Hendrickx and Buchanan, 2009).

The movement of water and soluble salts in soils and ephemeral channels in semi-arid climates such as the Powder River Basin of Wyoming are very dynamic. The natural salinity that can be found in many of the soils is not a direct reflection or result of the quality of the water applied, but rather a reflection of the soil characteristics (e.g., texture and chemistry), the climate (high potential evapotranspiration potential), depth to ground water, and irrigation management (Hillel, 1998; Rose, 2004).

Response to Question 1:

The assumption in the applied method of Tier-2 of a consistent, direct relationship between soil salinity and background water quality does not exist. This in itself means that the Tier-2 methodology, as it is being applied, is scientifically invalid and can not be used to establish numeric effluent limits for EC and SAR that ensure no measurable decrease in crop production. There is no adjustment or calibration procedure possible that would make the Tier-2 methodology scientifically valid. As stated above, soil salinity in semi-arid regions changes with time and is not a direct reflection of the background water quality. Soil salinity is primarily a result of the soil characteristics, depth to ground water, climate and irrigation management (Hendrickx and Buchanan, 2009; Rose 2004; Hillel, 1998.) It is not a direct result of the background water quality that has been applied to an area, and can not be used to determine the quality of the water applied. This fact has also been presented to the Wyoming EQC in oral testimony by me, Dr. Larry C. Munn and Dr. George F. Vance on October 24, 2008. As stated in the report to the WY EQC, Expert Scientific Opinion on the Tier-2 Methodology (Hendrickx and Buchanan, 2009), no evidence has been found in the peer-reviewed scientific literature that will support the methodology of Tier 2 to accurately determine background water quality.

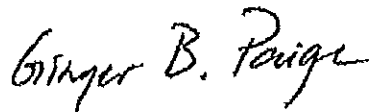
Response to Question 2:

The Tier 2 methodology will not support the establishment of scientifically defensible effluent limits for discharge permits that will not cause measurable decrease in crop production. Tier 2, as it is being applied, is simply scientifically invalid. This fact was well documented by Hendrickx and Buchanan (2009). The method does not provide a reasonable nor scientifically defensible method to determine the quality of the water (EC and SAR) that historically flowed within a given drainage system that will support the

establishment of limits for discharge permits in that drainage that will not cause a measurable decrease in crop production.

In addition to the responses to your questions above, I have attached a copy of my CV which includes my publications, a list of testimonies and depositions related to CBM water issues and a list of my extension activities over the last 5 years that includes CBM related activities.

Sincerely,



Ginger B. Paige, Ph.D.
Water Resources Extension Specialist

References Cited:

Hendrickx, J.M.H.; Buchanan, B.A. Expert Scientific Opinion on the Tier-2 Methodology; Report to the Wyoming Environmental Quality Council. May 2009. [<http://deq.state.wy.us/eqc/Docket/08-3101%20WQD,%20Chpt.%201,%20Sect.%2020,%20Ag%20Water%20Supply/Consultants%20Final%20Report.Chpt.%201-Sect.%2020.5-09.pdf>].

Hillel, D. 1998. Environmental Soil Physics, Academic Press, San Diego, CA.

Rose, C. 2004. An Introduction to the Environmental Physics of Soil, Water and Watersheds. Cambridge University Press, Cambridge, UK.

WY DEQ, 2008. Agriculture Use Protection Policy.
https://deq.state.wy.us/wqd/WYPDES_Permitting/WYPDES_cbm/downloads/Ag_Policy_Final_rev.pdf

BEFORE THE ENVIRONMENTAL QUALITY COUNCIL

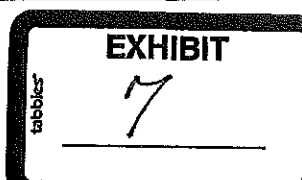
STATE OF WYOMING

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.



2

1 APPEARANCES
 2
 3 For the Petitioner: DAVIS & CANNON
 4 422 West 28th Street
 5 Cheyenne WY 82001
 6 BY: MS. KATE FOX
 7
 8 For Stevens Energy: BEATTY & WOZNAK
 9 218 Sixteenth Street
 10 Suite 1100
 11 Denver, CO 80202-5115
 12 BY: MR. WILLIAM E. SPARKS
 13
 14 For the Respondant: MR. LUKE ESCH
 15 Assistant Attorney General
 16 123 Capitol Bldg.
 17 Cheyenne, WY 82002
 18
 19 INDEX
 20 PAGE
 21 EXAMINATION OF GINGER PAIGE, Ph.D.:
 22 By Mr. Esch 3
 23 By Mr. Sparks 19
 24 By Ms. Fox 26
 25 DEPOSITION EXHIBIT: MARKED
 1 - Notice of Deposition 5
 2 - 10/31/09 Report of Dr. Paige 6
 3 - Opinion Report of Hendrickx and Buchanan 12

4

1 management from the University of Arizona.
 2 Q. How long have you been employed at the University
 3 of Wyoming?
 4 A. Since October of -- well, actually since August
 5 of 2004.
 6 Q. Do you instruct classes at UW?
 7 A. No, not usually.
 8 Q. What percentage of your work would be research
 9 and what percentage -- well, I guess, would be teaching?
 10 A. Well, it's not teaching, it's actually extension.
 11 Q. Okay.
 12 A. Thirty percent of my appointment is research, 60
 13 percent of my appointment is extension.
 14 Q. Have you ever been retained as an expert for any
 15 case in front of the Environmental Quality Council
 16 before?
 17 A. Yes, but under subpoena.
 18 Q. Subpoena. What case was that?
 19 A. This is a good question. It was the Pumpkin
 20 Creek case.
 21 Q. Have you ever testified in front of the EQC in
 22 any rulemaking?
 23 A. Yes, I have.
 24 Q. And which rulemakings?
 25 A. The Tier 2 evaluation, evaluation of the Tier 2

3

1 PROCEEDINGS
 2 GINGER PAIGE, Ph.D.,
 3 having been first duly sworn, was examined and testified
 4 as follows, to-wit:
 5 EXAMINATION
 6 BY MR. ESCH:
 7 Q. Could you identify yourself for the record,
 8 please.
 9 A. Dr. Ginger Paige.
 10 Q. And where are you employed?
 11 A. University of Wyoming.
 12 Q. And how long have you been employed there?
 13 A. Since October of 2004.
 14 Q. Have you ever been deposed before?
 15 A. Yes, I have.
 16 Q. So you're aware that if you don't understand my
 17 questions you can ask me to repeat it or rephrase it,
 18 and we can do so?
 19 A. Yes.
 20 Q. Could you please describe your educational
 21 background.
 22 A. Yes. I have a Bachelor's degree in political
 23 science from the Colorado College. I have a Master's of
 24 Science degree in soils physics from the University of
 25 Massachusetts, and I have a Ph.D. in watershed hydrology

5

1 methodology. I've appeared under that. I actually
 2 appeared once briefly under the beneficial use case
 3 before them.
 4 Q. Was it a rulemaking, or was it a case?
 5 A. I guess -- That's a good question. I do not
 6 know. That's legal stuff.
 7 Q. All right. I'm going to hand you a document, and
 8 I want you to tell me if you've seen that before?
 9 A. Yes.
 10 Q. This is the Notice of Deposition that I sent you;
 11 is that correct?
 12 A. This is correct.
 13 Q. And it says that, "Respondent DEQ requests that
 14 the deponent bring all documents and any other materials
 15 referenced or relied upon for the analysis, conclusions
 16 or opinions in or relating to her expert report and her
 17 expected testimony at the hearing in this case."
 18 Did you do so in this -- today?
 19 A. For the most part. I'm missing one book.
 20 Q. Okay. I'll mark that as Deposition Exhibit 1.
 21 And I also have a second page.
 22 (Thereupon Deposition 1 was marked.)
 23 A. A student has my other book, but -- the book
 24 that's cited, and I brought a copy of the evaluation of
 25 the Tier 2 method that was done by the expert, and

<p style="text-align: right;">6</p> <p>1 those, I believe, are the things that I cited. 2 Q. I don't know if you might have already done this, 3 but could you identify for me the book that you didn't 4 bring. 5 A. It's by CW Rose. Title is -- I don't think of 6 these things by title. It's the Rose 2004 book. 7 There's my expert scientific opinion. Yeah, it's 8 Introduction to the Environmental Physics of Soil, Water 9 and Watersheds, was the other book that I used and 10 cited. 11 Q. Introduction to Environmental Physics? 12 A. Of Soil, Water and Watersheds. 13 MS. FOX: It's in her report, Luke. 14 MR. ESCH: It is. 15 A. It is. I have the full citation there. 16 Q. (By Mr. Esch) Well, thank you. Okay. Well, 17 let's get to the expert report. I'm going to hand you a 18 copy of what I understand to be your expert report. 19 A. See, this would have saved me the trouble of 20 looking it up. Yes. 21 Q. Would you agree that's an accurate copy of your 22 expert report in this case? 23 A. Yes. 24 Q. You can take your time. I'll go ahead and offer 25 this as Deposition Exhibit 2.</p>	<p style="text-align: right;">8</p> <p>1 questions I was asked. 2 Q. Okay. What opinions are not contained in your 3 report that you intend to offer to the council? 4 A. None. 5 Q. None. So your opinions are confined to your 6 report? 7 A. Correct. 8 Q. Okay. I'd like to ask you a few questions now 9 about some of the statements in your report. 10 A. Okay. 11 Q. So going through your report, as I understand it, 12 you disagree with the way the methods were developed to 13 arrive at these limits; is that correct? 14 A. Correct. 15 Q. Okay. So I refer you to page 1 of your report. 16 It says, "In general, effluent limits established for 17 WYPDES 0094056 have not been determined using a 18 method 19 that results in scientifically defensible or reasonable 20 limits for EC of discharge waters that are protective of 21 agricultural uses." 22 Could you explain a little bit to me about this 23 statement, what are your bases for this statement? 24 A. My bases for the statement are that the effluent 25 limits for EC were determined using Tier 2 methodology, sampling the soils within the area, and using the EC of</p>
<p style="text-align: right;">7</p> <p>1 (Thereupon Deposition Exhibit 2 was marked.) 2 Q. So who retained you in this matter to provide 3 this expert report? 4 A. Davis & Cannon. 5 Q. What did they provide you with to review in 6 preparation for your report? 7 A. Let's see. They sent me a letter requesting that 8 I respond to two questions regarding the permit. They 9 did send me a copy of the permit. They also sent me 10 copies of the Tier 2 evaluation. 11 Q. Tier 2 evaluation. Could you be a little more 12 specific? 13 A. I believe it's the -- Oh, no, I can't, 'cause I 14 didn't actually pay much attention to it. It's the 15 evaluation of the background soil and water quality at 16 the West Ranch. 17 Q. The Tier 2 2006 -- 18 A. Evaluation, the 2006 evaluation. 19 Q. That was performed by Devon, as you understand 20 it? 21 A. As I understand it. 22 Q. Just want to make sure we have the right one. 23 Does your report contain all your opinions on the 24 contested permit? 25 A. No. My report contains specific answers to the</p>	<p style="text-align: right;">9</p> <p>1 the soils to determine background EC limit for the 2 waters. 3 Q. Okay. And you rely heavily on the findings of 4 Hendrickx and Buchanan for this determination? 5 A. Yes, as well as my own knowledge in this area. 6 Q. Okay. 7 A. I actually made statements to the EQC that this 8 was not a scientifically defensible method before the 9 report came out. 10 Q. So why is it not scientifically defensible? 11 A. There's no way to actually determine background 12 water quality from soil samples of EC. It's just -- 13 It's not possible. 14 Q. Could you explain a little to me about it? 15 A. Soil physics? 16 Q. All right. 17 A. So when water moves through the soils it has a 18 charge, right, polarity. And it actually will pick up 19 minerals and dissolved salts from the soils. So it will 20 actually, depending on the soils and mineralogy of the 21 soils, will actually change in terms of its chemical 22 composition as it moves through the soils. So it's very 23 common, especially in semi arid climates, for water to 24 pick up salts from soil as it moves through. And these 25 salts will end up moving within the soil profile with</p>

<p style="text-align: right;">10</p> <p>1 the wetting front. So that means as water infiltrates 2 into the soil, moves down through the soil profile 3 picking up salts, salts will move usually with the 4 wetting front, with the highest sort of water 5 concentration. 6 Q. Is that what you mean, wetting front? 7 A. Wetting front. 8 Q. Okay. 9 A. And it's also the front part, if you picture a 10 column of water just moving through soil, wetting front 11 is that first part of the water as it moves through, if 12 it's a dry soil. 13 Q. Okay. 14 A. So the salts will move with the water, and so if 15 it -- you only have a certain amount of water, it might 16 move maybe, oh, anywhere from 5 centimeters to 30 17 centimeters into the soil profile, depending upon the 18 amount of water that's applied, or rainfall application 19 or irrigation. 20 And then when water stops moving into the soil, 21 it's subjected to evapotranspiration forces, and will 22 move up, so you'll actually see water then moving up and 23 down within the soil profile, moving salts within the 24 soil profile, soluble salts. 25 Q. Okay.</p>	<p style="text-align: right;">12</p> <p>1 Q. For my benefit what's a calcic horizon? 2 A. Calcium carbonate dominating the soil horizon. 3 Q. All right. And I did see in your report that you 4 refer to the Hendrickx Buchanan report, the May 2009 5 report. I'd like to ask you a few questions about that 6 report. 7 A. Okay. 8 Q. Do you have that in front of you? 9 A. I do. 10 Q. Well, I made a copy for you just in case. 11 A. Okay. 12 Q. And go ahead and offer this one as Deposition 13 Exhibit 3. 14 (Thereupon Deposition Exhibit 3 was marked.) 15 MS. FOX: Do you have another one, Luke? 16 MR. ESCH: I got another one, but I just 17 didn't have a stapler. 18 MS. FOX: I can take care of that. Thank 19 you. 20 Q. (By Mr. Esch) I'm going to ask you a few 21 questions about this report, and basically I'm going to 22 pull some sentences, some phrases out of this report, 23 and ask if you agree or disagree with those statements. 24 A. All right. 25 Q. I refer you to page 10. And in the first</p>
<p style="text-align: right;">11</p> <p>1 A. So it's a dynamic process. And this happens with 2 natural rainwater, water that doesn't have high EC or 3 SAR; you see the same phenomena occurring. So you will 4 end up, in a climate like this, a semi arid climate like 5 Wyoming, Arizona, with salts building up in the soil 6 profile. It's a natural occurrence even under very good 7 water -- water quality applications. 8 Q. So just the natural occurrence in nature, soils 9 will build up in soil profiles? 10 A. Depending on where you are in a watershed, where 11 you are in the soil, the soil texture, depth to water, 12 where you are in the season, -- 13 Q. Well -- 14 A. -- many factors. 15 Q. I apologize. 16 A. But, yes. 17 Q. You refer to it being a natural phenomena -- 18 A. Correct. 19 Q. -- and happens. So in an ephemeral drainage, not 20 in Wyoming, but in a semi arid climate it's possible 21 these soils would salinize naturally? 22 A. Or build up salts, not necessarily become 23 salinized, which -- but will actually end up with layers 24 with salt accumulation, calcic horizon, pedocalcic 25 horizon. It's very common.</p>	<p style="text-align: right;">13</p> <p>1 paragraph it says, the sentence begins, "On the 2 Contrary, pre-existing background water quality appears 3 to be a minor factor or none at all." 4 Would you agree with that statement? And you can 5 read the whole paragraph to provide context. 6 MS. FOX: I'm going to object to the form of 7 that question as being vague. 8 (Brief pause.) 9 A. Does that mean I still answer? 10 MS. FOX: Yeah. 11 A. Sorry. It is vague. I find it to be a factor. 12 In this case I think they're talking about the fact that 13 it's one of many. That doesn't mean that applying water 14 of bad quality is good, but it means that there's many 15 other factors besides the background water quality that 16 have to be taken into account. 17 Q. (By Mr. Esch) Okay. And same, similar question, 18 in the second paragraph, says, "The Tier 2 assumption is 19 scientifically flawed for several reasons. Effluent 20 water quality that is better than preexisting background 21 water quality could still cause severe soil salinity." 22 And do you agree with that statement? 23 A. Yes. In a certain context. Not without caveats 24 thrown in. 25 Q. Please go ahead and describe some of the caveats</p>

<p style="text-align: right;">14</p> <p>1 for me. 2 A. It's the same thing as why we don't drink 3 distilled water, because drinking distilled water, one 4 has the feeling that it would be great. But what it 5 does is it leaches you more -- leaches all the minerals 6 out of you more than actually replenishing you. So 7 that's the reason that when you buy sort of treated 8 water in a grocery store, they've actually added 9 minerals back into the water, not only because it tastes 10 better, because it decreases the leaching potential of 11 water. So in that context it's very important to know 12 what's going on. 13 And also I think the context that they're talking 14 about is that it is a complex interaction. So it really 15 depends on soil profile, the amount of water, the 16 chemical composition of the soil, cation exchange 17 capacity of the soil, the amount of sodium, the amount 18 of magnesium will all influence this, but it is true. 19 Q. Okay. 20 A. But it has to be viewed within the context of 21 what -- It doesn't mean that all of a sudden bad water 22 is much better, bad quality water. It just means, oh, 23 you have to do it in site specific, application 24 specific. 25 Q. So it's definitely site specific, there's a lot</p>	<p style="text-align: right;">16</p> <p>1 I do agree. 2 Q. Okay. I refer you to page 22 of the same 3 document. And the last paragraph of the page it 4 says, "The use of Tier 1 can be continued since it's 5 conservative and has been accepted by the community." 6 Would you agree with that statement? 7 A. Oh, in general. I think there are also 8 limitations with the Tier 1 method as it's being 9 applied, but in general I find the method to set the 10 limits to be much better in Tier 1 than they were in 11 Tier 2. 12 Q. Okay. Would you agree with this statement: "A 13 threshold EC value of 4 decimeters per meter in the root 14 zone is acceptable for alfalfa in Wyoming"? 15 A. No. 16 Q. Is alfalfa a sensitive species for EC? 17 A. It is. 18 Q. Do you know what type of crops the Wests have on 19 the ranch? 20 A. No, I do not. 21 Q. Do you know where the outfalls in this contested 22 permit are in relationship to the Wests' property? 23 A. No. My understanding is that they're up, 24 upstream, up in the watershed. 25 Q. Okay. And are you aware that there are</p>
<p style="text-align: right;">15</p> <p>1 of factors involved? 2 A. Yeah. 3 Q. Okay. So -- 4 A. And I also believe it to be sort of a minor 5 caveat. 6 Q. Could you explain that, a minor caveat? 7 A. Meaning that in some cases it's true that, you 8 know, applying water with a different chemical 9 composition might infiltrate better, but that's probably 10 not the norm. It's probably the exception, but it's 11 good to know. 12 Q. So these are very site specific conditions, a lot 13 of factors taken? 14 A. Yeah. 15 Q. Okay. Let's go to the next statement then the 16 "effluent water quality that is worse than the 17 preexisting background quality may be used beneficially 18 on artificially irrigated lands." Do you agree with 19 that statement? 20 A. Again, it depends on the situation specifically, 21 as to whether it will be more beneficial or less. 22 Q. More managed situation? 23 A. Whether it's -- No. Whether it's beneficial will 24 depend on the type of management, the type of 25 application, how it's applied, where you are. But, yes,</p>	<p style="text-align: right;">17</p> <p>1 discharges contained in reservoirs in this permit? 2 A. I am. Are they lined water -- lined containment 3 or unlined? 4 Q. They're unlined. 5 A. So I don't know if that's fully contained. 6 Q. Okay. Have you discussed this case with any of 7 your colleagues? 8 A. No, I have not. 9 Q. Have you discussed the findings of the Hendrickx 10 -- the 2009 May Hendrickx Buchanan report with any of 11 your colleagues? 12 A. Oh, yes. 13 Q. Could you identify them for me? 14 A. Yes. Dr. Larry Munn, Dr. George Vance. 15 Q. Those are the -- your only colleagues that you've 16 discussed this with? 17 A. Probably Dr. Ann Hild and Dr. Scott Miller. 18 Q. All right. Have you discussed this case with any 19 members of the EQC? 20 A. No, I have not. 21 Q. Have you discussed this, the findings of the 22 Hendrickx Buchanan May 2009 report with any members of 23 the EQC? 24 A. Yes, I have. 25 Q. Who have you discussed it with?</p>

