

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
) No. R20-19
) (Rulemaking-Land)
Standards for the Disposal)
of Coal Combustion)
Residuals in Surface)
Impoundments: Proposed new)
35 Ill. Adm. Code 845)

REPORT OF THE PROCEEDINGS held in the
above entitled cause before Hearing Officer
Vanessa Horton, called by the Illinois Pollution
Control Board, taken by Steven Brickey, CSR, RMR,
for the State of Illinois, 100 West Randolph
Street, Chicago, Illinois, on the 29th day of
September, 2020, commencing at the hour of 9:04
a.m.

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10 MR. ANDREW REHN
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12 MR. IAN MAGRUDER
13 MS. CYNTHIA VODOPIVEC
14 MS. LISA BRADLEY
15 MS. MELINDA HAHN
16 MR. RUDOLPH BONAPARTE
17 MR. DAVID HAGEN
18 MR. ANDREW BITTNER

19 E X H I B I T S

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1 HEARING OFFICER HORTON: Good
2 morning, everyone, and welcome to this Illinois
3 Pollution Control Board hearing.

4 My name is Vanessa Horton, and I
5 am the Hearing Officer for this rulemaking
6 proceeding entitled Rulemaking for Proposed New 35
7 Ill. Adm. Code 845: Standards for the Disposal of
8 Coal Combustion Residuals and Surface
9 Impoundments. The Board docket number for this
10 rulemaking is R20-19.

11 Also, present from the Board
12 today here is, in person, Member Jennifer Van Wie
13 and on Webex Chair of the Board Barbara Flynn
14 Currie. Also present here in Chicago is staff
15 attorney Daniel Pauley and General Counsel Marie
16 Tipsord.

17 This hearing is governed by the
18 Board's procedural rules. All information that is
19 relevant and that is not repetitious or privileged
20 will be admitted into the record. Please bear in
21 mind that any questions posed today by the Board
22 and its staff are intended solely to help develop
23 a clear and complete record for the Board's
24 decision and do not reflect any decision on the

1 proposal, testimony or other questions.

2 Due to COVID-19, in addition to
3 the video conferencing, we are allowing Webex
4 participation via computer and phone. As a
5 reminder, pre-filed testimony is available to view
6 on our clerk's office online, or COOL, through the
7 Board's website. Simply search the docket number
8 R20-19. For the sake of our court reporter,
9 please speak clearly and avoid speaking at the
10 same time as another person so that we can help
11 produce a clear transcript.

12 If you are talking about a
13 section of the proposed rule that ends in a
14 letter, please say out that letter as in
15 845.101(b) as in boy. For those participating by
16 Webex either on the phone or using the call me
17 feature for sound, if you want to speak during the
18 hearing, please take your phone off speakerphone
19 and talk into the phone normally as it will
20 produce a much clearer sound. If you wish to
21 speak, you will also have to unmute yourself. All
22 individuals entering the Webex feed are muted upon
23 entry.

24 For those on a computer, you can

1 click the microphone symbol to unmute yourself or
2 hold down the space bar. For those of you
3 participating as call-in users, you must press
4 Star 6 on your keypad to unmute yourself. I would
5 also like to note that there might be a slight
6 delay in the Webex video. So be mindful of that
7 when communicating with each other.

8 If you are on video or
9 telephone, please identify yourself each time
10 before speaking. This is a little difficult to
11 get used to, but it is very important for our
12 court reporter to be able to know who is speaking.
13 If you are talking about -- I'll skip that.

14 If you are mentioning an acronym
15 for the first time, please use its full name
16 before using it as an acronym. So for EJ, for
17 example, please say environmental justice the
18 first time you mention it. If you need to get my
19 attention, and are participating via Webex, please
20 use the chat function or the raised hand function
21 and we'll be able to call on you.

22 As we have in-person and Webex
23 participants, these hearings will necessarily be a
24 little slower than usual. Please bear with us.

1 We are moving at a slower pace to make sure we are
2 addressing everyone on video as well as
3 participants are not talking over each other as
4 this makes it impossible for the court reporter to
5 collect an accurate record.

6 Also, as a result of using
7 Webex, we are video recording today's hearing to
8 ensure our court reporter is able to get an
9 accurate transcript. Once the Board receives the
10 transcript, the recording will be destroyed.

11 Hearings were initially
12 scheduled for July and August in this matter, but
13 due to a motion by parties to push back the date
14 of the second hearing and a subsequent motion by
15 IEPA to extend the date to pre-file answers for
16 the first hearing, those initial dates were
17 canceled. The first set of hearings dealing with
18 IEPA testimony were held on August 11th, 12th,
19 13th and 25th. Today, we begin the second set of
20 hearings focusing on participant witness
21 testimony. The Board published notice of this
22 hearing -- one second.

23 Springfield, can you hear us
24 now? Is anyone else having trouble hearing us in

1 the Thompson Center? Springfield, can you hear us
2 now?