18	<p>1 A. Tim Flitner. 2 Q. Flitner. So, finally, does this report contain 3 all of your opinions regarding the contested permit? 4 A. The -- Which report? 5 Q. Your expert report. 6 A. It actually contains my responses to the 7 questions I was asked. 8 Q. So if you were called to testify at the hearing 9 what else would you testify about? 10 A. I don't know. 11 Q. You don't have any expected testimony? 12 A. No, I do not. 13 Q. This is the opportunity I get to ask you about 14 your opinions in this case, so I am trying to get an 15 idea of what you would testify to so I can ask some 16 questions about that. 17 A. Okay. Well, actually I was asked to -- for my 18 expert opinion on two questions, and so I offered my 19 expert -- I offered responses, expert question (sic). 20 Q. So you don't anticipate to testify to anything 21 outside the scope of your expert report? 22 A. Not that I'm aware of. These are the questions I 23 was asked to offer opinions on, and I did so. 24 MR. ESCH: All right. Well, that is all I 25 have. Thank you.</p>	20	<p>1 A. Correct. 2 Q. As relates to the permit, you said that you 3 skimmed it. Have you ever visited the three 4 impoundments that are authorized in that permit? 5 A. I have not visited the impoundments, no. 6 Q. Have you ever tested soils or water in relation 7 to those three impoundments? 8 A. I have not. 9 Q. Have you personally tested water or soil on that 10 west property? 11 A. I have not. 12 Q. As relates to those three impoundments, are you 13 aware of any evidence of any breaches, leaks, seeps or 14 any water leaving those impoundments? 15 A. No, I'm not. 16 Q. Earlier you said that you -- Mr. Esch asked you a 17 question about if you were aware that the impoundments 18 were fully contained, and you -- what was your response 19 to that again? 20 A. I asked if the impoundments were lined. 21 Q. And he advised that they were not? 22 A. Correct. 23 Q. And your response to that was? 24 A. Then they may not be fully contained. 25 Q. What do you mean by that, can you explain that?</p>
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19	<p>1 A. Okay. 2 EXAMINATION 3 BY MR. SPARKS: 4 Q. Hi. My name is Bill Sparks. I represent Stevens 5 Energy in this appeal. How did you go about preparing 6 for this deposition? 7 A. Actually I didn't do a lot to prepare for this 8 deposition. I reread my report that I had sent, and I 9 reread the expert scientific opinion on the Tier 2 10 methodology last week so that I made sure that it was 11 sort of forefront in my head. 12 Q. Did you review the permit prior to this 13 deposition? 14 A. I did not. 15 Q. Prior to your expert report did you read the 16 permit? 17 A. I glanced through it, but I did not study it. 18 Q. Prior to your expert report did you read the 19 Section 20 compliance that Devon prepared? 20 A. I glanced through it. Again, I did not study it 21 'cause I was really just asked to -- for my expert 22 opinion on two questions. 23 Q. So in that regard you did not assist in 24 responding to discovery in this case either, you only 25 answered those two questions?</p>	21	<p>1 If they're not lined then how does that equate to not 2 fully contained? 3 A. Because water will actually infiltrate and leach 4 from the bottom of some of these ponds. 5 Q. How far, how much? Do you have any -- 6 A. It will actually depend on the surrounding soils, 7 where they are in the watershed, the amount of water, 8 the hydraulic pressure, pore size distribution in the 9 soils, and the chemistry of the water. 10 Q. Do you know, have you ever -- Do you know any of 11 those types of qualities for these soils or these 12 waters? 13 A. Not specifically, no. 14 Q. So you cannot give an opinion on how much the 15 water there will leach? 16 A. No, I cannot. 17 Q. Do you know how much water is discharged into the 18 three impoundments? 19 A. No, I don't. 20 Q. You said that you had -- you take issue with the 21 methodology that was used to establish the EC for this 22 permit. Do you know what the EC for this permit is? 23 A. At one point I did. I don't recall. 24 Q. This is a copy of the permit. We can mark it as 25 Exhibit 4.</p>
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22	<p>1 MS. FOX: Could we go off the record for a 2 second? 3 MR. SPARKS: Sure. 4 (Off the record discussion.) 5 MS. FOX: Can we not mark it again? 6 MR. SPARKS: That's fine. 2600; is that 7 right, Luke? 8 MR. ESCH: 2680. 9 Q. (By Mr. Sparks) 2680, does that sound right? 10 MS. FOX: What page you looking at, Bill? 11 MR. ESCH: Bottom of page 2. 12 MR. SPARKS: 2680. 13 (Brief pause.) 14 MS. FOX: What was your question, Bill? 15 Q. (By Mr. Sparks) I was asking you if you knew what 16 the EC limit was? 17 A. I didn't then, and I do now, I just read it. 18 Q. That's all I was asking. In your opinion is that 19 limit too low? 20 A. Too low? 21 Q. Um-hum. Or is it too high? 22 A. I'm not at liberty to actually respond directly 23 to the limit. I'm talking about the process of 24 determining the limit. 25 Q. Okay. Would the limit matter if all water was</p>	24	<p>1 subsurface. This is how a lot of our base flow occurs 2 within our drainage systems. Our snow melt will slowly 3 melt into the soils, move through the soil system into 4 our channels and streams and surface water. It's very 5 common. And this moves by a mix of gravity flow and 6 matrix, so it will move both vertically and 7 horizontally, and it will move to the easiest route. So 8 as water moves through, if it meets something that has 9 sort of less infiltration capacity it will actually then 10 move in the direction of least resistance, which is 11 usually downstream. And if it's -- Common here is we 12 have usually coarser texture soils above more 13 infiltration limited soils, so water will often sort 14 of -- sort of build up along that interface, and then 15 move horizontally through the system. It's very common. 16 Q. Okay. But you've never done any research or 17 sampling or other studies regarding the soils in this 18 area of the Powder River Basin? 19 A. Not at this specific site, correct. 20 Q. So you have no opinion on how far, with what rate 21 or other types of actions the water would move -- 22 A. No. 23 Q. -- at this location? 24 A. You would have to measure the gradient and the 25 potential.</p>
23	<p>1 contained in the impoundment? 2 A. No. If you could prove that all the water was to 3 be contained, no, it wouldn't matter. 4 Q. Do you have any evidence that for this area, 5 water would go through the bottom of the impoundment, 6 resurface 11 miles downstream? 7 A. Do I have any evidence that it will do that? 8 Let's see. It's an interesting way to put it. I do not 9 have direct evidence that it will, but probability is 10 that it will if the soils are similar to other 11 impoundments in the Powder River Basin. 12 Q. Can you explain how that process would work, how 13 would it infiltrate into the soils and then resurface 11 14 miles away? 15 A. Water moves into the soil just based on pressure 16 head and the fact that water has polarity and gravity 17 acting on it, and the soils actually have what they call 18 matrix potential. They actually pull water into them, 19 they actually have charge. So that's how water moves 20 into the soil. So if you put enough water on top of 21 soil it will actually move in, unless it's treated to 22 not infiltrate in. It's just what happens. 23 Q. Okay. 24 A. As to how it moves through the soil, a lot of our 25 water in Wyoming moves not over the surface but</p>	25	<p>1 Q. But you have not been asked to do that? 2 A. I have not. 3 Q. A couple of quick questions on the Hendrickx 4 Buchanan report. Would you agree that this report did 5 not address the issue or the full containment of 6 reservoirs but only the direct discharge of waters into 7 ephemeral streams or tributaries? 8 A. I believe it was actually addressing discharge on 9 surface water, and not containment or full containment. 10 Q. It did not address full containment? 11 A. Correct. 12 Q. Just so I'm clear, other than water leaching 13 through the soils, would it matter what the EC and SAR 14 is in regards to water becoming surface water into a 15 tributary? 16 A. Yes, if it can spill over the top. So there's 17 two methods that water can -- discharge water cannot be 18 contained, right? So there's leaching out of the bottom 19 of the unlined pond or there's overflow. So it depends 20 on how large the containment is, and what size storm 21 it's been built for. 22 Q. So ignoring the possibility of leaching, -- 23 A. Okay. 24 Q. -- and if water never escaped the impoundment, 25 would it matter what the EC and SAR limits are?</p>

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

27

1 unless it's lined?
 2 A. Yes.
 3 Q. Also relating to this Spotted Horse drainage, do
 4 you have any knowledge about other reservoirs or other
 5 sources of water in that drainage, other than the three
 6 impoundments at issue in this permit?
 7 A. No, I don't have knowledge.
 8 Q. And if there were other sources of water, would
 9 you consider that as a factor in the possibility of
 10 infiltrated water making its way 11 miles downstream?
 11 A. Oh, absolutely.
 12 Q. Because of the cumulative effects?
 13 A. Absolutely. And we've seen this in other
 14 drainages. SA Creek is a drainage where that's
 15 absolutely happened.
 16 MS. FOX: That's all I have. Thanks.
 17 MR. ESCH: Nothing further.
 18 (Proceedings concluded 10:42 a.m.)
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1 DEPONENT'S CERTIFICATE
 2
 3
 4
 5 I, GINGER PAIGE, Ph.D., do hereby certify that I have
 6 read the foregoing deposition, and that the foregoing
 7 transcript and accompanying amendment sheets, if any,
 8 constitute a true and complete transcript of my
 9 testimony.
 10
 11 _____
 12 GINGER PAIGE, Ph.D. - Deponent
 13 () No changes () Changes attached
 14
 15 Subscribed and sworn to before me this _____ day
 16 of _____, 2010.
 17
 18 _____
 19 Notary Public
 20 My Commission Expires _____.
 21
 22
 23
 24
 25

29

1 REPORTER'S CERTIFICATE
 2 State of Wyoming)
 3 : SS
 4 County of Laramie)
 5
 6 I, Merissa Racine, Registered Diplomate Reporter
 7 and Notary Public in and for the First Judicial
 8 District, State of Wyoming, hereby certify that there
 9 came before me, as hereinbefore noted, GINGER PAIGE,
 10 Ph.D., who was by me duly sworn according to law to give
 11 testimony relative to the above-captioned cause; that
 12 said testimony and proceedings were reported in
 13 stenotype by me; that the foregoing 1 - 29 pages,
 14 inclusive, constitute a true, correct, and complete
 15 transcript of my stenographic notes as reduced to print
 16 by means of computer-aided transcription.
 17 I further certify that I am not related to any
 18 party herein or their counsel and have no interest in
 19 the result of this litigation.
 20 Dated this 21st day of January, 2010.
 21
 22 _____
 23 MERISSA RACINE
 24 Registered Diplomate Reporter
 25

0		
0094056 8:17		
09-3807 1:3		
1		
1 2:20 5:20,22 8:15		
16:4,8,10 29:12		
10 12:25		
10/31/09 2:21		
10:03 1:16		
10:42 27:18		
11 23:6,13 27:10		
1100 2:6		
12 2:21		
123 2:9		
19 2:17		
2		
2 2:21 4:25 5:25		
6:25 7:1,10,11,17		
8:24 13:18 16:11		
19:9 22:11		
20 1:15 19:19		
2004 3:13 4:5 6:6		
2006 7:17,18		
2009 12:4 17:10,22		
2010 1:15 28:16		
29:19		
216 2:6		
21st 1:20 29:19		
22 16:2		
26 2:18		
2600 22:6		
2680 22:8,9,12		
26th 2:3		
29 29:12		
	3	
	3 2:17,21 12:13,14	
	30 10:16	
	4	
	4 16:13 21:25	
	406 1:19	
	422 2:3	
	5	
	5 2:20 10:16	
	6	
	6 2:21	
	60 4:12	
	8	
	80202-5115 2:7	
	82001 2:4	
	82002 2:10	
	A	
	a.m 1:16 27:18	
	above-captioned	
	29:10	
	absolutely	
	27:11,13,15	
	acceptable 16:14	
	accepted 16:5	
	accompanying 28:6	
	accordance 1:19	
	according 29:9	
	account 13:16	
	accumulation 11:24	
	accurate 6:21	
	acting 23:17	
	actions 24:21	
		actually 4:4,10 5:1
		7:14
		9:7,11,18,20,21
		10:22 11:23 14:6,8
		18:6,17 19:7 21:3,6
		22:22
		23:17,18,19,21 24:9
		25:8
		added 14:8
		address 25:5,10
		addressing 25:8
		advised 20:21
		agricultural 8:20
		ahead 6:24 12:12
		13:25
		alfalfa 16:14,16
		already 6:2
		am 17:2 18:14 29:16
		amendment 28:6
		amount 10:15,18
		14:15,17 21:7
		analysis 5:15
		Ann 17:17
		Annex 1:19
		answer 13:9
		answered 19:25
		answers 7:25
		anticipate 18:20
		anything 18:20
		anywhere 10:16
		apologize 11:15
		appeal 1:5 19:5
		APPEARANCES 2:1
		appeared 5:1,2
		appears 13:2
		application 10:18

14:23 15:25	Basin 1:5 23:11 24:18 26:14,17,25	Calcium 12:2
applications 11:7	BEATTY 2:5	Cannon 2:3 7:4
applied 10:18 15:25 16:9	become 11:22	capacity 14:17 24:9
applying 13:13 15:8	becoming 25:14	Capitol 2:9
appointment 4:12,13	begins 13:1	carbonate 12:2
area 8:25 9:5 23:4 24:18 26:20	behalf 1:18	care 12:18
areas 26:16	believe 6:1 7:13 15:4 25:8	case 4:15,18,20 5:2,4,17 6:22 12:10 13:12 17:6,18 18:14 19:24
arid 9:23 11:4,20	beneficial 5:2 15:21,23	cases 15:7
Arizona 4:1 11:5	beneficially 15:17	cation 14:16
arrive 8:13	benefit 12:1	cause 7:13 13:21 19:21 29:10
artificially 15:18	besides 13:15	caveat 15:5,6
assist 19:23	better 13:20 14:10,22 15:9 16:10	caveats 13:23,25
Assistant 2:9	Bill 19:4 22:10,14	CBM 26:16
assumption 13:18 26:23,24	bit 8:21	centimeters 10:16,17
attached 28:11	Bldg 2:9	certain 10:15 13:23
attention 7:14	book 5:19,23 6:3,6,9	CERTIFICATE 28:1 29:1
Attorney 2:9	bottom 21:4 22:11 23:5 25:18	certify 28:5 29:7,16
August 4:4	breaches 20:13	change 9:21
authorized 20:4	Brief 13:8 22:13	changes 28:11
aware 3:16 16:25 18:22 20:13,17	briefly 5:2	channels 24:4
away 23:14	bring 5:14 6:4	charge 9:18 23:19
<hr/>	brought 5:24	chemical 9:21 14:16 15:8
B	Buchanan 2:21 9:4 12:4 17:10,22 25:4	chemistry 21:9
Bachelor's 3:22	build 11:9,22 24:14	Cheyenne 2:4,10
background 3:21 7:15 9:1,11 13:2,15,20 15:17	building 11:5	citation 6:15
bad 13:14 14:21,22	built 25:21	cited 5:24 6:1,10
base 24:1	buy 14:7	Civil 1:19
based 23:15	<hr/>	classes 4:6
bases 8:22,23	C	clear 25:12
basically 12:21	calcic 11:24 12:1	

client 26:5	contains 7:25 18:6	depending 9:20 10:17 11:10
climate 11:4,20	contested 7:24 16:21 18:3	depends 14:15 15:20 25:19
climates 9:23	context 13:5,23 14:11,13,20	deponent 5:14 28:9
CO 2:7	continued 16:4	DEPONENT'S 28:1
coarser 24:12	Contrary 13:2	deposed 3:14
colleagues 17:7,11,15 26:22	copies 7:10	deposition 1:15 2:19,20 5:10,20,22 6:25 7:1 12:12,14 19:6,8,13 28:5
College 3:23	copy 5:24 6:18,21 7:9 12:10 21:24	depth 11:11
Colorado 3:23	correct 5:11,12 8:7,13,14 11:18 20:1,22 24:19 25:11 29:13	DEQ 5:13
column 10:10	council 1:1,6 4:15 8:3	describe 3:20 13:25
Commission 28:20	counsel 29:17	determination 9:4
common 9:23 11:25 24:5,11,15	County 1:21 29:3	determine 9:1,11
community 16:5	couple 25:3 26:11	determined 8:17,24
complete 28:6 29:13	Creek 4:20 26:12 27:14	determining 22:24
complex 14:14	crops 16:18	developed 8:12
compliance 19:19	cumulative 27:12	Devon 7:19 19:19
composition 9:22 14:16 15:9	CW 6:5	different 15:8
computer-aided 29:15		Diplomate 1:20 29:5,21
concentration 10:5		direct 23:9 25:6 26:7,21
concluded 27:18	<hr/> D <hr/>	direction 24:10
conclusions 5:15	Dated 29:19	directly 22:22 26:15
conditions 15:12	Davis 2:3 7:4	disagree 8:12 12:23
confined 8:5	day 28:15 29:19	discharge 8:19 25:6,8,17
conservative 16:5	decimeters 16:13	discharged 21:17 26:5
consider 27:9	decreases 14:10	discharges 17:1
constitute 28:6 29:13	defensible 8:18 9:8,10	discovery 19:24
contain 7:23 18:2	definitely 14:25	discussed 17:6,9,16,18,21,25
contained 8:2 17:1,5 20:18,24 21:2 23:1,3 25:18	degree 3:22,24	
containment 17:2 25:5,9,10,20	Denver 2:7	
	depend 15:24 21:6	

discussion 22:4	else 18:9	Expires 28:20
dissolved 9:19	employed 3:10,12 4:2	explain 8:21 9:14 15:6 20:25 23:12
distilled 14:3	Energy 2:5 19:5	extension 4:10,13
distribution 21:8	Environmental 1:1 4:15 6:8,11	<hr/>
District 29:7	ephemeral 11:19 25:7	F
Docket 1:3	EQC 4:21 9:7 17:19,23	fact 13:12 23:16
document 5:7 16:3	equate 21:1	factor 13:3,11 27:9
documents 5:14	escaped 25:24 26:1	factors 11:14 13:15 15:1,13
dominating 12:2	Esch 2:8,17 3:6 6:14,16 12:16,20 13:17 18:24 20:16 22:8,11 27:17	familiar 26:19
done 5:25 6:2 24:16 26:12,13	especially 9:23	feeling 14:4
downstream 23:6 24:11 27:10	establish 21:21	finally 18:2
Dr 2:21 3:9 17:14,17	established 8:16	findings 9:3 17:9,21
drainage 11:19 24:2 27:3,5,14	evaluation 4:25 5:24 7:10,11,15,18	fine 22:6
drainages 26:13 27:14	evapotranspiration 10:21	first 3:3 10:11 12:25 29:6
drink 14:2	everybody 26:2	flawed 13:19
drinking 14:3	evidence 20:13 23:4,7,9 26:4	Flitner 18:1,2
dry 10:12	EXAMINATION 2:16 3:5 19:2 26:9	flow 24:1,5
duly 3:3 29:9	examined 3:3	forces 10:21
dynamic 11:1	exception 15:10	forefront 19:11
<hr/>	exchange 14:16	foregoing 28:5 29:12
E	Exhibit 2:19 5:20 6:25 7:1 12:13,14 21:25	form 13:6
Earlier 20:16	expected 5:17 18:11	Fox 2:4,18 6:13 12:15,18 13:6,10 22:1,5,10,14 26:10 27:16
easiest 24:7	expert 4:14 5:16,25 6:7,17,18,22 7:3 18:5,18,19,21 19:9,15,18,21	front 4:15,21 10:1,4,6,7,9,10 12:8
EC 8:19,24,25 9:1,12 11:2 16:13,16 21:21,22 22:16 25:13,25		full 6:15 25:5,9,10
educational 3:20		fully 17:5 20:18,24 21:2
effects 27:12		<hr/>
effluent 8:16,23 13:19 15:16		G
either 19:24		general 2:9 8:16

16:7,9	hydraulic 21:8	27:6
generally 26:19	hydrology 3:25	it's 4:10 6:5,6,7,13
George 17:14	<hr/>	7:13,14 9:12,13,22
giant 26:2	I	10:9,12,21
Ginger 1:15 2:16	<hr/>	11:1,6,20,25 13:13
3:2,9 28:5,9 29:8	I'd 8:8 12:5	14:2,11,25
glanced 19:17,20	idea 18:15	15:7,10,23,25
gradient 24:24	identify 3:7 6:3	16:4,8 23:8,21,22
gravity 23:16 24:5	17:13	24:4,11,15 25:21
great 14:4	ignoring 25:22	26:24 27:1
grocery 14:8	important 14:11	<hr/>
guess 4:9 5:5	impoundment 23:1,5	J
<hr/>	25:24	January 1:15 29:19
H	impoundments	Judicial 29:6
hand 5:7 6:17	20:4,5,7,12,14,17,2	<hr/>
happened 27:15	0 21:18 23:11 26:6	K
happens 11:1,19	27:6	KATE 2:4
23:22	inclusive 29:13	knew 22:15
having 3:3	INDEX 2:14	knowledge 9:5 26:5,7
head 19:11 23:16	infiltrate 15:9 21:3	27:4,7
hearing 5:17 18:8	23:13,22	<hr/>
heavily 9:3	infiltrated 27:10	L
Hendrickx 2:21 9:4	infiltrates 10:1	lands 15:18
12:4 17:9,10,22	infiltration 24:9,13	Laramie 1:20,21 29:3
25:3	26:13,15,20,25	large 25:20
hereby 28:5 29:7	influence 14:18	Larry 17:14
herein 29:17	instruct 4:6	last 16:3 19:10
hereinbefore 29:8	intend 8:3	law 29:9
Hi 19:4	interaction 14:14	layers 11:23
high 11:2 22:21	interest 29:17	leach 21:3,15
highest 10:4	interesting 23:8	leaches 14:5
Hild 17:17	interface 24:14	leaching 14:10
horizon 11:24,25	Introduction 6:8,11	25:12,18,22
12:1,2	involved 15:1	leaks 20:13
horizontally 24:7,15	irrigated 15:18	least 24:10
Horse 26:12 27:3	irrigation 10:19	leaving 20:14
	issue 21:20 25:5	legal 5:6
		less 15:21 24:9

<p>let's 6:17 7:7 15:15 23:8</p> <p>letter 7:7</p> <p>liberty 22:22</p> <p>likely 26:25</p> <p>limit 9:1 22:16,19,23,24,25</p> <p>limitations 16:8</p> <p>limited 24:13</p> <p>limits 8:13,16,19,24 16:10 25:25</p> <p>lined 17:2 20:20 21:1 27:1</p> <p>litigation 29:18</p> <p>little 7:11 8:21 9:14</p> <p>LLC 1:6</p> <p>location 24:23</p> <p>long 3:12 4:2</p> <p>lot 14:25 15:12 19:7 23:24 24:1</p> <p>loves 26:3</p> <p>low 22:19,20</p> <p>Luke 2:8 6:13 12:15 22:7</p> <hr/> <p style="text-align: center;">M</p> <hr/> <p>magnesium 14:18</p> <p>managed 15:22</p> <p>management 4:1 15:24</p> <p>mark 5:20 21:24 22:5</p> <p>marked 2:19 5:22 7:1 12:14</p> <p>Massachusetts 3:25</p> <p>Master's 3:23</p> <p>materials 5:14</p>	<p>matrix 23:18 24:6</p> <p>matter 1:5 7:2 22:25 23:3 25:13,25</p> <p>may 12:4 15:17 17:10,22 20:24</p> <p>maybe 10:16</p> <p>mean 10:6 13:9,13 14:21 20:25</p> <p>Meaning 15:7</p> <p>means 10:1 13:14 14:22 29:15</p> <p>measure 24:24</p> <p>measurements 26:21,22</p> <p>measuring 26:15</p> <p>meets 24:8</p> <p>melt 24:2,3</p> <p>members 17:19,22</p> <p>Merissa 1:20 29:5,21</p> <p>meter 16:13</p> <p>method 5:25 8:17 9:8 16:8,9</p> <p>methodology 5:1 8:24 19:10 21:21</p> <p>methods 8:12 25:17</p> <p>miles 23:6,14 27:10</p> <p>Miller 17:17</p> <p>mine 26:21</p> <p>mineralogy 9:20</p> <p>minerals 9:19 14:5,9</p> <p>minor 13:3 15:4,6</p> <p>missing 5:19</p> <p>mix 24:5</p> <p>move 10:3,14,16,22 23:21 24:3,6,7,10,15,21</p>	<p>moves 9:17,22,24 10:2,11 23:15,19,24,25 24:5,8</p> <p>moving 9:25 10:10,20,22,23</p> <p>Munn 17:14</p> <hr/> <p style="text-align: center;">N</p> <hr/> <p>natural 11:2,6,8,17</p> <p>naturally 11:21</p> <p>nature 11:8</p> <p>necessarily 11:22</p> <p>nice 26:2</p> <p>none 8:4,5 13:3</p> <p>norm 15:10</p> <p>Notary 1:20 28:18 29:6</p> <p>noted 29:8</p> <p>notes 29:14</p> <p>Nothing 27:17</p> <p>Notice 1:19 2:20 5:10</p> <hr/> <p style="text-align: center;">O</p> <hr/> <p>object 13:6</p> <p>occurrence 11:6,8</p> <p>occurring 11:3</p> <p>occurs 24:1</p> <p>October 3:13 4:4</p> <p>offer 6:24 8:3 12:12 18:23</p> <p>offered 18:18,19</p> <p>Office 1:19</p> <p>offices 1:19</p> <p>oh 7:13 10:16 14:22 16:7 17:12 27:11</p>
---	---	---