3 MS. MANNING: This is Claire Manning
4 at Ameren, we can hear you.

5 HEARING OFFICER HORTON: Okay.
6 We're having trouble with the Sangamon Room in the
7 IEPA building. They're saying they cannot hear
8 us, but thank you, Ms. Manning.

9 MS. MANNING: Thank you.

10 (Whereupon, a break was taken
11 after which the following
12 proceedings were had.)

13 HEARING OFFICER HORTON: Okay. So
14 today we begin the second set of hearings focusing
15 on participant witness testimony. The Board
16 published notice of this hearing on July 17th,
17 2020, in both the Springfield Journal Register and
18 the Chicago Sun Times.

19 On July 14th, the Hearing
20 Officer, myself, directed participants intending
21 to testify at this hearing to pre-file their
22 testimony by August 27th, 2020, and on that day
23 the Board received pre-filed testimony on behalf
24 of the various participants for 18 witnesses

1 intending to testify at the second set of
2 hearings.

3 Pre-filed questions based on the
4 pre-filed testimony were required to be filed by
5 the Board on September 10th, 2020, and pre-filed
6 answers to those pre-filed questions were filed
7 with the Board on September 24th, 2020.

8 On to the order of the hearing.
9 For the witness testimony, Section 104.424(f) as
10 in Frank of the Board's procedural rules provides
11 that pre-filed testimony will be entered into the
12 record as if read, but witnesses may begin with a
13 brief introduction or summary if they wish to do
14 so. Should a witness provide a brief introduction
15 or summary of their testimony, that summary will
16 be limited to five minutes, only due to the volume
17 of witnesses during these hearings.

18 The order of witnesses will be
19 as follows. First, Dulce Ortiz; second, Mark
20 Hutson; third, Andrew Rehn; fourth, jointly
21 testifying Scott Payne and Ian Magruder; fifth,
22 Cynthia Vodopivec; sixth, Lisa Bradley; seventh,
23 Melinda Hahn; eighth, Rudolph Bonaparte; ninth,
24 David Hagen; tenth, Andrew Bittner; eleventh, Mark

1 Rokoff; twelfth, Sharene Shealy; thirteenth,
2 Richard Gnat; fourteenth, David Nielson;
3 fifteenth, Gary King; sixteenth, Michael Wagstaff;
4 and, sixteenth, Jo Lakota. And Jo Lakota will be
5 sworn in to enter testimony on Wednesday,
6 September 30th at 9:00 a.m.

7 Once we have a witness sworn in,
8 we will then turn to questions for each of the
9 witnesses beginning with Ms. Ortiz and continuing
10 on. I will follow this order when asking
11 questions from participants for each witness.

12 First, I will call on IEPA;
13 second, as a group, I will call on Little Village
14 Environmental Justice, Environmental Law & Policy
15 Center, Prairie Rivers Network and Sierra Club;
16 third, Midwest Generation; fourth, City of
17 Springfield; fifth, Dynegy; sixth, Illinois
18 Environmental Regulatory Group; seventh, Ameren;
19 eighth, Office of the Illinois Attorney General;
20 ninth, Pollution Control Board Technical Unit and
21 Board members.

22 If, as a participant group, you
23 do not have any questions for that particular
24 witness, just let me know and we will move on to

1 the next group of questioners. We have designated
2 certain times during these hearings for public
3 comment. First, will be tomorrow, September 30th,
4 from noon to 1:30 p.m. and then the second
5 designated time will be Thursday from 5:30 p.m. to
6 7:00 p.m. on Webex only.

7 Are there any questions about
8 the order of the -- the order of the proceeding?
9 Hearing none and seeing none, we will begin with
10 our first witness Dulce Ortiz.

11 Ms. Ortiz, are you on Webex?

12 MS. ORTIZ: Yes. Hi. Good morning.

13 HEARING OFFICER HORTON: Good
14 morning. Okay. Great. Your video just popped
15 up. Okay. Would the court reporter please swear
16 in our first witness.

17 WHEREUPON:

18 DULCE ORTIZ
19 called as a witness herein, having been first duly
20 sworn, deposeseth and saith as follows:

21 MS. BUGEL: Do you want us to move
22 for the admission of her questions now -- or, I'm
23 sorry, her testimony and questions now?

24 HEARING OFFICER HORTON: Yes. So as

1 mentioned earlier, the pre-filed testimony is
2 entered into the record as if read. So would you
3 like to have the witness' pre-filed testimony made
4 a hearing exhibit?

5 MS. BUGEL: Yes, we would.

6 HEARING OFFICER HORTON: Okay. So
7 we're going to continue the Hearing Exhibit
8 numbering from the last hearing. So we ended at
9 11 at the last hearing. So this will be 12.