<p>Okay 4:11 5:20 6:16 8:2,8,10,15 9:3,6 10:8,13,25 12:7,11 13:17 14:19 15:3,15 16:2,12,25 17:6 18:17 19:1 22:25 23:23 24:16 25:23</p> <p>opinion 2:21 6:7 18:18 19:9,22 21:14 22:18 24:20</p> <p>opinions 5:16 7:23 8:2,5 18:3,14,23</p> <p>opportunity 18:13</p> <p>outfalls 16:21</p> <p>outside 18:21</p> <p>overflow 25:19</p> <hr/> <p style="text-align: center;">P</p> <hr/> <p>page 2:15 5:21 8:15 12:25 16:2,3 22:10,11</p> <p>pages 29:12</p> <p>Paige 1:15 2:16,21 3:2,9 28:5,9 29:8</p> <p>paragraph 13:1,5,18 16:3</p> <p>party 29:17</p> <p>patterns 26:20</p> <p>pause 13:8 22:13</p> <p>pay 7:14</p> <p>pedocalcic 11:24</p> <p>per 16:13</p> <p>percent 4:12,13</p> <p>percentage 4:8,9</p> <p>performed 7:19</p> <p>permit 1:6 7:8,9,24 16:22 17:1 18:3 19:12,16 20:2,4 21:22,24 27:6</p>	<p>personally 20:9</p> <p>Petitioner 2:3</p> <p>Ph.D 1:15 2:16 3:2,25 28:5,9 29:9</p> <p>phenomena 11:3,17</p> <p>phrases 12:22</p> <p>physics 3:24 6:8,11 9:15</p> <p>pick 9:18,24</p> <p>picking 10:3</p> <p>picture 10:9</p> <p>please 3:8,20 13:25</p> <p>point 21:23</p> <p>polarity 9:18 23:16</p> <p>political 3:22</p> <p>pond 25:19 26:2</p> <p>ponds 21:4</p> <p>pore 21:8</p> <p>possibility 25:22 27:9</p> <p>possible 9:13 11:20</p> <p>potential 14:10 23:18 24:25</p> <p>Powder 1:5 23:11 24:18 26:14,17,25</p> <p>preexisting 13:20 15:17</p> <p>pre-existing 13:2</p> <p>preparation 7:6</p> <p>prepare 19:7</p> <p>prepared 19:19</p> <p>preparing 19:5</p> <p>pressure 21:8 23:15</p> <p>print 29:14</p> <p>prior 19:12,15,18</p>	<p>probability 23:9</p> <p>probably 15:9,10 17:17</p> <p>Procedure 1:19</p> <p>proceedings 27:18 29:11</p> <p>process 11:1 22:23 23:12</p> <p>profile 9:25 10:2,17,23,24 11:6 14:15</p> <p>profiles 11:9</p> <p>property 16:22 20:10</p> <p>protective 8:19</p> <p>prove 23:2</p> <p>provide 7:2,5 13:5</p> <p>Public 1:20 28:18 29:6</p> <p>pull 12:22 23:18</p> <p>Pumpkin 4:19</p> <p>pursuant 1:18</p> <hr/> <p style="text-align: center;">Q</p> <hr/> <p>qualities 21:11</p> <p>quality 1:1 4:15 7:15 9:12 11:7 13:2,14,15,20,21 14:22 15:16,17</p> <p>question 4:19 5:5 13:7,17 18:19 20:17 22:14</p> <p>questions 3:17 7:8 8:1,8 12:5,21 18:7,16,18,22 19:22,25 25:3 26:11</p> <p>quick 25:3</p> <hr/> <p style="text-align: center;">R</p> <hr/> <p>Racine 1:20 29:5,21</p>
---	---	---

rainfall 10:18	17:10,22	rulemakings 4:24
rainwater 11:2	18:2,4,5,21	Rules 1:19
ranch 1:6 7:16 16:19	19:8,15,18 25:4	
rate 24:20	reported 29:11	<hr/> S <hr/>
really 14:14 19:21	Reporter 1:20	SA 27:14
reason 14:7	29:5,21	saline 26:2
reasonable 8:18	REPORTER'S 29:1	salinity 13:21
reasons 13:19	represent 19:4	salinize 11:21
recall 21:23	requesting 7:7	salinized 11:23
record 3:7 22:1,4	requests 5:13	salt 11:24
reduced 29:14	reread 19:8,9	salts 9:19,24,25
refer 8:15 11:17	research 4:8,12	10:3,14,23,24
12:4,25 16:2	24:16	11:5,22
referenced 5:15	reservoir 26:19,24	samples 9:12 26:18
regard 19:23	reservoirs 17:1 25:6	sampling 8:25 24:17
regarding 7:8 18:3	27:4	SAR 11:3 25:13,25
24:17	resistance 24:10	saved 6:19
regards 25:14	RESOURCES 1:6	science 3:23,24
Registered 1:20	respond 7:8 22:22	scientific 6:7 19:9
29:5,21	Respondent 1:18 2:8	scientifically 8:18
related 26:13 29:16	5:13	9:8,10 13:19
relates 20:2,12	responding 19:24	scope 18:21
relating 5:16 27:3	response 20:18,23	Scott 17:17
relation 20:6	responses 18:6,19	season 11:12
relationship 16:22	result 26:25 29:18	second 5:21 13:18
relative 29:10	results 8:18	22:2
relied 5:15	resurface 23:6,13	Section 19:19
rely 9:3	retained 4:14 7:2	seen 5:8 27:13
repeat 3:17	review 7:5 19:12	seeps 20:13
rephrase 3:17	River 1:5 23:11	semi 9:23 11:4,20
replenishing 14:6	24:18 26:14,17,25	send 7:9
report 2:21 5:16	root 16:13	sensitive 16:16
6:13,17,18,22	Rose 6:5,6	sent 5:10 7:7,9 19:8
7:3,6,23,25	route 24:7	sentence 13:1
8:3,6,9,11,15 9:9	rulemaking 4:22 5:4	sentences 12:22
12:3,4,5,6,21,22		

several 13:19	14:23,24,25 15:12 24:19	surrounding 21:6
severe 13:21	specifically 15:20 21:13	sworn 3:3 28:15 29:9
sheets 28:6	spill 25:16	system 24:3,15
sic 18:19	Spotted 26:12 27:3	systems 24:2
similar 13:17 23:10	SS 29:2	<hr/> T <hr/>
site 14:23,25 15:12 24:19	stapler 12:17	talking 13:12 14:13 22:23
situation 15:20,22	State 1:2,21 29:2,7	tastes 14:9
Sixteenth 2:6	statement 8:22,23 13:4,22 15:15,19 16:6,12	teaching 4:9,10
size 21:8 25:20	statements 8:9 9:7 12:23	terms 9:21
skimmed 20:3	stenographic 29:14	tested 20:6,9
slowly 24:2	stenotype 29:12	testified 3:3 4:21
snow 24:2	Stevens 2:5 19:4 26:5	testify 18:8,9,15,20
sodium 14:17	stops 10:20	testimony 5:17 18:11 28:7 29:10,11
soil 6:8,12 7:15 9:12,15,24,25 10:2,10,12,17,20,23 ,24 11:5,9,11 12:2 13:21 14:15,16,17 20:9 23:15,20,21,24 24:3 26:17	store 14:8	texture 11:11 24:12
soils 3:24 8:25 9:1,17,19,20,21,22 11:8,21 20:6 21:6,9,11 23:10,13,17 24:3,12,13,17 25:13	storm 25:20	thank 6:16 12:18 18:25
soluble 10:24	streams 24:4 25:7	Thanks 27:16
Sorry 13:11	Street 1:20 2:3,6	that's 5:5,6,24 6:21 10:18 14:7 15:9 17:5 22:6,18 23:19 26:8 27:14,16
sort 10:4 14:7 15:4 19:11 24:9,13,14	student 5:23	there's 6:7 9:11 13:14 14:25 25:16,18,19
sound 22:9	studies 24:17 26:13	Thereupon 5:22 7:1 12:14
sources 27:5,8	stuff 5:6	they're 13:12 14:13 16:23 17:4 21:1
South 1:20	subjected 10:21 26:16	they've 14:8
Sparks 2:7,17 19:3,4 22:3,6,9,12,15 26:8	subpoena 4:17,18	Thirty 4:12
species 16:16	Subscribed 28:15	threshold 16:13
specific 7:12,25	subsurface 24:1	thrown 13:24
	sudden 14:21	Tier 4:25 5:25 7:10,11,17 8:24 13:18 16:4,8,10,11
	Suite 2:6	
	sure 7:22 19:10 22:3	
	surface 23:25 24:4 25:9,14	

19:9	valid 26:24	work 4:8 23:12
Tim 18:1	value 16:13	worse 15:16
title 6:5,6	Vance 17:14	WOZNIAK 2:5
today 5:18	vertically 24:6	WY 2:4,10
top 23:20 25:16	viewed 14:20	WY0094056 1:6
to-wit 3:4	visited 20:3,5	Wyoming 1:2,19,20,21 3:11 4:3 11:5,20 16:14 23:25 29:2,7
transcript 28:6 29:14	<hr/> W <hr/>	WYPDES 1:6 8:17
transcription 29:15	water 6:8,12 7:15 9:12,17,23 10:1,4,10,11,14,15, 18,20,22 11:2,7,11 13:2,13,15,20,21 14:3,8,9,11,15,21,2 2 15:8,16 17:2 20:6,9,14 21:3,7,9,15,17 22:25 23:2,5,15,16,18,19, 20,25 24:4,8,13,21 25:9,12,14,17,24 26:6,16,17 27:5,8,10	<hr/> Y <hr/>
treated 14:7 23:21	waters 8:19 9:2 21:12 25:6	you'll 10:22
tributaries 25:7	watershed 3:25 11:10 16:24 21:7	yourself 3:7
tributary 25:15	Watersheds 6:9,12	you've 5:8 17:15 24:16
trouble 6:19	Wednesday 1:15	<hr/> Z <hr/>
true 14:18 15:7 28:6 29:13	week 19:10	zone 16:14
trying 18:14	west 1:6 2:3 7:16 20:10	
type 15:24 16:18	West 16:18,22	
types 21:11 24:21	wetting 10:1,4,6,7,10	
<hr/> U <hr/>	we've 27:13	
Um-hum 22:21	whether 15:21,23	
understand 3:16 6:18 7:19,21 8:11	whole 13:5	
understanding 16:23	WILLIAM 1:6 2:7	
University 3:11,24 4:1,2		
unless 23:21 27:1		
unlined 17:3,4 25:19		
upon 5:15 10:17		
upstream 16:24		
usually 4:7 10:3 24:11,12		
UW 1:19 4:6		
<hr/> V <hr/>		
vague 13:7,11		

May 30, 2007

Ms. Jennifer Zygmunt
Wyoming Department of Environmental Quality
Water Quality Division
122 W. 25th St.
Herschler Building 4W
Cheyenne, WY 82002

RECEIVED

JUN 14 2007

ON

**Subject: Federated Oil and Gas Properties, Inc.
WYPDES Discharge Permit Renewal for WY0045829 Spotted Horse CBM
Project**

Dear Ms. Zygmunt:

Federated Oil and Gas Properties, Inc. (Federated) is submitting a renewal to the WYPDES permit WY0045829 Spotted Horse CBM Operations. The WY0045829 permit expired on September 27, 2006, but due to an administrative error within the Wyoming Department of Environmental Quality (WDEQ), Federated was not aware of the impending expiration of this permit until after the expiration date had been reached. Because Federated had not been properly notified of the expiration of WY0045829, Ms. Leah Krafft had indicated that any application submitted for this facility would be processed as a renewal.

The outfalls associated with WY0045829 have previously been permitted as Option 1A, off-channel facilities. All reservoirs associated with this permit have been constructed with complete containment berms, and were previously considered to be off-channel storage facilities. However, these reservoirs do not meet WDEQ's current definition of an off-channel facility since they are located within 500 ft of the nearest channel or floodplain. Thus, Federated is requesting that the permitting status of all outfalls associated with WY0042589 be revised to Option 1B, headwater reservoirs. Since all storage facilities have been completely bermed, the only precipitation they should receive is from direct rainfall on the reservoir and thus they are capable of containing all CBM effluent as well as a 50-year/24-hour event (Table 5).

The WY0045829 permit currently has forty-four (44) wells and three (3) outfalls. As part of this permit renewal, twenty-nine (29) wells, one (1) outfall and its associated reservoir will be removed. Federated is asking for discharge from all wells to all outfalls (AWAO). Thus, this renewal is written for sixteen (16) wells to discharge to two (2) outfalls.

One (1) paper copy and one (1) electronic copy of this renewal application are enclosed. Table 1 identifies the outfalls and other compliance monitoring points associated with the permit. For a detailed list of all wells associated with the permit, please see Table 2. Table 3 lists reservoir information for this facility while Table 4 shows the bonding information for those reservoirs. Table 5 demonstrates a five-year water balance for the

EXHIBIT

tabbles

8

002-SHS Option 1B storage facility. Table 7 is a listing of all active Federated permits within this permit area. The attached map identifies the locations of wells, reservoirs, and outfalls associated with this facility. Appendix A includes the laboratory results of representative water quality from the current produced coal seams. This is a commingled sample and represents Cook, Canyon, Wall, Anderson, and Smith coal seams.

The previous WY0045829 permit did not have an associated flow rate and Federated is requesting as part of this renewal, that a flowrate be established. The wells associated with the Spotted Horse Creek project have been shut-in for a number of months because the WYPDES permit for this facility expired in September 2006; although the projected flow upon commencement of discharge is expected to be similar to the flow observed prior to shut-in. Estimated water production levels for existing wells in this facility would suggest a maximum flowrate of 90.277 gpm or 0.13 MGD. This flow limit would accommodate production and storage (taking into account the freeboard requirements for Option 1B reservoirs) from all sixteen (16) wells associated with this facility.

The reservoirs were designed in accordance with Wyoming State Engineer's Office regulations and have been permitted with this agency. The 001-SHS reservoir has very little remaining capacity and will only be utilized on rare occasions. All sixteen (16) wells associated with this facility will discharge to the 002-SHS reservoir and a water balance for this storage facility is attached as Table 5. A 15% monthly water production decline rate was assumed for all sixteen (16) wells, thus the average annual discharge rate per well (gpm) was used in the water balance calculations. The water balance calculations also take into account the 50-year/24-hour storm event requirements for the proposed Option 1B reservoirs. Both the 001-SHS and 002-SHS reservoirs were constructed as off-channel facilities and are completely bermed so that the only precipitation received is the volume of moisture that falls on top of the reservoir. The evaporation rates incorporated in the Spotted Horse project water balance were taken from Pochop et al., WWRC 85-21 "Design Information for Evaporation Ponds in Wyoming" found at <http://library.wrds.uwyo.edu/wrp/85-21-85-21.html>. Mean monthly evaporation rates for the Casper region were used in the Spotted Horse project water balance. The initial infiltration rate of 5 acre-ft/acre/year, or 106.38 bwpd/acre was used. This initial rate was the observed infiltration rate at an off-channel facility located approximately 7.0 miles from the 002-SHS reservoir. A decline curve of 1.5% per month was applied to the expected infiltration rate.

Federated Oil & Gas Properties, Inc. commits to comply with all effluent limits, self-monitoring and reporting requirements and other conditions of the permit.

Federated appreciates your review and approval at the earliest possible convenience.

BEFORE THE ENVIRONMENTAL QUALITY COUNCIL
STATE OF WYOMING

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

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY'S
RESPONSE TO STEPHENS ENERGY COMPANY, LLC'S FIRST COMBINED
DISCOVERY REQUESTS

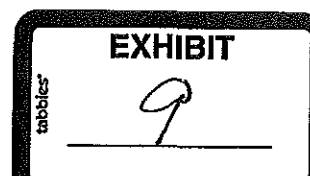
Respondent Wyoming Department of Environmental Quality (DEQ), hereby submits the following discovery responses pursuant to Stephens Energy Company, LLC's First Combined Discovery Requests in the above-captioned matter.

REQUESTS FOR ADMISSION

1. The impoundments at issue under Permit No. WY0094056 were originally authorized by the DEQ under Permit Nos. WY0045829 on September 28, 2001, and WY0046469 on October 9, 2001.

ANSWER: Admit that the impoundments associated with WY0094056 were previously associated with WY0045829 and WY0046469. Deny that any of these permits "authorize" impoundments. The permits authorize discharge into impoundments. The impoundments themselves are permitted through the State Engineer's Office or the Wyoming Oil and Gas Conservation Commission.

2. Stephens' impoundments were constructed in 2001 and 2002 and have been in continual use since then.



ANSWER: Deny. DEQ has no knowledge of the exact construction date for these impoundments or whether their use has been "continual."

3. There are other CBM impoundments upstream from Petitioners land that are located on epheremel tributaries of Spotted Horse Creek or feed into or are on Spotted Horse Creek.

ANSWER: Admit.

4. WYPDES Permit No. WY0094056 does not authorize any intentional discharge of water into any epheremel tributary of Spotted Horse Creek or into Spotted Horse Creek.

ANSWER: Deny. The permit does authorize intentional releases from the reservoirs in the event that assimilative capacity credits are used and a release is authorized by DEQ. Admit that the permit prohibits intentional reservoirs releases otherwise.

5. Intentional discharge from any impoundments into any ephemeral stream or tributary would be a violation of Stephens permit and would subject Stephens to enforcement by the DEQ under the permit.

ANSWER: Deny. The permit does authorize intentional releases from the reservoirs in the event that assimilative capacity credits are used and a release is authorized by DEQ. Admit that the permit prohibits intentional reservoirs releases otherwise.

6. The DEQ has never found Stephens to be in violation of WYPDES Permit No. WY0094056.

ANSWER: Admit.

7. The DEQ has never found that Stephens has discharged any water from its impoundments into any ephemeral stream or tributary of Spotted Horse Creek or into Spotted Horse Creek.

ANSWER: Admit.

8. The DEQ has never found that any water has seeped from its impoundments into any ephemeral stream or tributary of Spotted Horse Creek or into Spotted Horse Creek.

ANSWER: Deny. The statement is not clear as to the owner of "its impoundments." DEQ admits that to this date DEQ has not found any seeps along Spotted Horse Creek that are presumed to be from Stephens' impoundments.

INTERROGATORIES

1. If you deny any of the requested admissions above in whole or in part, please set forth the specific factual basis for each denial.

ANSWER: See answers above.

2. Please provide all documentation and evidence of other CBM impoundments located upstream from Petitioners' land on ephemeral tributaries of Spotted Horse Creek or on Spotted Horse Creek.

ANSWER: See attached table generated by DEQ.

3. Please provide all documentation and evidence of other CBM impoundments located upstream from Petitioners' land on ephemeral tributaries of Spotted Horse Creek or on Spotted Horse Creek but downstream of Stephens' impoundments.

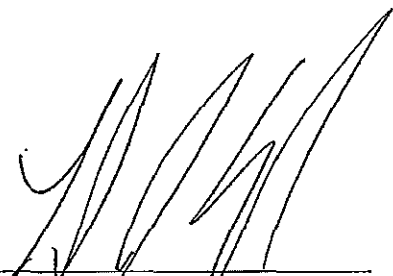
ANSWER: See attached table generated by DEQ.

DOCUMENTS TO BE PRODUCED

1. Provide copies of any and all documents referred to, considered, reviewed or related to your answers provided to Requests for Admissions Nos. 1 through 8 and Interrogatory Nos. 1 through 3.

ANSWER: See attached table generated by DEQ.

DATED this 2nd day of December, 2009.



Luke J. Esch (#6-4155)
Assistant Attorney General
123 State Capitol Building
Cheyenne, Wyoming 82002
307-777-6946

NOTARIAL CERTIFICATE

I, _____, verify that I have read and reviewed the above responses to interrogatories and state that they are true and correct to the best of my knowledge.

State of Wyoming
§
County of Laramie

The foregoing document was personally subscribed and sworn before me by
_____ this _____ day of _____, 2009.

Witness my hand and official seal. .

SEAL

Notary Public

Commission expires: _____

CERTIFICATE OF SERVICE

This certifies that true and correct copies of the foregoing WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY'S RESPONSE TO STEPHENS ENERGY COMPANY, LLC'S FIRST COMBINED DISCOVERY REQUESTS was served this 2nd day of December, 2009 by United States mail, postage prepaid and also by e-mail or facsimile transmission, addressed as follows:

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Spotted Horse Creek: Permitted CBM Outfalls: 11/27/09

WYPDES Permit Number	Outfall	Permittee	Facility Name	QTR	QTR	Section	TWN	RNG	Latitude	Longitude	Receiving Water Comment	Permit Expiration Date	Permit Type
WY0037362	001	Yates Petroleum Corporation	Store Draw CS State #1 CBM Wells	NE	SW	36	55N	75W	44.6987858	-105.8292354	Powder River (2ABWW) via Spotted Horse Creek (3B) via on-channel reservoirs "PR1" and "PR2" (3B)	3/31/12	Coal Bed Methane
WY0038351	002	Storm Cat Energy Corporation	Mustang Federal CBM Project	NE	NW	5	54N	74W	44.6941849	-105.7898891	Powder River (2ABWW) via Spotted Horse Creek (3B) via Chicken Creek Draw (3B) via an unnamed, ephemeral tributary (3B) via on channel reservoir "Brush Hog" (3B)	3/31/12	Coal Bed Methane
WY0038351	005	Storm Cat Energy Corporation	Mustang Federal CBM Project	SW	NE	5	54N	74W	44.6910915	-105.7838043	Powder River (2ABWW) via Spotted Horse Creek (3B) via Chicken Creek Draw (3B) via an unnamed, ephemeral tributary (3B) via cascading on channel reservoirs "Stallion" and "Brush Hog" (both 3B)	3/31/12	Coal Bed Methane
WY0038377	025	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	SE	SE	11	55N	76W	44.7547093	-105.967381	A natural, topographically closed basin " Wolff Pit" (3B), located within, but not tributary to, the Spotted Horse Creek (3B) sub-basin of the Powder River drainage (2ABWW)	3/31/10	Coal Bed Methane
WY0038377	027	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	NW	NE	22	55N	75W	44.735923	-105.870807	Powder River (2ABWW) via Spotted Horse Creek (3B) via Hay Creek (3B) via on-channel "T55NR75W22NWNE" reservoir (3B)	3/31/10	Coal Bed Methane
WY0038377	028	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	SW	NE	23	55N	75W	44.730774	-105.850898	Powder River (2ABWW) via Spotted Horse Creek (3B) via Pearl Draw (3B) via on-channel "T55NR75W23SWNE" reservoir (3B)	3/31/10	Coal Bed Methane
WY0038377	029	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	SW	SW	24	55N	75W	44.724841	-105.8404995	Powder River (2ABWW) via Spotted Horse Creek (3B) via String Draw (3B) via on-channel "T55NR75W24SWSW" reservoir (3B)	3/31/10	Coal Bed Methane
WY0038377	030	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	NE	SE	24	55N	75W	44.72767	-105.826994	Powder River (2ABWW) via Spotted Horse Creek (3B) via Oyster Draw (3B) via on-channel "T55NR75W24NWSE" reservoir (3B)	3/31/10	Coal Bed Methane
WY0038377	031	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	SW	NW	26	55N	75W	44.717302	-105.860012	Powder River (2ABWW) via Spotted Horse Creek (3B) via Door Draw (3B) via on-channel "T55NR75W26SWNW" reservoir (3B)	3/31/10	Coal Bed Methane

WY0038377	032	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	SE	NE	26	55N	75W	44.715773	-105.847426	Powder River (2ABWW) via Spotted Horse Creek (3B) via Stable Draw (3B) via on-channel "T55NR75W26SWNE" reservoir (3B)	3/31/10	Coal Bed Methane
WY0038377	033	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	NW	NW	31	56N	75W	44.791834	-105.939462	Powder River (2ABWW) via Spotted Horse Creek (3B) via Double Draw (3B) via on-channel "T56NR75W31NWNW" reservoir (3B)	3/31/10	Coal Bed Methane
WY0038377	034	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	SW	NW	31	56N	75W	44.789567	-105.941312	Powder River (2ABWW) via Spotted Horse Creek (3B) via Poplar Draw (3B) via on-channel "T56NR75W31SWNW" reservoir (3B)	3/31/10	Coal Bed Methane
WY0038377	037	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	SW	NE	36	56N	76W	44.788859	-105.951095	Powder River (2ABWW) via Spotted Horse Creek (3B) via Small Draw (3B) via on-channel "T56NR76W36SWNE" reservoir (3B)	3/31/10	Coal Bed Methane
WY0038377	038	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	SE	NW	36	56N	76W	44.788407	-105.952847	Powder River (2ABWW) via Spotted Horse Creek (3B) via Single Draw (3B) via on-channel "T56NR76W36SWNE2" reservoir (3B)	3/31/10	Coal Bed Methane
WY0038377	041	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	NE	SE	28	55N	75W	44.7118	-105.88597	Powder River (2ABWW) via Spotted Horse Creek (3B) via Howell Draw (3B) via on-channel "T55NR75W28NESE" reservoir (3B)	3/31/10	Coal Bed Methane
WY0038377	044	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	SW	NE	12	55N	76W	44.75947	-105.95177	Powder River (2ABWW) via a naturally closed basin playa lake "Creswell #1" (3A) located within but not tributary to the Spotted Horse Creek (3B) drainage	3/31/10	Coal Bed Methane
WY0038377	045	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	SW	NW	12	55N	76W	44.75968	-105.96148	Powder River (2ABWW) via a naturally closed basin playa lake "T55NR76W12SWNW" (3A) located within but not tributary to the Spotted Horse Creek (3B) drainage	3/31/10	Coal Bed Methane
WY0038377	046	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	SE	NW	14	55N	75W	44.74598	-105.85307	Powder River (2ABWW) via Spotted Horse Creek (3B) via Pear Draw (3B) via on-channel "T55NR75W14SENW" reservoir (3B)	3/31/10	Coal Bed Methane
WY0038377	049	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	SE	NW	17	55N	75W	44.74308	-105.92015	Powder River (2ABWW) via Spotted Horse Creek (3B) via South Prong Spotted Horse Creek (3B) via an unnamed ephemeral tributary (3B) via on-channel "T55NR75W17SWNW" reservoir (3B)	3/31/10	Coal Bed Methane

WY0038377	052	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	NE	NE	23	55N	76W	44.73485	-105.96554	Powder River (2ABWW) via Spotted Horse Creek (3B) via South Prong Spotted Horse Creek (3B) via an unnamed ephemeral tributary (3B) via on-channel "T55NR76W245WNW" reservoir (3B)	3/31/10	Coal Bed Methane
WY0038377	053	Devon Energy Production Company, LP	Spotted Horse Creek CBM Operations	SE	SW	12	55N	76W	44.753004	-105.95565	Powder River (2ABWW) via Spotted Horse Creek (3B) via South Prong Spotted Horse Creek (3B) via an unnamed ephemeral tributary (3B) via on-channel "T55NR76W125ENW" reservoir (3B)	3/31/10	Coal Bed Methane
WY0045829	001	Federated Oil and Gas Properties	Spotted Horse Federal-SHS	NE	NW	12	54N	75W	44.6809535	-105.8331097	Powder River (ABWW) via Spotted Horse Creek (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "001-SHS" (3B)	3/31/10	Coal Bed Methane
WY0045829	002	Federated Oil and Gas Properties	Spotted Horse Federal-SHS	SE	NW	2	54N	75W	44.6921303	-105.8513913	Powder River (2ABWW) via Spotted Horse Creek (3B) via on-channel reservoir "002-SHS" (3B)	3/31/10	Coal Bed Methane
WY0045838	001	High Energy, Inc.	Spotted Horse Project-003	NW	SE	3	54N	75W	44.7124709	-105.8919373	Powder River (2ABWW) via Spotted Horse Creek (3B) via an unnamed ephemeral tributary (3B) via on-channel "Spotted Horse 003" reservoir	3/31/10	Coal Bed Methane
WY0048615	001	Yates Petroleum Corporation	CS State-Spotted Horse	SW	SE	16	55N	75W	44.739761	-105.890487	Powder River (2ABWW) via Spotted Horse Creek (class 3B) via on-channel reservoir "Strawberry Roan" (3B)	3/31/11	Coal Bed Methane
WY0048615	002	Yates Petroleum Corporation	CS State-Spotted Horse	NE	SW	16	55N	75W	44.740709	-105.895433	Powder River (2ABWW) via Spotted Horse Creek (3B) via off-channel pit "New Indian Pony" (4C)	3/31/11	Coal Bed Methane
WY0049336	001	Yates Petroleum Corporation	#4 Spotted Horse POD (Appaloosa Wells)	NW	SE	14	55N	75W	44.7434115	-105.8497502	Powder River (2ABWW) via Spotted Horse Creek (3B) via unnamed ephemeral tributary via on-channel reservoir "Mitchell #2" (3B)	3/31/10	Coal Bed Methane
WY0049336	002	Yates Petroleum Corporation	#4 Spotted Horse POD (Appaloosa Wells)	SW	SW	14	55N	75W	44.7394358	-105.8617562	Powder River (2ABWW) via Spotted Horse Creek (3B) via unnamed ephemeral tributary via on-channel reservoir "Mitchell #1" (3B)	3/31/10	Coal Bed Methane
WY0049336	003	Yates Petroleum Corporation	#4 Spotted Horse POD (Appaloosa Wells)	SW	NW	15	55N	75W	44.7471753	-105.8813879	Powder River (2ABWW) via Spotted Horse Creek (3B) via unnamed ephemeral tributary via on-channel reservoir "Carson #2" (3B)	3/31/10	Coal Bed Methane
WY0049336	004	Yates Petroleum Corporation	#4 Spotted Horse POD (Appaloosa Wells)	NE	NE	15	55N	75W	44.7480401	-105.8644031	Powder River (2ABWW) via Spotted Horse Creek (3B) via unnamed ephemeral tributary via on-channel reservoir "Carson #1" (3B)	3/31/10	Coal Bed Methane

WY0049336	006	Yates Petroleum Corporation	#4 Spotted Horse POD (Appaloosa Wells)	SE	SE	14	55N	75W	44.73773	-105.84518	Powder River (2ABWW) via Spotted Horse Creek (3B) via unnamed ephemeral tributary via on-channel reservoir "Arvada" (3B)	3/31/10	Coal Bed Methane
WY0049701	001	Lance Oil and Gas Company, Inc.	Spotted Horse Store Unit	NW	SE	25	55N	75W	44.71395	-105.8277	Powder River (2ABWW), via Spotted Horse Creek (3B), via Barn Draw (3B) via on-channel reservoir "Hot Tub" (3B)	3/31/14	Coal Bed Methane
WY0049701	002	Lance Oil and Gas Company, Inc.	Spotted Horse Store Unit	NE	SW	25	55N	75W	44.71247	-105.83462	Powder River (2ABWW), via Spotted Horse Creek (3B), via Barn Draw (3B) via on-channel reservoir "Cattail" (3B)	3/31/14	Coal Bed Methane
WY0049701	003	Lance Oil and Gas Company, Inc.	Spotted Horse Store Unit	NE	NW	30	55N	74W	44.72112	-105.8164	Powder River (2ABWW), via Spotted Horse Creek (3B), via Chicken Draw (3B), via Barn Draw (3B) via on-channel reservoir "Zachary ENL aka Pair of Ponds" (3B)	3/31/14	Coal Bed Methane
WY0049701	004	Lance Oil and Gas Company, Inc.	Spotted Horse Store Unit	SE	NW	30	55N	74W	44.71661	-105.81478	Powder River (2ABWW), via Spotted Horse Creek (3B), via Chicken Creek (3B), via Atnip Draw (3B) via on-channel reservoir "Boneyard" (3B)	3/31/14	Coal Bed Methane
WY0049701	005	Lance Oil and Gas Company, Inc.	Spotted Horse Store Unit	SW	SE	30	55N	74W	44.71158	-105.80757	Powder River (2ABWW), via Spotted Horse Creek (3B), via Chicken Creek (3B), via Half Pint Draw (3B) via on-channel reservoir "Black Bull" (3B)	3/31/14	Coal Bed Methane
WY0049701	006	Lance Oil and Gas Company, Inc.	Spotted Horse Store Unit	NE	NW	25	55N	75W	44.7205	-105.83684	Powder River (2ABWW), via Spotted Horse Creek (3B), via Pearl Draw (3B) via on-channel reservoir "Pearl" (3B)	3/31/14	Coal Bed Methane
WY0049859	003	Lance Oil and Gas Company, Inc.	South Spotted Horse Unit	NE	SW	7	54N	74W	44.67253	-105.81126	Powder River (2ABWW) via Spotted Horse Creek (3B) via Box Draw (3B) via Sandy Draw (3B) via an on-channel reservoir "Sandy Hole" (3B)	3/31/11	Coal Bed Methane
WY0049859	004	Lance Oil and Gas Company, Inc.	South Spotted Horse Unit	SW	NE	31	55N	74W	44.70239	-105.80872	Powder River (2ABWW) via Spotted Horse Creek (3B) via Chicken Creek Draw (3B) via Sage Draw (3B) via on-channel reservoir "Power Line" (3B)	3/31/11	Coal Bed Methane
WY0049859	005	Lance Oil and Gas Company, Inc.	South Spotted Horse Unit	NW	NW	33	55N	74W	44.70582	-105.7811	Powder River (2ABWW) via Spotted Horse Creek (3B) via Chicken Creek Draw (3B) via Fried Draw (3B) via on-channel reservoirs "Ava", "Black Lab", "Oxbow" (3B)	3/31/11	Coal Bed Methane
WY0049859	006	Lance Oil and Gas Company, Inc.	South Spotted Horse Unit	SE	NE	32	55N	74W	44.701325	-105.784363	Powder River (2ABWW) via Spotted Horse Creek (3B) via Chicken Creek Draw (3B) via Fletch Draw (3B) via on-channel reservoir "Deer Run" (3B) and "Oxbow" (3B)	3/31/11	Coal Bed Methane

WY0049859	009	Lance Oil and Gas Company, Inc.	South Spotted Horse Unit	SW	SW	5	54N	74W	44.683607	-105.796492	Powder River (2ABWW) via Spotted Horse Creek (3B) via Rule Draw (3B) via on-channel reservoir "Spring" (3B)	3/31/11	Coal Bed Methane
WY0049859	012	Lance Oil and Gas Company, Inc.	South Spotted Horse Unit	NW	NE	6	54N	74W	44.695008	-105.804728	Powder River (2ABWW) via Spotted Horse Creek (3B) via Butte Draw (3B) via on-channel reservoir "Butte # 7" (3B)	3/31/11	Coal Bed Methane
WY0049859	013	Lance Oil and Gas Company, Inc.	South Spotted Horse Unit	SE	NE	32	55N	74W	44.703823	-105.782417	Powder River (2ABWW) via Spotted Horse Creek (3B) via Chicken Creek (3B) via unnamed ephemeral tributary (3B) via on-channel reservoirs "Black Lab", "Oxbow" (3B)	3/31/11	Coal Bed Methane
WY0049859	014	Lance Oil and Gas Company, Inc.	South Spotted Horse Unit	NE	SW	4	54N	74W	44.68742	-105.77136	Powder River (2ABWW) via Spotted Horse Creek (3B) via Chicken Creek Draw (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "24-4-5474" (3B)	3/31/11	Coal Bed Methane
WY0049859	015	Lance Oil and Gas Company, Inc.	South Spotted Horse Unit	SW	SE	17	54N	74W	44.65628	-105.78944	Powder River (2ABWW) via Spotted Horse Creek (3B) via Rose Creek (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "24-17-5474" (3B)	3/31/11	Coal Bed Methane
WY0049859	016	Lance Oil and Gas Company, Inc.	South Spotted Horse Unit	NE	SW	18	54N	74W	44.6595	-105.80997	Powder River (2ABWW) via Spotted Horse Creek (3B) via Box Draw (3B) via Log Draw (3B) via on-channel reservoir "23-18-5474" (3B)	3/31/11	Coal Bed Methane
WY0049859	017	Lance Oil and Gas Company, Inc.	South Spotted Horse Unit	NE	SE	20	54N	74W	44.64524	-105.77827	Powder River (2ABWW) via Spotted Horse Creek (3B) via Rose Creek (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "43-20-5474" (3B)	3/31/11	Coal Bed Methane
WY0049859	018	Lance Oil and Gas Company, Inc.	South Spotted Horse Unit	SE	SE	20	54N	74W	44.6398	-105.77852	Powder River (2ABWW) via Spotted Horse Creek (3B) via Box Draw (3B) via Washout Draw (3B) via an unnamed ephemeral tributary (3B) via on-channel reservoir "44-20-5474" (3B)	3/31/11	Coal Bed Methane
WY0049859	019	Lance Oil and Gas Company, Inc.	South Spotted Horse Unit	NE	NE	29	54N	74W	44.63782	-105.77905	Powder River (2ABWW) via Spotted Horse Creek (3B) via Box Draw (3B) via Washout Draw (3B) via on-channel reservoir "41-29-5474" (3B)	3/31/11	Coal Bed Methane
WY0050199	001	Yates Petroleum Corporation	Spotted Horse CS State	NE	NW	21	55N	75W	44.7338028	-105.8920753	Powder River (2ABWW), via Spotted Horse Creek (3B), via Shape Draw (3B), via an on-channel reservoir "Kramer Stock" (3B)	3/31/12	Coal Bed Methane
WY0050199	002	Yates Petroleum Corporation	Spotted Horse CS State	SW	SW	16	55N	75W	44.7382626	-105.9025812	Powder River (2ABWW), via Spotted Horse Creek (3B), via Spot Draw (3B), via an on-channel reservoir "Spotted Horse PR-4 Stock" (3B)	3/31/12	Coal Bed Methane

WY0050199	003	Yates Petroleum Corporation	Spotted Horse CS State	SW	SW	10	55N	75W	44.7525326	-105.88116	Powder River (2ABWW), via Spotted Horse Creek (3B), via an unnamed, ephemeral tributary (3B), via an on-channel reservoir B-3 (3B).	3/31/12	Coal Bed Methane
WY0050199	004	Yates Petroleum Corporation	Spotted Horse CS State	SE	SE	8	55N	75W	44.751421	-105.904943	Powder River (2ABWW), via Spotted Horse Creek (3B), via Circle Draw (3B), via an on-channel reservoir "Spotted Horse PR-1 Stock" (3B).	3/31/12	Coal Bed Methane
WY0051306	001	Yates Petroleum Corporation	Ucross CS Federal	NW	NW	7	55N	75W	44.7623736	-105.9413805	Powder River (2ABWW) via Spotted Horse Creek (3B) via South Prong Spotted Horse Creek (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "Side Pocket" (3B)		Coal Bed Methane
WY0051306	002	Yates Petroleum Corporation	Ucross CS Federal	SE	NW	7	55N	75W	44.7604887	-105.935364	Powder River (2ABWW) via Spotted Horse Creek (3B) via South Prong Spotted Horse Creek (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "High Plains" (3B)		Coal Bed Methane
WY0051306	003	Yates Petroleum Corporation	Ucross CS Federal	SE	NW	7	55N	75W	44.7607081	-105.9347159	Powder River (2ABWW) via Spotted Horse Creek (3B) via South Prong Spotted Horse Creek (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "Old Fenceline" (3B)		Coal Bed Methane
WY0051306	004	Yates Petroleum Corporation	Ucross CS Federal	SW	SE	6	55N	75W	44.765454	-105.9321659	Powder River (2ABWW) via Spotted Horse Creek (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "Plateau" (3B)		Coal Bed Methane
WY0051306	005	Yates Petroleum Corporation	Ucross CS Federal	NE	SE	31	56N	75W	44.7870805	-105.9253673	Powder River (2ABWW) via Spotted Horse Creek (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "Canyon Mouth" (3B)		Coal Bed Methane
WY0051306	006	Yates Petroleum Corporation	Ucross CS Federal	NE	SW	31	56N	75W	44.7856472	-105.9339682	Powder River (2ABWW) via Spotted Horse Creek (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "Dogvilla" (3B)		Coal Bed Methane
WY0051306	007	Yates Petroleum Corporation	Ucross CS Federal	NE	SW	31	56N	75W	44.7863605	-105.9353064	Powder River (2ABWW) via Spotted Horse Creek (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "Washakie" (3B)		Coal Bed Methane
WY0051306	008	Yates Petroleum Corporation	Ucross CS Federal	NE	NE	7	55N	75W	44.7637242	-105.9282469	Powder River (2ABWW) via Spotted Horse Creek (3B) via South Prong Spotted Horse Creek (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "Bomber" (3B)		Coal Bed Methane

WY0051306	009	Yates Petroleum Corporation	Ucross CS Federal	SW	SE	6	55N	75W	44.765809	-105.929961	Powder River (2ABWW) via Spotted Horse Creek (3B) via unnamed ephemeral tributary (3B) via off-channel pit "Altitude" (4C)	Coal Bed Methane
WY0051306	010	Yates Petroleum Corporation	Ucross CS Federal	NE	SW	7	55N	75W	44.754478	-105.9358023	Powder River (2ABWW) via Spotted Horse Creek (3B) via South Prong Spotted Horse Creek (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "Craddle" (3B)	Coal Bed Methane
WY0051306	011	Yates Petroleum Corporation	Ucross CS Federal	SW	NW	7	55N	75W	44.7600176	-105.9412315	Powder River (2ABWW) via Spotted Horse Creek (3B) via South Prong Spotted Horse Creek (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "Cue" (3B)	Coal Bed Methane
WY0051756	001	Yates Petroleum Corporation	TD Southwest Option 2	NW	SW	16	54N	74W	44.6613	-105.7764	Powder River (2ABWW) via Spotted Horse Creek (3B) via TD Southwest Draw (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "Stetson" (3B)	3/31/10 Coal Bed Methane
WY0051756	002	Yates Petroleum Corporation	TD Southwest Option 2	NE	NE	16	54N	74W	44.66816	-105.76228	Powder River (2ABWW) via Spotted Horse Creek (3B) via TD Southwest Draw (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "Merle" (3B)	3/31/10 Coal Bed Methane
WY0051756	003	Yates Petroleum Corporation	TD Southwest Option 2	SE	NE	16	54N	74W	44.6635	-105.7611	Powder River (2ABWW) via Spotted Horse Creek (3B) via TD Southwest Draw (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "Bent Knee" (3B)	3/31/10 Coal Bed Methane
WY0051829	001	Lance Oil and Gas Company, Inc.	Spotted Horse-Sorenson #1	NW	SE	19	55N	74W	44.728513	-105.809648	Powder River (2ABWW) via Spotted Horse Creek (3B) via Chicken Creek Draw (3B) via an on-channel reservoir "Hill Top" (3B) located on Atnip Draw (3B)	3/31/10 Coal Bed Methane
WY0051829	002	Lance Oil and Gas Company, Inc.	Spotted Horse-Sorenson #1	NE	SE	19	55N	74W	44.72902	-105.80597	Powder River (2ABWW) via Spotted Horse Creek (3B) via Chicken Creek Draw (3B) via an on-channel reservoir "Shale Pit" (3B) located on Atnip Draw (3B)	3/31/10 Coal Bed Methane
WY0052680	001	JM Huber Corporation	Chicken Creek - South Stones Throw	NE	SE	33	55N	74W	44.70116	-105.76405	Powder River (2ABWW) via Spotted Horse Creek (3B) via Chicken Creek Draw (3B) via an on-channel reservoir "9-33" (3B)	3/31/10 Coal Bed Methane
WY0053210	001	Lance Oil and Gas Company, Inc.	Odegard Option 2 - LX Bar Creek	NE	SE	33	56N	75W	44.78613	-105.88515	Powder River (2ABWW) via LX Bar Creek (3B) via Reservoir Creek (3B) via Cart Draw (3B) via on-channel reservoirs "Spotted Horse 43-33-5675" (3B) & "Spotted Horse 13-34-5675" (3B)	6/30/11 Coal Bed Methane

WY0053228	002	Lance Oil and Gas Company, Inc.	Spotted Horse Federal - Odegard Pits	SE	SE	3	55N	75W	44.76822	-105.86655	Powder River (2ABWW) via LX Bar Creek (3B) via Reservoir Creek (3B) via Pear Draw(4B) via off-channel pit "Spotted Horse 3-1-5575" (4C)	6/30/11	Coal Bed Methane
WY0053236	001	Lance Oil and Gas Company, Inc.	Odegard - Option 2 Spotted Horse Creek	NE	SE	5	55N	75W	44.77048	-105.90542	Powder River (2ABWW) via Spotted Horse Creek (3B) via an on-channel reservoir "5-1" (3B), located on Cinco Draw (3B)	3/31/10	Coal Bed Methane
WY0053236	002	Lance Oil and Gas Company, Inc.	Odegard - Option 2 Spotted Horse Creek	SW	NE	9	55N	75W	44.76261	-105.88844	Powder River (2ABWW) via Spotted Horse Creek (3B) via an on-channel reservoir "9-1" (3B), located on Apple Draw (3B)	3/31/10	Coal Bed Methane
WY0053236	003	Lance Oil and Gas Company, Inc.	Odegard - Option 2 Spotted Horse Creek	NE	NE	5	55N	75W	44.77912	-105.90556	Powder River (2ABWW) via Spotted Horse Creek (3B) via an on-channel reservoir "Muddy Feet" (3B), located on Cinco Draw (3B)	3/31/10	Coal Bed Methane
WY0053236	004	Lance Oil and Gas Company, Inc.	Odegard - Option 2 Spotted Horse Creek	SE	SE	4	55N	75W	44.767	-105.88544	Powder River (2ABWW) via Spotted Horse Creek (3B) via an on-channel reservoir "Odegard 44-4-5575" (3B), located on an unnamed ephemeral tributary to Apple Draw (3B)	3/31/10	Coal Bed Methane
WY0053694	001	Pennaco Energy, Inc.	Incline UIC	SE	SW	23	56N	76W	44.808739	-105.974344	Powder River (2ABWW), via Spotted Horse Creek (3B), via an on-channel reservoir "injection" (3B), located on Shot Draw (3B)	3/31/10	Coal Bed Methane
WY0054143	001	Lance Oil and Gas Company, Inc.	SHF - Odegard 9-1 Pit	SW	SW	9	55N	75W	44.75311	-105.90046	Powder River (2ABWW) via Spotted Horse Creek (3B) via isolated on-channel reservoir "Odegard 9-1-5575" (3B)	3/31/13	Coal Bed Methane
WY0054861	001	Yates Petroleum Corporation	TD Southwest Option 1A	SW	SW	16	54N	74W	44.6539499	-105.7766047	Powder River (2ABww) via Spotted Horse Creek (3B), via Southwest Draw (3B), via on-channel conatinment unit "Corner Post" (3B)	3/31/12	Coal Bed Methane
WY0054861	002	Yates Petroleum Corporation	TD Southwest Option 1A	NE	NW	16	54N	74W	44.6672557	-105.7705391	Powder River (2ABww) via Spotted Horse Creek (3B), via Southwest Draw (3B), via, but not tributary from, off-channel conatinment unit "Feed Wagon" (4C)	3/31/12	Coal Bed Methane
WY0055565	001	Yates Petroleum Corporation	Spotted Horse - Appaloosa Federal Option A - 1	SW	SW	14	55N	75W	44.73895	-105.85842	Powder River (2ABWW) via Spotted Horse Creek (3B) via off-channel pit "Mitchel Stock Pit" (4C)	2/29/12	Coal Bed Methane
WY0055573	018	Yates Petroleum Corporation	Plateau Federal Option 1A CBM Project - 1	SE	SE	27	56N	76W	44.7943142	-105.9860454	Powder River (2ABWW) via Spotted Horse Creek (3B) via off-channel pit "Wolff North" (4C)	2/29/12	Coal Bed Methane
WY0055573	019	Yates Petroleum Corporation	Plateau Federal Option 1A CBM Project - 1	NE	NE	34	56N	76W	44.7911416	-105.9864186	Powder River (2ABWW) via Spotted Horse Creek (3B) via off-channel pit "Wolff South" (4C)	2/29/12	Coal Bed Methane

WY0056073	001	Yates Petroleum Corporation	Moolah Spotted Horse Creek	NW	NE	33	55N	74W	44.708159	-105.77059	Powder River (2ABWW) via Spotted Horse Creek (3B) via Chicken Creek Draw (3B) via on-channel reservoir "Big Does" (3B)	3/31/12	Coal Bed Methane
WY0056073	002	Yates Petroleum Corporation	Moolah Spotted Horse Creek	NE	NW	33	55N	74W	44.707529	-105.7773306	Powder River (2ABWW) via Spotted Horse Creek (3B) via Chicken Creek Draw (3B) via on-channel reservoir "Big Bucks" (3B)	3/31/12	Coal Bed Methane
WY0056448	001	Yates Petroleum Corporation	Store Draw CS State North CBM Facility	SE	NW	36	55N	75W	44.7052	-105.83676	Powder River (2ABWW) via Spotted Horse Creek (3B) via "Swan Lake" Reservoir (3B)	6/30/13	Coal Bed Methane
WY0056448	002	Yates Petroleum Corporation	Store Draw CS State North CBM Facility	NW	SE	36	55N	75W	44.70239	-105.83047	Powder River (2ABWW) via Spotted Horse Creek (3B) via "Prat House" Reservoir (3B)	6/30/13	Coal Bed Methane
WY0056448	003	Yates Petroleum Corporation	Store Draw CS State North CBM Facility	NW	NE	36	55N	75W	44.70507	-105.8313	Powder River (2ABWW) via Spotted Horse Creek (3B) via "Side Pass" Reservoir (4C)	6/30/13	Coal Bed Methane
WY0056596	001	Comet Energy, LLC	Linn Draw POD	NW	SE	25	55N	76W	44.71293	-105.95063	Powder River (2ABWW) via Spotted Horse Creek (3B), via South Prong Spotted Horse Creek (3B), via unnamed ephemeral tributary (3B), via on-channel reservoir "EX 25-1-5576 (3B)	3/31/12	Coal Bed Methane
WY0056596	002	Comet Energy, LLC	Linn Draw POD	SW	SE	25	55N	76W	44.71093	-105.95086	Powder River (2ABWW) via Spotted Horse Creek (3B), via South Prong Spotted Horse Creek (3B), via unnamed ephemeral tributary (3B), via on-channel reservoir "P 25-1-5576 (3B)	3/31/12	Coal Bed Methane
WY0056596	003	Comet Energy, LLC	Linn Draw POD	SE	SE	25	55N	76W	44.70934	-105.94841	Powder River (2ABWW) via Spotted Horse Creek (3B), via South Prong Spotted Horse Creek (3B), via unnamed ephemeral tributary (3B), via on-channel reservoir "EX 25-2-5576 (3B)	3/31/12	Coal Bed Methane
WY0056596	004	Comet Energy, LLC	Linn Draw POD	SW	SW	9	54N	75W	44.6696	-105.89871	Powder River (2ABWW) via Spotted Horse Creek (3B), via Linn Draw (3B), via unnamed ephemeral tributary (3B), via on-channel reservoir "P 9-1-5475 (3B)	3/31/12	Coal Bed Methane
WY0056634	001	Comet Energy, LLC	Box Draw Federal Project	SW	NE	30	54N	74W	44.63227	-105.80557	Powder River (2ABWW) via Spotted Horse Creek (3B) via Box Draw (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "B3-30-5474" (3B)	3/31/12	Coal Bed Methane
WY0056634	002	Comet Energy, LLC	Box Draw Federal Project	SE	NE	30	54N	74W	44.63323	-105.80124	Powder River (2ABWW) via Spotted Horse Creek (3B) via Box Draw (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "A3-30-5474" (3B)	3/31/12	Coal Bed Methane

WY0056634	003	Comet Energy, LLC	Box Draw Federal Project	NW	SW	29	54N	74W	44.628	-105.79578	Powder River (2ABWW) via Spotted Horse Creek (3B) via Box Draw (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "C1-29-5474" (3B)	3/31/12	Coal Bed Methane
WY0056634	004	Comet Energy, LLC	Box Draw Federal Project	NE	SE	30	54N	74W	44.6308	-105.79901	Powder River (2ABWW) via Spotted Horse Creek (3B) via Box Draw (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "B4-30-5474" (3B)	3/31/12	Coal Bed Methane
WY0056634	005	Comet Energy, LLC	Box Draw Federal Project	NE	NE	29	54N	74W	44.63832	-105.78048	Powder River (2ABWW) via Spotted Horse Creek (3B) via Box Draw (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "A4-29-5474" (3B)	3/31/12	Coal Bed Methane
WY0056634	006	Comet Energy, LLC	Box Draw Federal Project	NE	SW	20	54N	74W	44.64525	-105.79144	Powder River (2ABWW) via Spotted Horse Creek (3B) via Box Draw (3B) via unnamed ephemeral tributary (3B) via on-channel reservoir "Washout" (3B)	3/31/12	Coal Bed Methane
WY0094056	001	Stephens Energy Company, LLC	Spotted Horse	NW	SW	28	55N	75W	44.712052	-105.892083	Powder River (2ABWW) via Spotted Horse Creek (3B) via Rucker Draw (3B) via an on-channel reservoir "004-SHS" (3B)	2/28/14	Coal Bed Methane
WY0094056	002	Stephens Energy Company, LLC	Spotted Horse	SE	NW	14	54N	75W	44.662344	-105.85173	Powder River (2ABWW) via Spotted Horse Creek (3B) via Linn Draw (3B) via an on-channel reservoir "Spellman 54-75-6-11" (3B)	2/28/14	Coal Bed Methane
WY0094056	003	Stephens Energy Company, LLC	Spotted Horse	NE	SW	11	54N	75W	44.673471	-105.85037	Powder River (2ABWW) via Spotted Horse Creek (3B) via Linn Draw (3B) via an on-channel reservoir "Spellman 54-75-11-11" (3B)	2/28/14	Coal Bed Methane

BEFORE THE ENVIRONMENTAL QUALITY COUNCIL
STATE OF WYOMING
Docket Number: 09-3807

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

DEPOSITION OF MARGE WEST

Taken on behalf of the Wyoming DEQ

2:10 p.m., Wednesday
January 13th, 2010

PURSUANT TO AGREEMENT, the Deposition of
MARGE WEST was taken in accordance with the
applicable Rules of Civil Procedure in the Offices
of Davis & Cannon, 40 North Main Street, Sheridan,
Wyoming, before Carol A. O'Bryan, Certified Court
Reporter, and a Notary Public in and for the State
of Wyoming.

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EXHIBIT INDEX
MARKED FOR
IDENTIFICATION

Page

Deposition Exhibit5
Notice of Deposition of
Marge West

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A P P E A R A N C E S

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By: William Sparks, Esq.
Drake Hill, Esq.
(Appearing via telephone)

ALSO PRESENT: Jill Morrison
Bill West

I N D E X

Page

DEPOSITION OF MARGE WEST:
Examination by Mr. Esch.....4
Examination by Mr. Sparks.....25
Further Exam by Mr. Esch.....36

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P R O C E E D I N G S

MARGE WEST

having been first duly sworn to tell the
truth, testified as follows:

EXAMINATION

QUESTIONS BY MR. ESCH:

Q Mrs. West, my name is Luke Esch. I'm
with the Department of Environmental Quality, and
I'm going to be doing the deposition today.

A Okay.

Q If you have any questions about the
questions I ask you or if you are not clear,
please ask me; and I'll repeat them or rephrase
them, and we'll get it cleared up.

I'll try not to be too duplicative of
what we've already gone through today; but before
we get started with you, please state your name
for the record.

A Margery West.

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EXHIBIT

tabbles

10

<p style="text-align: center;">5</p> <p>1 (Whereupon the document referred to by 2 counsel was marked for Identification as 3 Deposition Exhibit 8, after which the proceedings 4 continued as follows:)</p> <p>5</p> <p>6 Q (By Mr. Esch) And, Mrs. West, I've 7 handed you this document. It's the Notice of 8 Deposition. You have seen that before?</p> <p>9 A Yes.</p> <p>10 Q And basically that just asks you to 11 bring any materials that you may need to answer 12 certain interrogatories --</p> <p>13 A Yes.</p> <p>14 Q -- that you gave on our discovery 15 requests.</p> <p>16 A Yes.</p> <p>17 Q And you did that?</p> <p>18 A Yes.</p> <p>19 Q Okay. Well, we'll just dive right in. 20 And what -- what do you not like about 21 the permit that was issued in this circumstance?</p> <p>22 A I don't like that there is no water 23 quality standards. I don't like that it is not 24 completely contained in the reservoirs; and by 25 that I mean it does not leak out, overflow during</p> <p style="text-align: center;">O'BRYAN REPORTING SERVICE (307) 672-3354</p>	<p style="text-align: center;">7</p> <p>1 It has very high total dissolved solids. It has 2 very high SARs.</p> <p>3 When it -- in the past when it has come 4 down Spotted Horse Creek, the channel has frozen 5 -- well, they don't stop the water just because 6 the channel is frozen. The water keeps coming 7 down. It floods our land. It has destroyed 8 approximately 100 acres of prime hay meadow which 9 was native grasses and alfalfa combined. It 10 killed over 200 old-stand cottonwood trees; and 11 everybody says, too bad.</p> <p>12 Q Now, which permits are you referring to 13 that discharged all of this water?</p> <p>14 A I am referring to this permit, which is 15 in question. I am referring to the Devon permit, 16 and I am referring to all of the permits on the 17 lands up above us. We are at the bottom of the 18 drainage and, therefore, water from numerous 19 companies ends up on our land.</p> <p>20 Q So you said that this permit -- you are 21 aware that water from this permit has impacted 22 your land?</p> <p>23 A I'm sure it has. Numerous times when I 24 go to Gillette there is a tributary of Spotted 25 Horse Creek that crosses the highway in a culvert.</p> <p style="text-align: center;">O'BRYAN REPORTING SERVICE (307) 672-3354</p>
<p style="text-align: center;">6</p> <p>1 a storm or by any other means get into the 2 ephemeral channel.</p> <p>3 Q Anything else?</p> <p>4 A Well, I don't like the fact that it gets 5 onto our land and adds to the water problems we 6 have had.</p> <p>7 Q Gets onto your land. Okay. And let's 8 discuss this no water quality standards. Are you 9 familiar with the terms of a permit?</p> <p>10 A I have read it.</p> <p>11 Q You have read it?</p> <p>12 A (Witness nods head.)</p> <p>13 Q And there are water quality effluent 14 limits in the permit, correct?</p> <p>15 A Yes, there are. However, no effluent 16 limits have ever been reached on our land.</p> <p>17 Q Can you explain that?</p> <p>18 A The ICP points, the water that flowed 19 down Spotted Horse Creek never reached the limits 20 that were stated. It's -- you know, in some areas 21 of Wyoming this methane water, the discharge water 22 is good water. And people can irrigate with it; 23 they can grow things with it.</p> <p>24 However, where we're located in the 25 northeastern part of Wyoming it is not good water.</p> <p style="text-align: center;">O'BRYAN REPORTING SERVICE (307) 672-3354</p>	<p style="text-align: center;">8</p> <p>1 And during the winter, not this year -- this year 2 I think the wells are shut off -- but in previous 3 years the water flows through this culvert, and 4 you can see it right from the highway.</p> <p>5 I mean, it's no big secret. And it goes 6 into the Spotted Horse Creek drainage. We are at 7 the bottom of the Spotted Horse drainage, and it 8 impacts our lands.</p> <p>9 Bill has spent untold hours trying to 10 mitigate the damages caused by methane water. He 11 has not had any help from anyone. He has hauled 12 more than 500 truckloads of sediment that was 13 washed into an old reservoir years ago -- it had 14 nothing to do with methane -- onto this land and 15 has leveled it out, trying to get the land back 16 where it would grow something.</p> <p>17 From 2000 to 2004 this land didn't grow 18 anything. And these truckloads that he hauls are 19 not dump-truck loads. They are not cattle-truck 20 loads. They are semi-belly-dump trailer loads.</p> <p>21 That's a lot of work. And here he's 22 trying to solve a problem that he did not cause.</p> <p>23 Q I understand. Now, let's go back to 24 this culvert that you were discussing. Where is 25 this culvert in relation to these three</p> <p style="text-align: center;">O'BRYAN REPORTING SERVICE (307) 672-3354</p>

1 reservoirs?

2 You are referring to exhibit --

3 MS. OCHS: Exhibit 4.

4 Q (By Mr. Esch) Exhibit 4?

5 A Okay. It is -- I believe this is the

6 highway (indicating), and it crosses right here

7 and goes into Spotted Horse Creek.

8 Q Okay. And you are referring to section

9 -- it looks like the stamp is covered up on that,

10 but it's between sections -- I can't even read

11 that.

12 A Well, I couldn't either. It's

13 indecipherable. But, anyway, that's where it is;

14 and, you know, we've seen the water there. It

15 doesn't go uphill. That's for sure. It goes

16 downhill.

17 Q Have you seen these three reservoirs

18 overflow?

19 A I have not been up to the reservoirs.

20 Q So you have not personally seen them

21 overflow?

22 A No, I have not personally scene them

23 overflow --

24 Q Have you -- sorry.

25 A --h, I don't believe there is a

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1 reservoir in the State of Wyoming that hasn't

2 overflowed during storms or by being -- having a

3 constant supply of water dumped into it.

4 Q Okay.

5 A You know, unless the reservoir is lined

6 and the volume of water strictly controlled, it is

7 going to overflow and leak. I don't think there's

8 a reservoir in Wyoming that doesn't leak.

9 Q Okay. Let's talk about the limits of

10 the permit for a minute.

11 A All right.

12 Q Do you believe that the permit limits

13 are protective of irrigated agriculture?

14 A No, and I will tell you why.

15 Q Please do.

16 A Because the property on Spotted Horse

17 Creek that is above us and below us, both had

18 higher readings than our land did. And so these

19 were all added together and then averaged out.

20 We got a par higher average than we

21 originally had, and I don't think that's right.

22 Q Can you be a little more specific on

23 average that -- soil EC, water EC?

24 A Right. Right.

25 Q Well, which one?

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1 A The soil EC.

2 Q Okay. So you're concerned about the

3 discharges' impact on your property?

4 A Exactly.

5 Q Okay. And despite the containment

6 requirement, you don't believe that the reservoirs

7 will be contained?

8 A I do not. You know, many of these

9 reservoirs -- and I don't know about these,

10 because I have not been up to them. However, many

11 of the reservoirs are deliberately located above

12 seams of shale or coal.

13 Well, you know what's going to happen to

14 the water. It leaks out of the reservoir. It

15 goes downhill and ends up on my land.

16 Q Where do you get this information about

17 deliberately locating reservoirs on top of coal?

18 A I have been with some of these -- I

19 don't believe you call them landmen -- I'm not

20 sure what their title is -- when they come out and

21 stake the reservoirs.

22 Q And they tell you that they are looking

23 for coal seams?

24 A Well, they always put them above shale

25 seams; and coal seams do the same thing that shale

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1 seams do.

2 Q Okay. Do you know who these individuals

3 were?

4 A I don't know their names. I can tell

5 you what company they were.

6 Q Okay. Please do.

7 A They were Yates.

8 Q All right. But with regard to these

9 three reservoirs, you really don't have any

10 information that would lead you to believe that

11 they were purposely located on top of

12 reservoirs -- or of shale seams? I'm sorry.

13 A No, actually I do not. However, I do

14 know that they leak into Spotted Horse Creek.

15 Q And how do you know that?

16 A I've seen it.

17 Q You've seen these three reservoirs leak

18 into Spotted Horse Creek?

19 MS. OCHS: It's okay. Take your time.

20 A I have seen water crossing the highway

21 and going into a tributary that flows into the

22 Spotted Horse Creek from the direction of these

23 reservoirs.

24 Now, it's not up to me to prove that

25 they don't leak. It's up to the state officials

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<p style="text-align: center;">13</p> <p>1 to prove to me that they don't leak.</p> <p>2 Q (By Mr. Esch) And have you contacted</p> <p>3 DEQ about your concern that these reservoirs</p> <p>4 leak?</p> <p>5 A We have contacted the DEQ many times.</p> <p>6 Q Have they inspected these three</p> <p>7 reservoirs, to your knowledge?</p> <p>8 A Not about these three reservoirs. About</p> <p>9 other reservoirs. They have come out several</p> <p>10 times.</p> <p>11 Q What other reservoirs?</p> <p>12 A Oh, goodness. I don't know the names of</p> <p>13 them. One was on Odegard's, to the right of SA</p> <p>14 Road as you head in on SA. And they -- I don't</p> <p>15 know what the name of the reservoir was. They did</p> <p>16 make them shut that reservoir off, stop putting</p> <p>17 water into it.</p> <p>18 Q So they addressed the situation?</p> <p>19 A At times, yes.</p> <p>20 Q At times?</p> <p>21 A However, we have contacted them many</p> <p>22 times when they did not come out. You know, they</p> <p>23 only have a limited number of personnel; and, you</p> <p>24 know, one man can't be in 14 different places at</p> <p>25 the same time.</p> <p style="text-align: center;">O'BRYAN REPORTING SERVICE (307) 672-3354</p>	<p style="text-align: center;">15</p> <p>1 build it someplace that will reasonably well</p> <p>2 contain the water.</p> <p>3 And for a rancher this is rain water,</p> <p>4 snow melt, storm events. It is not this methane</p> <p>5 water that is going to cause so much damage.</p> <p>6 You know, before the methane started, we</p> <p>7 grew hay. Our trees were beautiful stands of</p> <p>8 old-age cottonwood trees. They provided shelter</p> <p>9 for our cows. They provided shelter for</p> <p>10 livestock, for wildlife.</p> <p>11 You know, it's -- and Wyoming doesn't</p> <p>12 have an overabundance of trees, anyway. No, we</p> <p>13 don't.</p> <p>14 Q I understand. But if the terms of this</p> <p>15 permit were complied with, and there was</p> <p>16 containment --</p> <p>17 A If there is total containment, I would</p> <p>18 be fine with it.</p> <p>19 Q Okay.</p> <p>20 A And total containment is like this</p> <p>21 glass. This is totally containing the water in</p> <p>22 it.</p> <p>23 Q Okay. This permit does have a provision</p> <p>24 in there that allows it to overtop during storm</p> <p>25 events.</p> <p style="text-align: center;">O'BRYAN REPORTING SERVICE (307) 672-3354</p>
<p style="text-align: center;">14</p> <p>1 Q So they have not inspected these</p> <p>2 reservoirs that you've --</p> <p>3 A I don't know. I don't know if they have</p> <p>4 inspected these three reservoirs.</p> <p>5 Q So if these reservoirs were leaking and</p> <p>6 DEQ -- let me rephrase that.</p> <p>7 Should a reservoir leak, isn't that an</p> <p>8 action for the state to fix through an enforcement</p> <p>9 action?</p> <p>10 A I think that more studies need to be</p> <p>11 done when the application is first submitted to</p> <p>12 build a reservoir wherever. It needs to be</p> <p>13 discovered whether or not they are on top of a</p> <p>14 coal seam or a shale seam.</p> <p>15 And if they are, that would be fine if</p> <p>16 they were lined so that they would not leak. Very</p> <p>17 few of these reservoirs are lined, very few.</p> <p>18 Q So that should be addressed before the</p> <p>19 permit is issued --</p> <p>20 A Exactly.</p> <p>21 Q -- in your opinion?</p> <p>22 A To know whether it is -- you know, when</p> <p>23 you are building a reservoir, at least to a</p> <p>24 rancher, you don't want to build it someplace that</p> <p>25 you know is going to constantly leak. You want to</p> <p style="text-align: center;">O'BRYAN REPORTING SERVICE (307) 672-3354</p>	<p style="text-align: center;">16</p> <p>1 A And I'm not a bit surprised by that.</p> <p>2 Q Okay. And you do not agree with that?</p> <p>3 A No.</p> <p>4 Q Okay. So let's say that this permit --</p> <p>5 or it's a hypothetical here. Let's say it is like</p> <p>6 the glass.</p> <p>7 A Uh-huh.</p> <p>8 Q Would you have --</p> <p>9 A I would have no problem.</p> <p>10 Q Well, let me ask the question first.</p> <p>11 Would you have a problem with if the EC was 4,000</p> <p>12 and SAR was 30?</p> <p>13 A Absolutely.</p> <p>14 Q If it was full containment?</p> <p>15 A Not if it were not allowed to overtop</p> <p>16 during a storm event. You know, they are going to</p> <p>17 store this water someplace, obviously.</p> <p>18 However, in my opinion, the smart thing</p> <p>19 to do with this water is to reinject it or treat</p> <p>20 it or use one of these systems which they have now</p> <p>21 developed where the water never touches the land.</p> <p>22 It comes up into a pipe and is separated from the</p> <p>23 gas and goes right immediately back down into</p> <p>24 the --</p> <p>25 Q Coal seam?</p> <p style="text-align: center;">O'BRYAN REPORTING SERVICE (307) 672-3354</p>

17

1 **A -- coal seam without ever touching the**
2 **surface.**

3 **Q** Let's change the situation. What if the
4 limits were an EC of 750 and SAR of five?

5 **A But they are not.**

6 **Q** This is a hypothetical. Let's just go
7 there and say --

8 **A Okay.**

9 **Q** -- in a different part of the state,
10 perhaps.

11 **A Okay. So is this --**

12 MS. OCHS: I'm just going to continue my
13 objection to hypotheticals as to relevance.

14 But please continue.

15 **A Okay. Would you restate the question.**

16 **Q** (By Mr. Esch) Yes. Same containment
17 requirements, allows overtopping during storm
18 events, but the limits are 750 for EC and SAR of
19 five.

20 **A Okay. Are these limits checked at the**
21 **reservoir or the end of the over-pump-flow pipe at**
22 **the reservoir, or are they checked where they get**
23 **down and reach my land?**

24 **Q** These are in the pipe like all --

25 **A No.**

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19

1 **Q** Would you have any information that
2 would be counter to that?

3 **A I don't.**

4 **Q** Okay. So why didn't you submit comments
5 on this one?

6 **A Well, after a while you get tired of**
7 **submitting comments and nobody pays any attention**
8 **to what you tell them --**

9 **Q** So you thought it would --

10 **A -- to be honest with you.**

11 **Q** Okay. I appreciate your honesty.

12 **A You know, we have been submitting**
13 **comments for 10 years, now. It hasn't --**

14 **Q** Have you been protesting every permit?

15 **A Not every single one because, obviously,**
16 **I didn't protest this one.**

17 **But the ones that I have protested I**
18 **cannot see that it did us any good.**

19 **Q** Well, maybe I should have been a little
20 more clear. You decided not to submit comments on
21 a permit that you object to concerning the DEQ --

22 **A I didn't decide not to. I just failed**
23 **not to.**

24 **Q** You failed not to. Okay.

25 **A You know, it's pretty sad -- if I can**

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18

1 **Q** So it still wouldn't approve?

2 **A No.**

3 **Q** Okay. Now, also on your -- in
4 Interrogatory Number 1 in our -- I should say
5 Petitioners' Response to DEQ's First Discovery
6 Request, I think it is going to be on page --

7 **A Two.**

8 **Q** Well -- it might be Page 2. Let me pull
9 that back out, actually.

10 **A Right here (indicating).**

11 MS. OCHS: Interrogatories start on

12 Page 2.

13 **Q** (By Mr. Esch) Page 2, Request for
14 Admission Number 1. You comment that -- give me a
15 minute here. Did you submit comments to the DEQ
16 on this permit?

17 **A You know, I have submitted a lot of**
18 **different comments; and I honestly do not**
19 **remember --**

20 **Q** If you submitted on this one?

21 **A -- whether I submitted on this one or**
22 **not.**

23 **Q** Okay. Well, I would purport to you that
24 you did not submit comments.

25 **A Okay.**

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20

1 **make a comment on my own.**

2 **Q** Sure.

3 **A It's pretty sad when you have worked**
4 **your whole life trying to improve your ranching**
5 **operation, trying to improve the land, trying to**
6 **do what you know is going to be good, and then the**
7 **state government allows various companies to come**
8 **in and do whatever they want, whenever they want**
9 **and however they want; which to be honest with**
10 **you, is the way it seems to me that things have**
11 **been done.**

12 **You know, nobody has stepped up and**
13 **said, oh, gee whiz, we can't flood the Wests out**
14 **like this, you know. We've got to put a stop to**
15 **this. No. No. They say, well, too bad. It's**
16 **all for the greater good.**

17 **Q** I understand your concern.

18 **A But if they destroy my ranch, it isn't**
19 **for my greater good; and, yes, we do need the gas,**
20 **and we do need oil. However, it needs to be done**
21 **right. And it can be done right.**

22 **Q** And how is the state to come up with
23 those limits; how do they develop the ways to go
24 about doing it right?

25 **A Well, the problem is they haven't.**

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<p style="text-align: right;">21</p> <p>1 Q Is it a rule making --</p> <p>2 A I don't know.</p> <p>3 Q Does the state establish the limits</p> <p>4 through rules?</p> <p>5 A They might. I don't know. However,</p> <p>6 they say, okay, this water is supposed to have an</p> <p>7 SAR of such and such and EQC of such and such.</p> <p>8 However, the water that has flowed onto</p> <p>9 our land and flooded it and destroyed hay meadows</p> <p>10 has never one time reached those limits.</p> <p>11 We have done water testing. Dave Engels</p> <p>12 from Sheridan has come out and done water testing,</p> <p>13 you know; and we send these tests in to the</p> <p>14 laboratory.</p> <p>15 We don't look at the water and say, oh,</p> <p>16 gee whiz, this isn't right. It is scientifically</p> <p>17 done, and the water has never once reached the</p> <p>18 limits that it was supposed to.</p> <p>19 Q Well, do you know how DEQ sets the</p> <p>20 limits in permits?</p> <p>21 A No, I don't.</p> <p>22 Q Are you aware of the CBM task force is</p> <p>23 working on a process of addressing the issues of</p> <p>24 CBM effluent limits?</p> <p>25 A Is this the group that's meeting in O'BRYAN REPORTING SERVICE (307) 672-3354</p>	<p style="text-align: right;">23</p> <p>1 MR. ESCH: Okay. Sure.</p> <p>2 MR. HILL: Okay. We're ready.</p> <p>3 Q (By Mr. Esch) When we left off, you</p> <p>4 said you were on the CBM task force?</p> <p>5 A Correct.</p> <p>6 Q To your knowledge, what is the goal of</p> <p>7 that task force?</p> <p>8 A The goal of that task force is to try to</p> <p>9 find a solution to these water problems that many</p> <p>10 people are having to -- you know, the first day,</p> <p>11 the first -- well, no, I'm not supposed to talk</p> <p>12 about that.</p> <p>13 But, anyway, it is to find a mutually</p> <p>14 acceptable solution; a solution that is acceptable</p> <p>15 to the CBM companies; a solution that is</p> <p>16 acceptable to the landowners.</p> <p>17 And in this meeting, you know, it's been</p> <p>18 stated many times that there are scientists who</p> <p>19 came out -- that came out twice. And the last</p> <p>20 time they were out, they came out and looked at</p> <p>21 our land.</p> <p>22 And they have stated this Tier 2</p> <p>23 methodology is flawed; and that is what all of</p> <p>24 these permits have been issued under, is the</p> <p>25 Tier 2. What we need to do is go back and find a O'BRYAN REPORTING SERVICE (307) 672-3354</p>
<p style="text-align: right;">22</p> <p>1 Gillette?</p> <p>2 Q I believe they did meet; was it on the</p> <p>3 7th?</p> <p>4 A I am part of that group.</p> <p>5 Q You are part of that group, so you are</p> <p>6 aware of the process that's coming forward --</p> <p>7 A Oh, yes.</p> <p>8 Q -- to address these issues?</p> <p>9 A Yes, I am.</p> <p>10 Q You know, I might need to take five</p> <p>11 minutes. I'm pretty close to being done.</p> <p>12 A Okay.</p> <p>13 MR. ESCH: Is that okay with you guys?</p> <p>14 MR. SPARKS: Yes, I'm good.</p> <p>15</p> <p>16 (Whereupon a break was taken, after</p> <p>17 which the proceedings continued as follows:)</p> <p>18</p> <p>19 MR. ESCH: Okay. We're back. I think I</p> <p>20 only have a few more questions left.</p> <p>21 Q Whenever we left off, you were --</p> <p>22 MR. HILL: Luke?</p> <p>23 MR. ESCH: Yeah.</p> <p>24 MR. HILL: Bill Sparks stepped out for a</p> <p>25 minute. Can we wait for just a second? O'BRYAN REPORTING SERVICE (307) 672-3354</p>	<p style="text-align: right;">24</p> <p>1 methodology that is not flawed.</p> <p>2 The University of Wyoming scientists</p> <p>3 have said for years, this is flawed, and nobody</p> <p>4 would listen to them.</p> <p>5 Q And that's a goal of the CBM task force?</p> <p>6 A Well, it's my goal.</p> <p>7 Q Okay. To address -- the goal is to</p> <p>8 address situations such as yours?</p> <p>9 A Exactly, and to issue permits under</p> <p>10 plausible methodology, not this flawed stuff. I</p> <p>11 mean, if we keep issuing permits under the flawed</p> <p>12 methodology, is the situation going to get better?</p> <p>13 I doubt it. It's going to get worse. We've got</p> <p>14 to start doing things right.</p> <p>15 Q So there's a process that is in the</p> <p>16 works right now to address the situation; is that</p> <p>17 what you are saying?</p> <p>18 A Correct.</p> <p>19 Q And you prefer to move forward with</p> <p>20 permit challenges rather than wait on that</p> <p>21 process?</p> <p>22 A Well, who knows how long the process is</p> <p>23 going to take, you know. I have no idea how long</p> <p>24 it will take. It could take six months. It could</p> <p>25 take eight months. It could take two years. I O'BRYAN REPORTING SERVICE (307) 672-3354</p>

25

1 have no idea.

2 Q Do you intend on objecting to other
3 permits?

4 A I certainly do, if they are issued under
5 Tier 2.

6 Q So you would rather proceed with
7 objecting to the permits than waiting for the
8 process to run its course?

9 A I'm going to do both.

10 Q Okay. That is all I have. Thank you.

11 A Thank you.

12 MS. OCHS: Now you will get questions
13 from the gentlemen on the phone.

14 THE WITNESS: Okay.

15 MS. OCHS: We're ready.

16 MR. SPARKS: Okay.

17

18 EXAMINATION

19

20 QUESTIONS BY MR. SPARKS:

21 Q Mrs. West, my name is Bill Sparks. I'm
22 with the law firm of Beatty & Wozniak,
23 representing Stephens Energy Company in this
24 matter. And with me I have my colleague, Drake
25 Hill, with the same firm.

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27

1 Q (By Mr. Sparks) Have you read the
2 permit?

3 A I have. It's been a while since I've
4 read it. I'm looking it over right now.

5 Q Are you familiar with the three
6 impoundments that the permit authorizes discharge
7 into?

8 A No. I have stated that I have not been
9 up to those impoundments.

10 Q Okay. Also in front of you is probably
11 going to be two maps.

12 A Yes, I have seen those maps.

13 Q Okay.

14 A And the one with the grid on it is
15 fairly clear, but the photographic map is
16 difficult for me to read because I can't see
17 where the roads are.

18 Q Okay. Is it your understanding from
19 these maps that the Stephens reservoirs or
20 impoundments are where they appear to be in
21 relation to your land?

22 A I would assume they are where they
23 appear to be. I don't know.

24 Q Okay. Have you visually inspected the
25 three impoundments at issue in this appeal?

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26

1 We just have a couple of follow-up
2 questions for you.

3 Q First of all, how did you prepare for
4 this deposition? Did you review documents, or
5 did you consult with anyone prior to this
6 deposition?

7 A We have reviewed the documents we got
8 from Dave Engels. And, of course, we have seen
9 what has happened on our land.

10 I mean, we're not scientists, and we
11 never have claimed to be scientists. However,
12 we're not entirely stupid; and we do know what
13 this methane discharge water has done to our land
14 and to other people's land.

15 Q All right. Prior to this deposition,
16 have you read -- are you familiar with the Wyoming
17 Permit 94056 that is at issue?

18 A I would have to look at it and see.

19 Q I believe it is Deposition Exhibit 6. I
20 can't recall.

21 MS. OCHS: It's Exhibit 3.

22 Q (By Mr. Sparks) Exhibit 3. Mrs. West,
23 have you read this permit?

24 THE WITNESS: What did he say?

25 MS. OCHS: Have you read this permit?

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28

1 A No, I have not.

2 Q When did you first become aware that
3 these three impoundments existed?

4 A Well, I knew something existed up there,
5 but I didn't know it was these three impoundments,
6 because of the water flowing from that direction.
7 Now, there may be -- I don't know this.

8 It's possible there are other reservoirs
9 up there that are also causing impact. But --

10 Q So whenever you reviewed the permit at
11 issue in this appeal, was that the first time you
12 became aware of these three impoundments?

13 A Right.

14 Q Okay.

15 A I knew something up there was releasing
16 water, but I didn't know where it was or what it
17 was.

18 Q And when do you think was the first time
19 you noticed that you believed water was being
20 produced from this area?

21 A Oh, heavens, it's been years; and I
22 can't even tell you what year I first noticed it,
23 but it's been quite some time.

24 Q Quite some time since when, you noticed
25 water in the stream; or you noticed --

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29

1 **A I noticed water that was flowing out of**
2 **the culvert that crosses under the highway and**
3 **into the tributary which flows into Spotted Horse**
4 **Creek.**

5 **Q** And can you give us your best guess of
6 when that might have been, your first noticing of
7 that?

8 **A Oh, I suppose it's been -- I honestly**
9 **don't know. It's been a long time.**

10 **Q** That's fine.

11 **A And it would just be a guess if I told**
12 **you a certain number.**

13 **Q** That's fine. As to these three
14 impoundments, do you have any evidence that these
15 three specific impoundments have ever leaked?

16 **A No, I don't. But if they have never**
17 **leaked, they will be the first in the history of**
18 **Wyoming.**

19 **Q** But you have no evidence that these
20 three have --

21 **A No.**

22 **Q** Do you have any evidence that these
23 three impoundments have ever seeped, whereas water
24 has traveled from the bottom of the permit and
25 resurfaced somewhere else away from the

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30

1 impoundment? Do you have any evidence that that
2 has happened?

3 **A Well, I've seen it crossing the highway**
4 **and flowing into the tributary that meets up with**
5 **Spotted Horse Creek.**

6 **Q** But do you have evidence that it goes
7 back to these three impoundments?

8 **A No. As I have stated, I have not been**
9 **up to these three impoundments. However, it flows**
10 **from the direction these three impoundments are;**
11 **therefore, I believe it's reasonable to assume**
12 **that's where it's coming from.**

13 **Q** Are you aware that there are other
14 impoundments in this area?

15 **A Oh, of course.**

16 **Q** Have you ever visually inspected any of
17 those?

18 **A I have inspected a few, yes. I've**
19 **inspected the Store reservoir which is across from**
20 **Spotted Horse.**

21 **Q** Were those reservoirs showing signs of
22 leakage and seepage?

23 **A Yes, they are. And we went to court and**
24 **had that stopped because our surface-use agreement**
25 **with Yates says that no water from any of their**

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31

1 **operations that are not conducted on our lands**
2 **will reach our lands.**

3 **Q** So the water that you are seeing could
4 have been coming from those impoundments?

5 **A No. No, it's not coming from that one.**

6 **Q** I'm sorry. You said earlier that you
7 had visually inspected other impoundments in the
8 area near these three, correct?

9 **A I don't believe I said that.**

10 **Q** Okay. Well, have you visually
11 inspected --

12 **A I have visually inspected other**
13 **impoundments. I have inspected the Wolf pit,**
14 **which is up above our land on Spotted Horse Creek.**

15 **I can't tell you just the exact location**
16 **of it. I have inspected the Store reservoir. I**
17 **have inspected reservoirs that are on Werner land,**
18 **W-E-R-N-E-R, Werner land.**

19 **Q** My real question is, as you see on the
20 map there the location of those three --

21 **A Correct.**

22 **Q** -- Stephens reservoirs, have you
23 inspected any other permits in that area?

24 **A No.**

25 **Q** Thank you. I would like to also refer
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32

1 you to the Wyoming Permit 94056 where it states
2 that the permittee is required to contain all of
3 effluent -- do you see that part of the permit?

4 I apologize, I wish I was there and
5 could point my finger right to it.

6 **A Okay. I see it.**

7 **Q** Do you understand that that requirement
8 can require Stephens to contain all effluent in
9 its three impoundments?

10 **A Yes. However, this does not mean what**
11 **your average person would think it means. This**
12 **says they have to contain it all.**

13 **However, it is allowed to seep out of**
14 **these reservoirs. It is allowed to overtop the**
15 **reservoirs in the event of storms. So it is not**
16 **total containment.**

17 **Q** If it did leak or seep or overtop, would
18 that be a violation of this permit?

19 **A Probably not. However this permit was**
20 **issued under Tier 2, and Tier 2 has been proven**
21 **scientifically invalid.**

22 **Q** Ma'am, I'm not -- how is it proven
23 scientifically invalid?

24 **A They had scientists from the University**
25 **of Wyoming. They had scientists come up from New**

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33

1 **Mexico, and they say that Tier 2 is scientifically**
 2 **invalid. And I'm not a scientist, but I take**
 3 **their word for it.**

4 **Q** Under this permit, without prior
 5 authorization, Stephens is not allowed to
 6 discharge water, correct?

7 **A** **In the event that such an authorization**
 8 **for release is granted, the authorization letter**
 9 **will specify the release volume, duration and**
 10 **individual reservoirs covered.**

11 **Q** Okay --

12 **A** **However, we all know that the BLM and**
 13 **the DEQ do not have enough employees to constantly**
 14 **be checking on all of these reservoirs.**

15 **Q** Again, do you know if the DEQ has found
 16 Stephens to be in violation of this permit?

17 **A** **No, I don't.**

18 **Q** Do you have any evidence that these
 19 impoundments have done what you just suggested
 20 that they do, either overtop or leak?

21 **A** **Well, I'm sure they do. I don't think**
 22 **there's a reservoir or an impoundment in the state**
 23 **unless it is lined that does not overtop or leak.**

24 **Q** But as to these three, you have no
 25 evidence, correct?

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34

1 **A** **Pardon?**

2 **Q** But as to these three impoundments, you
 3 have no specific evidence that they have?

4 **A** **No. However, I have seen the water**
 5 **running into the Spotted Horse Creek and crossing**
 6 **the highway. So I think that's fairly reasonable**
 7 **evidence.**

8 **Q** Do you have any evidence where that
 9 water came from?

10 **A** **No. As I have said, I have not been up**
 11 **to the reservoirs. However, once the snow is**
 12 **gone, believe me, I will go up to those**
 13 **reservoirs.**

14 **Q** Are you aware that these three
 15 impoundments are located on private land?

16 **A** **Yes.**

17 **Q** Okay. I just want to make sure you
 18 don't get in trouble with the --

19 **A** **Well, you know, in our area of the state**
 20 **any of our neighbors can come on our land at any**
 21 **time for any reason. And I think that is the**
 22 **general rule.**

23 **I don't know about other areas of the**
 24 **state, but that is how it is where we live.**

25 **Q** Understood. One final last question

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35

1 regarding your specific evidence. I do apologize
 2 if it seems repetitive.

3 **But do you have any specific evidence**
 4 **regarding the loss of crop production as it**
 5 **relates to discharges from these three**
 6 **impoundments?**

7 **A** **Well, I can't tell you what percentage**
 8 **of our crop losses have been from these three**
 9 **impoundments; however, I can tell you we have lost**
 10 **nearly 100 acres of prime hay meadow which my**
 11 **husband has spent years reclaiming.**

12 **We have lost more than 200 old-stand**
 13 **cottonwood trees which will never be replaced in**
 14 **my lifetime. But as to the percentage, no, I**
 15 **can't tell you.**

16 **Q** I'll rephrase. Do you have any evidence
 17 that attributes those losses to the water involved
 18 with the three impoundments at issue in this
 19 permit?

20 **A** **Since the water from these three**
 21 **impoundments flows into Spotted Horse Creek with**
 22 **water from other impoundments, I would say I'm**
 23 **reasonably certain that it has contributed to the**
 24 **problem.**

25 **Q** Do you have specific evidence of that?

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36

1 **A** **Have I measured the amount of water, no.**

2 **Q** Do you have evidence that it's the water
 3 from these three impoundments that has caused the
 4 decrease in crop production?

5 **A** **Well, since the water from other**
 6 **impoundments are causing the decrease in crop**
 7 **production, I think it is reasonable to assume**
 8 **that the water from these three impoundments also**
 9 **are contributing to the problem.**

10 **Q** I apologize, ma'am. I'm not asking you
 11 to make an assumption. I'm asking if you have any
 12 specific evidence of --

13 **A** **No.**

14 **Q** Okay. Thank you.

15 **MR. ESCH: Just two follow-up questions.**

16

17 EXAMINATION

18

19 **QUESTIONS BY MR. ESCH:**

20 **Q** Are you a member of the Powder River
 21 Basin Resource Council?

22 **A** **I most certainly am and very proud of**
 23 **it.**

24 **Q** Are you involved in that organization in
 25 any other capacity?

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37

1 **A** Right now, no, I'm not. I was
2 vice-chair for a year.
3 **Q** You mean vice-chair of the Board of
4 Directors?
5 **A** Yes.
6 **Q** Okay. I believe that's all we have.
7 MS. OCHS: Give us just a moment,
8 please.
9
10 (Whereupon a discussion was held off the
11 record, after which the proceedings continued as
12 follows:)
13
14 MS. OCHS: I think we're good.
15 MR. ESCH: Read and sign.
16 MR. SPARKS: Thank you, Mrs. West, we
17 appreciate it.
18 THE WITNESS: You are welcome.
19 MR. ESCH: Off the record.
20
21 (Whereupon Deposition Proceedings
22 were concluded at 3:30 p.m. on
23 Wednesday, January 13th, 2009.)
24
25 (SIGNATURE REQUESTED)
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38

1 REPORTER'S CERTIFICATE
2
3 I, CAROL A. O'BRYAN, a Certified Court
4 Reporter and a Notary Public of the State of
5 Wyoming, do hereby certify that MARGE WEST was by
6 me first duly sworn to testify to the truth, the
7 whole truth, and nothing but the truth;
8
9 That the foregoing transcript, consisting
10 of 37 typewritten pages, is a true record of the
11 testimony given by the said deponent, together
12 with all other proceedings herein contained.
13
14 IN WITNESS WHEREOF, I have hereunto set
15 my hand and affixed my Notarial Seal this 1st day
16 of February, 2010.
17
18
19 _____
 Carol A. O'Bryan
 Certified Court Reporter
20
21 My Commission Expires:
22 October 13th, 2012
23
24
25 O'BRYAN & O'BRYAN REPORTING SERVICE
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1 DEPONENT'S CERTIFICATE
2
3
4 I, MARGE WEST, do hereby certify that I have
5 read the foregoing transcript of my testimony
6 consisting of 37 pages taken on January 13th,
7 2010, and that the same is a full, true and
8 correct record of my deposition.
9
10 _____
 MARGE WEST
11
12 () No changes () Changes attached
13
14 Subscribed and sworn to before me this.
15 ____ day of _____, 2010.
16
17
18 _____
 Notary Public
19
20
21 My Commission Expires:
22 October 13th, 2012
23
24
25 O'BRYAN & O'BRYAN REPORTING SERVICE
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1 SIGNATURE PAGE
2 I, MARGE WEST, the aforementioned
3 witness, have read my deposition transcript; and
4 have made the following corrections:
5
6 REASONS 1-- Clarify the Record
 FOR CHANGES: 2-- Conform to Facts
 3-- Correct transcription error
7
8 Use 1, 2, 3
 Correction As Reason for
9 Page Line (Change from) (Change to) Change
10 _____
11 _____
12 _____
13 _____
14 _____
15 _____
16 _____
17 _____
18 _____
19 MARGE WEST
20 SUBSCRIBED AND SWORN TO before me this
21 ____ day of _____, 2010 by _____
22
23 _____
 Notary Public
24 My Commission Expires: _____
25 O'BRYAN & O'BRYAN REPORTING SERVICE
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1 CAROL A. O'BRYAN, CCR
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3 Sheridan, Wyoming 82801
307-672-3354 307-751-6823 (cell)
carolobryan@bresnan.net

4 Marge West
5 628 SA Road
6 Arvada, WY 82831

7 Date: 2-1-10

8 -----
9 Re: DEQ Matter

10 Dear Marge,

11 I am enclosing the original of the transcript
12 of your deposition in the above-entitled matter
for your convenience in reading and signing your
deposition.

13 I would appreciate if you could read your
14 depo, return the original deposition with the
signature pages attached to Mr. Esch, who took
your deposition, within the next 30 days so the
15 original may be prepared for delivery and use in
the court case in this matter. Please return the
16 original depo in the addressed envelope I'm
enclosing for your convenience in returning it.

17 The necessary pages -- which are marked with
18 tabs so you can easily find where to sign -- are
at the back of your deposition. Please do not
19 mark on the face of the deposition, but use the
attached forms, if necessary, to make corrections.

20 Please remember that you must sign before a
21 Notary Public, so please indicate the corrections
as you read but do not sign until you are before
22 the notary.

23 Very truly yours,

24 Carol A. O'Bryan
25 Certified Court Reporter

Enc.

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0	6	amount [1] - 36:1 AND [2] - 1:6, 40:20 answer [1] - 5:11 anyway [3] - 9:13, 15:12, 23:13 apologize [3] - 32:4, 35:1, 36:10 APPEAL [1] - 1:5 appeal [2] - 27:25, 28:11 appear [2] - 27:20, 27:23 Appearing [1] - 2:15 applicable [1] - 1:18 application [1] - 14:11 appreciate [3] - 19:11, 37:17, 41:13 approve [1] - 18:1 area [5] - 28:20, 30:14, 31:8, 31:23, 34:19 areas [2] - 6:20, 34:23 Arvada [1] - 41:5 assume [3] - 27:22, 30:11, 36:7 assumption [1] - 36:11 attached [3] - 39:12, 41:14, 41:19 attention [1] - 19:7 Attorneys [2] - 2:3, 2:8 attributes [1] - 35:17 authorization [3] - 33:5, 33:7, 33:8 authorizes [1] - 27:6 average [3] - 10:20, 10:23, 32:11 averaged [1] - 10:19 aware [7] - 7:21, 21:22, 22:6, 28:2, 28:12, 30:13, 34:14	22:24, 25:21 bit [1] - 16:1 BLM [1] - 33:12 Board [1] - 37:3 bottom [3] - 7:17, 8:7, 29:24 break [1] - 22:16 bring [1] - 5:11 build [3] - 14:12, 14:24, 15:1 Building [1] - 2:8 building [1] - 14:23 BY [3] - 4:11, 25:20, 36:19	Cheyenne [1] - 2:9 circumstance [1] - 42 5:21 Civil [1] - 1:18 claimed [1] - 26:11 Clarify [1] - 40:5 clear [3] - 4:17, 19:20, 27:15 cleared [1] - 4:19 close [1] - 22:11 CO [1] - 2:13 Coal [1] - 16:25 coal [6] - 11:12, 11:17, 11:23, 11:25, 14:14, 17:1 colleague [1] - 25:24 combined [1] - 7:9 coming [5] - 7:6, 22:6, 30:12, 31:4, 31:5 comment [2] - 18:14, 20:1 comments [7] - 18:15, 18:18, 18:24, 19:4, 19:7, 19:13, 19:20 Commision [3] - 38:21, 39:22, 40:25 companies [3] - 7:19, 20:7, 23:15 Company [2] - 2:12, 25:23 company [1] - 12:5 completely [1] - 5:24 compiled [1] - 15:15 concern [2] - 13:3, 20:17 concerned [1] - 11:2 concerning [1] - 19:21 concluded [1] - 37:22 conducted [1] - 31:1 Conform [1] - 40:6 consisting [2] - 38:9, 39:6 constant [1] - 10:3 constantly [2] - 14:25, 33:13 consult [1] - 26:5 contacted [3] - 13:2, 13:5, 13:21 contain [4] - 15:2, 32:2, 32:8, 32:12 contained [3] - 5:24, 11:7, 38:12 containing [1] - 15:21 containment [7] - 11:5, 15:16, 15:17, 15:20, 16:14, 17:16, 32:16 continue [2] - 17:12, 17:14 continued [3] - 5:4, 22:17, 37:11 contributed [1] -
09-3807 [1] - 1:2	6 [2] - 26:19, 41:1 628 [1] - 41:5			
1	7			
1 [4] - 18:4, 18:14, 40:5, 40:7 10 [1] - 19:13 100 [2] - 7:8, 35:10 1100 [1] - 2:13 123 [1] - 2:8 13th [5] - 1:13, 37:23, 38:22, 39:6, 39:23 14 [1] - 13:24 1st [1] - 38:15	750 [2] - 17:4, 17:18 7th [1] - 22:3			
2	8			
2 [1] - 18:8, 18:12, 18:13, 23:22, 23:25, 25:5, 32:20, 33:1, 40:6, 40:7 2-1-10 [1] - 41:6 200 [2] - 7:10, 35:12 2000 [1] - 8:17 2004 [1] - 8:17 2009 [1] - 37:23 2010 [5] - 1:13, 38:16, 39:7, 39:15, 40:21 2012 [2] - 38:22, 39:23 216 [1] - 2:12 2:10 [1] - 1:13	8 [1] - 5:3 80202-5115 [1] - 2:13 82002 [1] - 2:9 82801 [2] - 2:4, 41:2 82831 [1] - 41:5			
3	9			
3 [4] - 26:21, 26:22, 40:6, 40:7 30 [2] - 16:12, 41:14 307-672-3354 [1] - 41:2 307-751-6823 [1] - 41:2 37 [2] - 38:10, 39:6 3:30 [1] - 37:22	94056 [2] - 26:17, 32:1			
4	A			
4 [2] - 9:3, 9:4 4,000 [1] - 16:11 40 [2] - 1:19, 2:4	above-entitled [1] - 41:11 Absolutely [1] - 16:13 acceptable [3] - 23:14, 23:16 accordance [1] - 1:17 acres [2] - 7:8, 35:10 action [2] - 14:8, 14:9 added [1] - 10:19 address [4] - 22:8, 24:7, 24:8, 24:16 addressed [3] - 13:18, 14:18, 41:16 addressing [1] - 21:23 adds [1] - 6:5 Admlssion [1] - 18:14 affixed [1] - 38:15 aforementioned [1] - 40:2 AG'S [1] - 2:7 age [1] - 15:8 ago [1] - 8:13 agree [1] - 16:2 AGREEMENT [1] - 1:16 agreement [1] - 30:24 agriculture [1] - 10:13 alfalfa [1] - 7:9 Alison [1] - 2:5 allowed [4] - 16:15, 32:13, 32:14, 33:5 allows [3] - 15:24, 17:17, 20:7 ALSO [1] - 2:17			
5				
5 [1] - 3:4 500 [1] - 8:12		bad [2] - 7:11, 20:15 BASIN [1] - 1:6 Basin [1] - 36:21 Beatty [1] - 25:22 BEATTY [1] - 2:12 beautiful [1] - 15:7 became [1] - 28:12 become [1] - 28:2 BEFORE [1] - 1:1 behalf [1] - 1:11 belly [1] - 8:20 below [1] - 10:17 best [1] - 29:5 better [1] - 24:12 between [1] - 9:10 blg [1] - 8:5 Bill [4] - 2:18, 8:9	C Cannon [1] - 1:19 CANNON [1] - 2:3 cannot [1] - 19:18 capacity [1] - 36:25 Capitol [1] - 2:8 Carol [3] - 1:20, 38:19, 41:24 CAROL [2] - 38:3, 41:1 carolobryan@ bresnan.net [1] - 41:3 case [1] - 41:15 cattle [1] - 8:19 cattle-truck [1] - 8:19 caused [2] - 8:10, 36:3 causing [2] - 28:9, 36:6 CBM [5] - 21:22, 21:24, 23:4, 23:15, 24:5 CCR [1] - 41:1 cell [1] - 41:2 certain [3] - 5:12, 29:12, 35:23 certainly [2] - 25:4, 36:22 CERTIFICATE [2] - 38:1, 39:1 Certified [4] - 1:20, 38:3, 38:19, 41:25 certify [2] - 38:5, 39:4 chalr [2] - 37:2, 37:3 challenges [1] - 24:20 change [1] - 17:3 Change [3] - 40:9 changes [1] - 39:12 Changes [1] - 39:12 CHANGES [1] - 40:6 channel [3] - 6:2, 7:4, 7:6 checked [2] - 17:20, 17:22 checking [1] - 33:14	

<p>35:23 contributing [1] - 36:9 controlled [1] - 10:6 convenience [2] - 41:11, 41:16 correct [5] - 6:14, 31:8, 33:6, 33:25, 39:8 Correct [4] - 23:5, 24:18, 31:21, 40:6 Correction [1] - 40:8 corrections [3] - 40:4, 41:19, 41:21 cottonwood [3] - 7:10, 15:8, 35:13 Cottonwood [1] - 41:1 COUNCIL [2] - 1:1, 1:8 Council [1] - 36:21 counsel [1] - 5:2 counter [1] - 19:2 couple [1] - 26:1 course [3] - 25:8, 26:8, 30:15 court [2] - 30:23, 41:15 Court [4] - 1:20, 38:3, 38:19, 41:25 covered [2] - 9:9, 33:10 cows [1] - 15:9 Creek [14] - 6:19, 7:4, 7:25, 8:6, 9:7, 10:17, 12:14, 12:18, 12:22, 29:4, 30:5, 31:14, 34:5, 35:21 crop [4] - 35:4, 35:8, 36:4, 36:6 crosses [3] - 7:25, 9:6, 29:2 crossing [3] - 12:20, 30:3, 34:5 culvert [5] - 7:25, 8:3, 8:24, 8:25, 29:2</p>	<p>Denver [1] - 2:13 Department [1] - 4:13 depo [2] - 41:13, 41:16 deponent [1] - 38:11 DEPONENT'S [1] - 39:1 deposition [12] - 4:14, 26:4, 26:6, 26:15, 39:8, 40:3, 41:11, 41:12, 41:13, 41:14, 41:18, 41:19 DEPOSITION [2] - 1:10, 2:22 Deposition [7] - 1:16, 3:4, 3:5, 5:3, 5:8, 26:19, 37:21 DEQ [11] - 1:11, 2:7, 13:3, 13:5, 14:6, 18:15, 19:21, 21:19, 33:13, 33:15, 41:8 DEQ's [1] - 18:5 despite [1] - 11:5 destroy [1] - 20:18 destroyed [2] - 7:7, 21:9 develop [1] - 20:23 developed [1] - 16:21 Devon [1] - 7:15 different [3] - 13:24, 17:9, 18:18 difficult [1] - 27:16 direction [3] - 12:22, 28:6, 30:10 Directors [1] - 37:4 discharge [4] - 6:21, 26:13, 27:6, 33:5 discharged [1] - 7:13 discharges [1] - 35:5 discharges' [1] - 11:3 discovered [1] - 14:13 discovery [2] - 5:14, 18:5 discuss [1] - 6:8 discussing [1] - 8:24 discusslon [1] - 37:10 dissolved [1] - 7:1 dive [1] - 5:19 Docket [1] - 1:2 document [2] - 5:1, 5:7 documents [2] - 26:4, 26:7 done [10] - 14:11, 20:11, 20:20, 20:21, 21:11, 21:12, 21:17, 22:11, 26:13, 33:19 doubt [1] - 24:13 down [5] - 6:19, 7:4, 7:7, 16:23, 17:23 downhill [2] - 9:16, 11:15</p>	<p>drainage [3] - 7:18, 8:6, 8:7 Drake [2] - 2:15, 25:24 Drive [1] - 41:1 duly [2] - 4:5, 38:6 dump [2] - 8:19, 8:20 dump-truck [1] - 8:19 dumped [1] - 10:3 duplicate [1] - 4:20 duration [1] - 33:9 during [6] - 5:25, 8:1, 10:2, 15:24, 16:16, 17:17</p>	<p style="text-align: center;">E</p> <p>easily [1] - 41:18 EC [6] - 10:23, 11:1, 16:11, 17:4, 17:18 effluent [5] - 6:13, 6:15, 21:24, 32:3, 32:8 eight [1] - 24:25 either [2] - 9:12, 33:20 employees [1] - 33:13 Enc [1] - 41:25 enclosing [2] - 41:10, 41:16 end [1] - 17:21 ends [2] - 7:19, 11:15 Energy [2] - 2:12, 25:23 enforcement [1] - 14:8 Engels [2] - 21:11, 26:8 entirely [1] - 26:12 entitled [1] - 41:11 envelope [1] - 41:16 Environmental [1] - 4:13 ENVIRONMENTAL [1] - 1:1 ephemeral [1] - 6:2 EQC [1] - 21:7 error [1] - 40:6 Esch [9] - 2:10, 4:12, 5:6, 9:4, 13:2, 17:16, 18:13, 23:3, 41:14 ESCH [9] - 4:11, 22:13, 22:19, 22:23, 23:1, 36:15, 36:19, 37:15, 37:19 Esch.....4 [1] - 2:23 Esch.....36 [1] - 2:24 Esq [4] - 2:5, 2:10, 2:14, 2:15 establish [1] - 21:3 event [3] - 16:16, 32:15, 33:7</p>	<p>events [3] - 15:4, 15:25, 17:18 evidence [16] - 29:14, 29:19, 29:22, 30:1, 30:6, 33:18, 33:25, 34:3, 34:7, 34:8, 35:1, 35:3, 35:16, 35:25, 36:2, 36:12 exact [1] - 31:15 Exactly [3] - 11:4, 14:20, 24:9 Exam [1] - 2:24 EXAMINATION [3] - 4:9, 25:18, 36:17 Examination [2] - 2:23, 2:24 exhibit [1] - 9:2 EXHIBIT [1] - 3:1 Exhibit [7] - 3:4, 5:3, 9:3, 9:4, 26:19, 26:21, 26:22 existed [2] - 28:3, 28:4 Expires [3] - 38:21, 39:22, 40:25 explain [1] - 6:17</p>	<p style="text-align: center;">F</p> <p>face [1] - 41:19 fact [1] - 6:4 Facts [1] - 40:6 failed [2] - 19:22, 19:24 fairly [2] - 27:15, 34:6 familiar [3] - 6:9, 26:16, 27:5 February [1] - 38:16 few [4] - 14:17, 22:20, 30:18 final [1] - 34:25 fine [4] - 14:15, 15:18, 29:10, 29:13 finger [1] - 32:5 firm [2] - 25:22, 25:25 first [13] - 4:5, 14:11, 16:10, 18:5, 23:10, 23:11, 28:2, 28:11, 28:18, 28:22, 29:6, 29:17, 38:6 First [1] - 26:3 five [3] - 17:4, 17:19, 22:10 fix [1] - 14:8 flawed [5] - 23:23, 24:1, 24:3, 24:10, 24:11 flood [1] - 20:13 flooded [1] - 21:9 floods [1] - 7:7 flow [1] - 17:21 flowed [2] - 6:18, 21:8</p>	<p>flowing [3] - 28:6, 29:1, 30:4 flows [5] - 8:3, 12:21, 29:3, 30:9, 35:21 follow [2] - 26:1, 36:15 follow-up [2] - 26:1, 36:15 following [1] - 40:4 follows [4] - 4:6, 5:4, 22:17, 37:12 FOR [2] - 3:1, 40:6 force [5] - 21:22, 23:4, 23:7, 23:8, 24:5 foregoing [2] - 38:9, 39:5 forms [1] - 41:19 forward [2] - 22:6, 24:19 FROM [1] - 1:7 front [1] - 27:10 frozen [2] - 7:4, 7:6 full [2] - 16:14, 39:7</p>
<p style="text-align: center;">D</p> <p>damage [1] - 15:5 damages [1] - 8:10 Date [1] - 41:6 Dave [2] - 21:11, 26:8 Davis [1] - 1:19 DAVIS [1] - 2:3 days [1] - 41:14 Dear [1] - 41:9 decide [1] - 19:22 decided [1] - 19:20 decrease [2] - 36:4, 36:6 deliberately [2] - 11:11, 11:17 delivery [1] - 41:15</p>	<p style="text-align: center;">G</p> <p>gas [2] - 16:23, 20:19 gee [2] - 20:13, 21:16 general [1] - 34:22 gentlemen [1] - 25:13 Gillette [2] - 7:24, 22:1 given [1] - 38:11 glass [2] - 15:21, 16:6 goal [5] - 23:6, 23:8, 24:5, 24:6, 24:7 goodness [1] - 13:12 government [1] - 20:7 granted [1] - 33:8 grasses [1] - 7:9 greater [2] - 20:16, 20:19 grew [1] - 15:7 grid [1] - 27:14 group [3] - 21:25, 22:4, 22:5 grow [3] - 6:23, 8:16, 8:17 guess [2] - 29:5, 29:11 guys [1] - 22:13</p>	<p style="text-align: center;">F</p> <p>face [1] - 41:19 fact [1] - 6:4 Facts [1] - 40:6 failed [2] - 19:22, 19:24 fairly [2] - 27:15, 34:6 familiar [3] - 6:9, 26:16, 27:5 February [1] - 38:16 few [4] - 14:17, 22:20, 30:18 final [1] - 34:25 fine [4] - 14:15, 15:18, 29:10, 29:13 finger [1] - 32:5 firm [2] - 25:22, 25:25 first [13] - 4:5, 14:11, 16:10, 18:5, 23:10, 23:11, 28:2, 28:11, 28:18, 28:22, 29:6, 29:17, 38:6 First [1] - 26:3 five [3] - 17:4, 17:19, 22:10 fix [1] - 14:8 flawed [5] - 23:23, 24:1, 24:3, 24:10, 24:11 flood [1] - 20:13 flooded [1] - 21:9 floods [1] - 7:7 flow [1] - 17:21 flowed [2] - 6:18, 21:8</p>	<p style="text-align: center;">H</p> <p>hand [1] - 38:15 handed [1] - 5:7 hailed [1] - 8:11 hauls [1] - 8:18 hay [4] - 7:8, 15:7, 21:9, 35:10 head [3] - 6:11, 6:12, 13:14 heavens [1] - 28:21</p>			

<p>held [1] - 37:10 help [1] - 8:11 hereby [2] - 38:5, 39:4 herein [1] - 38:12 hereunto [1] - 38:14 high [2] - 7:1, 7:2 higher [2] - 10:18, 10:20 highway [7] - 7:25, 8:4, 9:6, 12:20, 29:2, 30:3, 34:6 HILL [3] - 22:22, 22:24, 23:2 Hill [2] - 2:15, 25:25 history [1] - 29:17 honest [2] - 19:10, 20:9 honestly [2] - 18:18, 29:8 honesty [1] - 19:11 Horse [16] - 6:19, 7:4, 7:25, 8:6, 8:7, 9:7, 10:16, 12:14, 12:18, 12:22, 29:3, 30:5, 30:20, 31:14, 34:5, 35:21 hours [1] - 8:9 husband [1] - 35:11 hypothetical [2] - 16:5, 17:6 hypotheticals [1] - 17:13</p>	<p>Indecipherable [1] - 9:13 INDEX [1] - 3:1 Indicate [1] - 41:21 Indicating [1] - 9:6 Indicating [1] - 18:10 Individual [1] - 33:10 Individuals [1] - 12:2 Information [3] - 11:16, 12:10, 19:1 Inspected [14] - 13:6, 14:1, 14:4, 27:24, 30:16, 30:18, 30:19, 31:7, 31:11, 31:12, 31:13, 31:16, 31:17, 31:23 Intend [1] - 25:2 Interrogatories [1] - 5:12 Interrogatories [1] - 18:11 Interrogatory [1] - 18:4 Invalid [3] - 32:21, 32:23, 33:2 Involved [2] - 35:17, 36:24 Irrigate [1] - 6:22 Irrigated [1] - 10:13 Issue [9] - 24:9, 26:17, 27:25, 28:11, 35:18 Issued [5] - 5:21, 14:19, 23:24, 25:4, 32:20 Issues [2] - 21:23, 22:8 Issuing [1] - 24:11</p>	<p>17:23, 20:5, 21:9, 23:21, 26:9, 26:13, 26:14, 27:21, 31:14, 31:17, 31:18, 34:15, 34:20 landmen [1] - 11:19 landowners [1] - 23:16 lands [4] - 7:17, 8:8, 31:1, 31:2 last [2] - 23:19, 34:25 Law [2] - 2:3, 2:8 law [1] - 25:22 lead [1] - 12:10 leak [14] - 5:25, 10:7, 10:8, 12:14, 12:17, 12:25, 13:1, 13:4, 14:7, 14:16, 14:25, 32:17, 33:20, 33:23 leakage [1] - 30:22 leaked [2] - 29:15, 29:17 leaking [1] - 14:5 leaks [1] - 11:14 least [1] - 14:23 left [3] - 22:20, 22:21, 23:3 letter [1] - 33:8 leveled [1] - 8:15 life [1] - 20:4 lifetime [1] - 35:14 limited [1] - 13:23 limits [14] - 6:14, 6:16, 6:19, 10:9, 10:12, 17:4, 17:18, 17:20, 20:23, 21:3, 21:10, 21:18, 21:20, 21:24 Line [1] - 40:9 lined [4] - 10:5, 14:16, 14:17, 33:23 listen [1] - 24:4 live [1] - 34:24 livestock [1] - 15:10 LLC [1] - 1:7 LLP [1] - 2:3 loads [3] - 8:19, 8:20 located [4] - 6:24, 11:11, 12:11, 34:15 locating [1] - 11:17 location [2] - 31:15, 31:20 look [2] - 21:15, 26:18 looked [1] - 23:20 looking [2] - 11:22, 27:4 looks [1] - 9:9 loss [1] - 35:4 losses [2] - 35:8, 35:17 lost [2] - 35:9, 35:12 Luke [3] - 2:10, 4:12, 22:22</p>	<p style="text-align: center;">M</p> <p>Ma'am [1] - 32:22 ma'am [1] - 36:10 Main [2] - 1:19, 2:4 man [1] - 13:24 map [2] - 27:15, 31:20 maps [3] - 27:11, 27:12, 27:19 MARGE [9] - 1:10, 1:17, 2:22, 4:3, 38:5, 39:4, 39:10, 40:2, 40:19 Marge [3] - 3:5, 41:4, 41:9 Margery [1] - 4:24 mark [1] - 41:19 marked [2] - 5:2, 41:17 MARKED [1] - 3:1 materials [1] - 5:11 matter [3] - 25:24, 41:11, 41:15 Matter [1] - 41:8 MATTER [1] - 1:5 meadow [2] - 7:8, 35:10 meadows [1] - 21:9 mean [6] - 5:25, 8:5, 24:11, 26:10, 32:10, 37:3 means [2] - 6:1, 32:11 measured [1] - 36:1 meet [1] - 22:2 meeting [2] - 21:25, 23:17 meets [1] - 30:4 melt [1] - 15:4 member [1] - 36:20 methane [6] - 6:21, 8:10, 8:14, 15:4, 15:6, 26:13 methodology [4] - 23:23, 24:1, 24:10, 24:12 Mexico [1] - 33:1 might [4] - 18:8, 21:5, 22:10, 29:6 minute [3] - 10:10, 18:15, 22:25 minutes [1] - 22:11 mitigate [1] - 8:10 moment [1] - 37:7 months [2] - 24:24, 24:25 Morrison [1] - 2:17 most [1] - 36:22 move [1] - 24:19 MR [16] - 4:11, 22:13, 22:14, 22:19, 22:22, 22:23, 22:24, 23:1,</p>	<p>23:2, 25:16, 25:20, 36:15, 36:19, 37:15, 44 37:16, 37:19 MS [10] - 9:3, 12:19, 17:12, 18:11, 25:12, 25:15, 26:21, 26:25, 37:7, 37:14 must [1] - 41:20 mutually [1] - 23:13</p>
<p style="text-align: center;">I</p> <p>ICP [1] - 6:18 idea [2] - 24:23, 25:1 Identification [1] - 5:2 IDENTIFICATION [1] - 3:2 immediately [1] - 16:23 Impact [2] - 11:3, 28:9 Impacted [1] - 7:21 impacts [1] - 8:8 Impoundment [2] - 30:1, 33:22 Impoundments [29] - 27:6, 27:9, 27:20, 27:25, 28:3, 28:5, 28:12, 29:14, 29:15, 29:23, 30:7, 30:9, 30:10, 30:14, 31:4, 31:7, 31:13, 32:9, 33:19, 34:2, 34:15, 35:6, 35:9, 35:18, 35:21, 35:22, 36:3, 36:6, 36:8 improve [2] - 20:4, 20:5 IN [2] - 1:5, 38:14</p>	<p style="text-align: center;">J</p> <p>January [3] - 1:13, 37:23, 39:6 Jill [1] - 2:17</p>	<p>17:23, 20:5, 21:9, 23:21, 26:9, 26:13, 26:14, 27:21, 31:14, 31:17, 31:18, 34:15, 34:20 landmen [1] - 11:19 landowners [1] - 23:16 lands [4] - 7:17, 8:8, 31:1, 31:2 last [2] - 23:19, 34:25 Law [2] - 2:3, 2:8 law [1] - 25:22 lead [1] - 12:10 leak [14] - 5:25, 10:7, 10:8, 12:14, 12:17, 12:25, 13:1, 13:4, 14:7, 14:16, 14:25, 32:17, 33:20, 33:23 leakage [1] - 30:22 leaked [2] - 29:15, 29:17 leaking [1] - 14:5 leaks [1] - 11:14 least [1] - 14:23 left [3] - 22:20, 22:21, 23:3 letter [1] - 33:8 leveled [1] - 8:15 life [1] - 20:4 lifetime [1] - 35:14 limited [1] - 13:23 limits [14] - 6:14, 6:16, 6:19, 10:9, 10:12, 17:4, 17:18, 17:20, 20:23, 21:3, 21:10, 21:18, 21:20, 21:24 Line [1] - 40:9 lined [4] - 10:5, 14:16, 14:17, 33:23 listen [1] - 24:4 live [1] - 34:24 livestock [1] - 15:10 LLC [1] - 1:7 LLP [1] - 2:3 loads [3] - 8:19, 8:20 located [4] - 6:24, 11:11, 12:11, 34:15 locating [1] - 11:17 location [2] - 31:15, 31:20 look [2] - 21:15, 26:18 looked [1] - 23:20 looking [2] - 11:22, 27:4 looks [1] - 9:9 loss [1] - 35:4 losses [2] - 35:8, 35:17 lost [2] - 35:9, 35:12 Luke [3] - 2:10, 4:12, 22:22</p>	<p style="text-align: center;">N</p> <p>name [4] - 4:12, 4:22, 13:15, 25:21 names [2] - 12:4, 13:12 native [1] - 7:9 near [1] - 31:8 nearly [1] - 35:10 necessary [2] - 41:17, 41:19 need [6] - 5:11, 14:10, 20:19, 20:20, 22:10, 23:25 needs [2] - 14:12, 20:20 neighbors [1] - 34:20 never [7] - 6:19, 16:21, 21:10, 21:17, 26:11, 29:16, 35:13 New [1] - 32:25 next [1] - 41:14 NO [1] - 1:7 nobody [3] - 19:7, 20:12, 24:3 North [2] - 1:19, 2:4 northeastern [1] - 6:25 Notarial [1] - 38:15 notary [1] - 41:22 Notary [5] - 1:21, 38:4, 39:19, 40:24, 41:21 nothing [2] - 8:14, 38:7 Notice [2] - 3:5, 5:7 noticed [5] - 28:19, 28:22, 28:24, 28:25, 29:1 noticing [1] - 29:6 number [2] - 13:23, 29:12 Number [3] - 1:2, 18:4, 18:14 numerous [1] - 7:18 Numerous [1] - 7:23</p>	
	<p style="text-align: center;">K</p> <p>keep [1] - 24:11 keeps [1] - 7:6 killed [1] - 7:10 knowledge [2] - 13:7, 23:6 knows [1] - 24:22</p>	<p style="text-align: center;">L</p> <p>laboratory [1] - 21:14 land [25] - 6:5, 6:7, 6:16, 7:7, 7:19, 7:22, 8:14, 8:15, 8:17, 10:18, 11:15, 16:21,</p>	<p style="text-align: center;">O</p> <p>O'BRYAN [2] - 38:3, 41:1 O'Bryan [3] - 1:20,</p>	

<p>38:19, 41:24 object [1] - 19:21 objecting [2] - 25:2, 25:7 objection [1] - 17:13 obviously [2] - 16:17, 19:15 OCHS [10] - 9:3, 12:19, 17:12, 18:11, 25:12, 25:15, 26:21, 26:25, 37:7, 37:14 Ochs [1] - 2:5 October [2] - 38:22, 39:23 Odegard's [1] - 13:13 OF [5] - 1:1, 1:5, 1:5, 1:10, 2:22 OFFICE [1] - 2:7 Offices [1] - 1:18 officials [1] - 12:25 oil [1] - 20:20 old [4] - 7:10, 8:13, 15:8, 35:12 old-age [1] - 15:8 old-stand [2] - 7:10, 35:12 once [2] - 21:17, 34:11 One [2] - 13:13, 34:25 one [11] - 10:25, 13:24, 16:20, 18:20, 18:21, 19:5, 19:15, 19:16, 21:10, 27:14, 31:5 ones [1] - 19:17 operation [1] - 20:5 operations [1] - 31:1 opinion [2] - 14:21, 16:18 organization [1] - 36:24 original [4] - 41:10, 41:13, 41:15, 41:16 originally [1] - 10:21 over-pump-flow [1] - 17:21 overabundance [1] - 15:12 overflow [5] - 5:25, 9:18, 9:21, 9:23, 10:7 overflowed [1] - 10:2 overtop [5] - 15:24, 16:15, 32:14, 32:17, 33:20, 33:23 overtopping [1] - 17:17 own [1] - 20:1</p>	<p>PAGE [1] - 40:1 page [1] - 18:6 Page [5] - 2:21, 3:3, 18:8, 18:12, 18:13, 40:9 pages [4] - 38:10, 39:6, 41:14, 41:17 par [1] - 10:20 Pardon [1] - 34:1 part [5] - 6:25, 17:9, 22:4, 22:5, 32:3 past [1] - 7:3 pays [1] - 19:7 PC [1] - 2:12 people [2] - 6:22, 23:10 people's [1] - 26:14 percentage [2] - 35:7, 35:14 perhaps [1] - 17:10 permit [31] - 5:21, 6:9, 6:14, 7:14, 7:15, 7:20, 7:21, 10:10, 10:12, 14:19, 15:15, 15:23, 16:4, 18:16, 19:14, 19:21, 24:20, 26:17, 26:23, 26:25, 27:2, 27:6, 28:10, 29:24, 32:1, 32:3, 32:18, 32:19, 33:4, 33:16, 35:19 PERMIT [1] - 1:7 permits [2] - 7:12, 7:16, 21:20, 23:24, 24:9, 24:11, 25:3, 25:7, 31:23 permittee [1] - 32:2 person [1] - 32:11 personally [2] - 9:20, 9:22 personnel [1] - 13:23 petitioners' [1] - 18:5 phone [1] - 25:13 photographic [1] - 27:15 pipe [3] - 16:22, 17:21, 17:24 plt [1] - 31:13 places [1] - 13:24 plausible [1] - 24:10 point [1] - 32:5 points [1] - 6:18 possible [1] - 28:8 Powder [1] - 36:20 POWDER [1] - 1:5 prefer [1] - 24:19 prepare [1] - 26:3 prepared [1] - 41:15 PRESENT [1] - 2:17 pretty [3] - 19:25, 20:3, 22:11 previous [1] - 8:2</p>	<p>prime [2] - 7:8, 35:10 private [1] - 34:15 problem [5] - 8:22, 16:9, 16:11, 20:25, 35:24, 36:9 problems [2] - 6:5, 23:9 Procedure [1] - 1:18 proceed [1] - 25:6 Proceedings [1] - 37:21 proceedings [4] - 5:3, 22:17, 37:11, 38:12 process [6] - 21:23, 22:6, 24:15, 24:21, 24:22, 25:8 produced [1] - 28:20 production [3] - 35:4, 36:4, 36:7 property [2] - 10:16, 11:3 protective [1] - 10:13 protest [1] - 19:16 protested [1] - 19:17 protesting [1] - 19:14 proud [1] - 36:22 prove [2] - 12:24, 13:1 proven [2] - 32:20, 32:22 provided [2] - 15:8, 15:9 provision [1] - 15:23 Public [5] - 1:21, 38:4, 39:19, 40:24, 41:21 pull [1] - 18:8 pump [1] - 17:21 purport [1] - 18:23 purposely [1] - 12:11 PURSUANT [1] - 1:16 put [2] - 11:24, 20:14 putting [1] - 13:16</p> <p style="text-align: center;">Q</p> <p>QUALITY [1] - 1:1 Quality [1] - 4:13 quality [3] - 5:23, 6:8, 6:13 QUESTIONS [3] - 4:11, 25:20, 36:19 questions [5] - 4:16, 4:17, 22:20, 25:12, 26:2, 36:15 quite [1] - 28:23 Quite [1] - 28:24</p> <p style="text-align: center;">R</p> <p>rain [1] - 15:3 ranch [1] - 20:18</p>	<p>RANCH [1] - 1:7 rancher [2] - 14:24, 15:3 ranching [1] - 20:4 rather [2] - 24:20, 25:6 Re [1] - 41:8 reach [2] - 17:23, 31:2 reached [4] - 6:16, 6:19, 21:10, 21:17 Read [1] - 37:15 read [12] - 6:10, 9:10, 26:16, 26:23, 26:25, 27:1, 27:4, 27:16, 39:5, 40:3, 41:13, 41:21 reading [1] - 41:11 readings [1] - 10:18 ready [2] - 23:2, 25:15 real [1] - 31:19 really [1] - 12:9 reason [1] - 34:21 Reason [1] - 40:8 reasonable [3] - 30:11, 34:6, 36:7 reasonably [2] - 15:1, 35:23 REASONS [1] - 40:5 reclaiming [1] - 35:11 record [5] - 4:23, 37:11, 37:19, 38:10, 39:8 Record [1] - 40:5 refer [1] - 31:25 referred [1] - 5:1 referring [5] - 7:12, 7:14, 7:15, 7:16, 9:2, 9:8 regard [1] - 12:8 regarding [2] - 35:1, 35:4 reinject [1] - 16:19 relates [1] - 35:5 relation [2] - 8:25, 27:21 release [2] - 33:8, 33:9 releasing [1] - 28:15 relevance [1] - 17:13 remember [2] - 18:19, 41:20 repeat [1] - 4:18 repetitive [1] - 35:2 rephrase [3] - 4:18, 14:6, 35:16 replaced [1] - 35:13 Reporter [4] - 1:21, 38:4, 38:19, 41:25 REPORTER'S [1] - 38:1 representing [1] - 25:23 request [2] - 18:6, 18:13</p>	<p>REQUESTED [1] - 37:25 45 requests [1] - 5:15 require [1] - 32:8 required [1] - 32:2 requirement [2] - 11:6, 32:7 requirements [1] - 17:17 reservoir [15] - 8:13, 10:1, 10:5, 10:8, 11:14, 13:15, 13:16, 14:7, 14:12, 14:23, 17:21, 17:22, 30:19, 31:16, 33:22 reservoirs [33] - 5:24, 9:1, 9:17, 9:19, 11:6, 11:9, 11:11, 11:17, 11:21, 12:9, 12:12, 12:17, 12:23, 13:3, 13:7, 13:8, 13:9, 13:11, 14:2, 14:4, 14:5, 14:17, 27:19, 28:8, 30:21, 31:17, 31:22, 32:14, 32:15, 33:10, 33:14, 34:11, 34:13 RESOURCE [1] - 1:6 Resource [1] - 36:21 response [1] - 18:5 restate [1] - 17:15 resurfaced [1] - 29:25 return [2] - 41:13, 41:15 returning [1] - 41:16 review [1] - 26:4 reviewed [2] - 26:7, 28:10 RIVER [1] - 1:5 River [1] - 36:20 Road [2] - 13:14, 41:5 roads [1] - 27:17 rule [2] - 21:1, 34:22 Rules [1] - 1:18 rules [1] - 21:4 run [1] - 25:8 running [1] - 34:5</p> <p style="text-align: center;">S</p> <p>SA [3] - 13:13, 13:14, 41:5 sad [2] - 19:25, 20:3 SAR [4] - 16:12, 17:4, 17:18, 21:7 SARs [1] - 7:2 scene [1] - 9:22 scientifically [4] - 21:16, 32:21, 32:23, 33:1 scientist [1] - 33:2</p>
--	---	--	---	--

<p>scientists [6] - 23:18, 24:2, 26:10, 26:11, 32:24, 32:25 Seal [1] - 38:15 seam [4] - 14:14, 16:25, 17:1 seams [6] - 11:12, 11:23, 11:25, 12:1, 12:12 second [1] - 22:25 secret [1] - 8:5 section [1] - 9:8 sections [1] - 9:10 sediment [1] - 8:12 see [7] - 8:4, 19:18, 26:18, 27:16, 31:19, 32:3, 32:6 seeing [1] - 31:3 seep [2] - 32:13, 32:17 seepage [1] - 30:22 seeped [1] - 29:23 semi [1] - 8:20 semi-belly-dump [1] - 8:20 send [1] - 21:13 separated [1] - 16:22 set [1] - 38:14 sets [1] - 21:19 several [1] - 13:9 shale [5] - 11:12, 11:24, 11:25, 12:12, 14:14 shelter [2] - 15:8, 15:9 Sheridan [4] - 1:19, 2:4, 21:12, 41:2 showing [1] - 30:21 shut [2] - 8:2, 13:16 sign [4] - 37:15, 41:18, 41:20, 41:21 signature [1] - 41:14 SIGNATURE [2] - 37:25, 40:1 signing [1] - 41:11 signs [1] - 30:21 single [1] - 19:15 situation [4] - 13:18, 17:3, 24:12, 24:16 situations [1] - 24:8 slx [1] - 24:24 Sixteenth [1] - 2:12 smart [1] - 16:18 snow [2] - 15:4, 34:11 soil [2] - 10:23, 11:1 solids [1] - 7:1 solution [4] - 23:9, 23:14, 23:15 solve [1] - 8:22 someplace [3] - 14:24, 15:1, 16:17 somewhere [1] - 29:25</p>	<p>sorry [3] - 9:24, 12:12, 31:6 Sparks [5] - 2:14, 22:24, 25:21, 26:22, 27:1 SPARKS [4] - 22:14, 25:16, 25:20, 37:16 Sparks..... 25 [1] - 2:24 specific [7] - 10:22, 29:15, 34:3, 35:1, 35:3, 35:25, 36:12 specify [1] - 33:9 spent [2] - 8:9, 35:11 Spotted [16] - 6:19, 7:4, 7:24, 8:6, 8:7, 9:7, 10:16, 12:14, 12:18, 12:22, 29:3, 30:5, 30:20, 31:14, 34:5, 35:21 stake [1] - 11:21 stamp [1] - 9:9 stand [2] - 7:10, 35:12 standards [2] - 5:23, 6:8 stands [1] - 15:7 start [2] - 18:11, 24:14 started [2] - 4:22, 15:6 STATE [1] - 1:1 state [10] - 4:22, 12:25, 14:8, 17:9, 20:7, 20:22, 21:3, 33:22, 34:19, 34:24 State [3] - 1:21, 10:1, 38:4 states [1] - 32:1 stepped [2] - 20:12, 22:24 Stephens [7] - 2:12, 25:23, 27:19, 31:22, 32:8, 33:5, 33:16 still [1] - 18:1 stop [3] - 7:5, 13:16, 20:14 stopped [1] - 30:24 store [3] - 16:17, 30:19, 31:16 storm [5] - 6:1, 15:4, 15:24, 16:16, 17:17 storms [2] - 10:2, 32:15 stream [1] - 28:25 Street [3] - 1:19, 2:4, 2:12 strictly [1] - 10:6 studies [1] - 14:10 stuff [1] - 24:10 stupid [1] - 26:12 submit [4] - 18:15, 18:24, 19:4, 19:20 submitted [4] - 14:11, 18:17, 18:20, 18:21</p>	<p>submitting [2] - 19:7, 19:12 Subscribed [1] - 39:14 SUBSCRIBED [1] - 40:20 suggested [1] - 33:19 Suite [1] - 2:13 supply [1] - 10:3 suppose [1] - 29:8 supposed [3] - 21:6, 21:18, 23:11 surface [2] - 17:2, 30:24 surface-use [1] - 30:24 surprised [1] - 16:1 SWORN [1] - 40:20 sworn [3] - 4:5, 38:6, 39:14 systems [1] - 16:20</p>	<p>14:13 total [4] - 7:1, 15:17, 15:20, 32:16 totally [1] - 15:21 touches [1] - 16:21 touching [1] - 17:1 trailer [1] - 8:20 transcript [4] - 38:9, 39:5, 40:3, 41:10 transcription [1] - 40:6 traveled [1] - 29:24 treat [1] - 16:19 trees [5] - 7:10, 15:7, 15:8, 15:12, 35:13 tributary [4] - 7:24, 12:21, 29:3, 30:4 trouble [1] - 34:18 truck [2] - 8:19 truckloads [2] - 8:12, 8:18 true [2] - 38:10, 39:7 truly [1] - 41:22 truth [4] - 4:6, 38:6, 38:7 try [2] - 4:20, 23:8 trying [6] - 8:9, 8:15, 8:22, 20:4, 20:5 twice [1] - 23:19 two [3] - 24:25, 27:11, 36:15 Two [1] - 18:7 typewritten [1] - 38:10</p>	<p>vla [1] - 2:15 vice [2] - 37:2, 37:3 vice-chair [2] - 37:2, 37:3 violation [2] - 32:18, 33:16 visually [5] - 27:24, 30:16, 31:7, 31:10, 31:12 volume [2] - 10:6, 33:9</p>
W				
<p>wait [2] - 22:25, 24:20 waiting [1] - 25:7 washed [1] - 8:13 water [56] - 5:22, 6:5, 6:8, 6:13, 6:18, 6:21, 6:22, 6:25, 7:5, 7:6, 7:13, 7:18, 7:21, 8:3, 8:10, 9:14, 10:3, 10:6, 10:23, 11:14, 12:20, 13:17, 15:2, 15:3, 15:5, 15:21, 16:17, 16:19, 16:21, 21:6, 21:8, 21:11, 21:12, 21:15, 21:17, 23:9, 26:13, 28:6, 28:16, 28:19, 28:25, 29:1, 29:23, 30:25, 31:3, 33:6, 34:4, 34:9, 35:17, 35:20, 35:22, 36:1, 36:2, 36:5, 36:8 ways [1] - 20:23 Wednesday [2] - 1:13, 37:23 welcome [1] - 37:18 wells [1] - 8:2 Werner [2] - 31:17, 31:18 WERNER [1] - 31:18 West [9] - 2:18, 3:5, 4:12, 4:24, 5:6, 25:21, 26:22, 37:16, 41:4 WEST [10] - 1:6, 1:10, 1:17, 2:22, 4:3, 38:5, 39:4, 39:10, 40:2, 40:19 Wests [2] - 2:3, 20:13 whereas [1] - 29:23 WHEREOF [1] - 38:14 whiz [2] - 20:13, 21:16 whole [2] - 20:4, 38:7 wildlife [1] - 15:10 William [1] - 2:14 WILLIAM [1] - 1:6 winter [1] - 8:1 wish [1] - 32:4</p>				
T				
<p>tabs [1] - 41:18 task [5] - 21:22, 23:4, 23:7, 23:8, 24:5 telephone [1] - 2:15 terms [2] - 6:9, 15:14 testified [1] - 4:6 testify [1] - 38:6 testimony [2] - 38:11, 39:5 testing [2] - 21:11, 21:12 tests [1] - 21:13 THE [6] - 1:1, 1:5, 25:14, 26:24, 37:18 therefore [2] - 7:18, 30:11 three [31] - 8:25, 9:17, 12:9, 12:17, 13:6, 13:8, 14:4, 27:5, 27:25, 28:3, 28:5, 28:12, 29:13, 29:15, 29:20, 29:23, 30:7, 30:9, 30:10, 31:8, 31:20, 32:9, 33:24, 34:2, 34:14, 35:5, 35:8, 35:18, 35:20, 36:3, 36:8 Tler [6] - 23:22, 23:25, 25:5, 32:20, 33:1 tired [1] - 19:6 title [1] - 11:20 TO [2] - 1:16, 40:20 today [2] - 4:14, 4:21 together [2] - 10:19, 38:11 took [1] - 41:14 top [3] - 11:17, 12:11,</p>				
U				
<p>under [6] - 23:24, 24:9, 24:11, 25:4, 29:2, 32:20 Under [1] - 33:4 Understood [1] - 34:25 University [2] - 24:2, 32:24 unless [2] - 10:5, 33:23 untold [1] - 8:9 up [24] - 4:19, 7:17, 7:19, 9:9, 9:19, 11:10, 11:15, 12:24, 12:25, 16:22, 20:12, 20:22, 26:1, 27:9, 28:4, 28:9, 28:15, 30:4, 30:9, 31:14, 32:25, 34:10, 34:12, 36:15 uphill [1] - 9:15</p>				
V				
<p>various [1] - 20:7</p>				

Witness [1] - 6:12
witness [1] - 40:3
WITNESS [4] - 25:14,
 26:24, 37:18, 38:14
Wolf [1] - 31:13
word [1] - 33:3
works [1] - 24:16
worse [1] - 24:13
Wozniak [1] - 25:22
WOZNIAK [1] - 2:12
WY [3] - 2:4, 2:9, 41:5
WY0094056 [1] - 1:7
WYOMING [2] - 1:1,
 2:7
Wyoming [15] - 1:11,
 1:20, 1:22, 6:21,
 6:25, 10:1, 10:8,
 15:11, 24:2, 26:16,
 29:18, 32:1, 32:25,
 38:5, 41:2
WYPDES [1] - 1:7

Y

Yates [2] - 12:7, 30:25
year [4] - 8:1, 28:22,
 37:2
years [7] - 8:3, 8:13,
 19:13, 24:3, 24:25,
 28:21, 35:11