10 MS. BUGEL: And just for the record,
11 her pre-filed testimony does have attachments as
12 well.

13 HEARING OFFICER HORTON: Okay. So I
14 grant the motion and I am marking Dulce Ortiz's
15 pre-filed testimony as Exhibit No. 12.

16 (Document marked as Hearing
17 Exhibit No. 12 for
18 identification.)

19 HEARING OFFICER HORTON: Does the
20 witness wish to offer a brief introduction or
21 summary of their testimony?

22 MS. BUGEL: We do. Ms. Ortiz is not
23 going to offer a summary, but we do have one
24 correction that she would like to make to her

1 testimony.

2 HEARING OFFICER HORTON: Okay.

3 MS. BUGEL: Ms. Ortiz, do you have a
4 correction you would like to make to your
5 testimony?

6 MS. ORTIZ: Yes. Thank you, Faith.
7 I just wanted to clarify that I did learn that the
8 Coal Ash Pollution Prevention Act does require
9 financial assurances for cleanup of coal ash
10 ponds.

11 HEARING OFFICER HORTON: Okay. All
12 right. So if the witness is ready, we'll proceed
13 to questions.

14 First is Ms. Diers at IEPA, do
15 you have any questions for this witness?

16 MS. DIERS: Can you hear us?

17 HEARING OFFICER HORTON: Yes.

18 MS. DIERS: We have no questions for
19 this witness.

20 HEARING OFFICER HORTON: Okay.
21 Thank you. Moving to Midwest Generation,
22 Ms. Gale, do you have any questions for this
23 witness?

24 MS. GALE: We have no questions for

1 this witness. Thank you.

2 HEARING OFFICER HORTON: Thank you.
3 City of Springfield, Ms. Williams, do you have any
4 questions for this witness?

5 MS. WILLIAMS: Good morning. Can
6 you hear me okay?

7 HEARING OFFICER HORTON: Yes, we can
8 hear you.

9 MS. WILLIAMS: So we filed pre-filed
10 questions for this witness to establish that it
11 didn't seem appropriate to enter attachments to a
12 technical report with a witness that didn't lay
13 the foundation for the report. I think that based
14 on the way the hearing process is going it's
15 already automatically admitted as a hearing
16 exhibit.

17 So there's not really much
18 opportunity to object to that and I think the
19 issue of probative value and authentication is
20 laid out in my pre-filed questions. So I don't
21 have any further questions.

22 HEARING OFFICER HORTON: Okay.
23 Thank you, Ms. Williams.

24 Dynegy, Mr. More, Mr. Granholm,

1 any questions for this witness?

2 MR. MORE: Josh More. We have no
3 questions.

4 HEARING OFFICER HORTON: Thank you.
5 Ameren, Ms. Manning, any questions?

6 MS. MANNING: Claire Manning. We
7 have no questions.

8 HEARING OFFICER HORTON: Thank you.
9 The Office of the Attorney General, any questions
10 for this witness?

11 MR. SYLVESTER: We do not have any
12 questions. This is Steve Sylvester.

13 HEARING OFFICER HORTON: Thank you.
14 And the Pollution Control Board Technical Unit,
15 Mr. Rao, any questions for this witness?

16 MR. RAO: No questions for this
17 witness. Thank you.

18 HEARING OFFICER HORTON: Thank you.
19 So we will conclude Ms. Ortiz's testimony. Thank
20 you very much for appearing. And we will move on
21 to --

22 MS. BUGEL: Hearing Officer, I'm
23 sorry to interrupt, but we do have her pre-filed
24 answers that still need to be entered as an

1 exhibit.

2 HEARING OFFICER HORTON: Certainly.
3 So Ms. Ortiz's pre-filed answers will be Exhibit
4 13. Okay.

5 (Document marked as Hearing
6 Exhibit No. 13 for
7 identification.)

8 MS. BUGEL: Very good. Thank you.

9 HEARING OFFICER HORTON: Then moving
10 on to our second witness of the day Mark Hutson.
11 Are you on the line, Mr. Hutson?

12 MR. HUTSON: I am here.

13 HEARING OFFICER HORTON: Great.
14 Would the court reporter please swear in
15 Mr. Hutson.

16 WHEREUPON:

17 MARK HUTSON
18 called as a witness herein, having been first duly
19 sworn, deposeth and saith as follows:

20 HEARING OFFICER HORTON: Would --
21 Sierra Club, would you like to enter the pre-filed
22 testimony for Mr. Hutson as Exhibit 14?

23 MS. CASSEL: Good morning. This is
24 Jenny Cassel with Earthjustice. Yes, we'd like to

1 enter his pre-filed testimony and attachments to
2 that into the record as well as his pre-filed
3 answers to be separate.

4 (Document marked as Hearing
5 Exhibit No. 14 for
6 identification.)

7 HEARING OFFICER HORTON:

8 Mr. Hutson's pre-filed testimony will be Exhibit
9 14 and then Exhibit 15 will be his pre-filed
10 answers.

11 (Document marked as Hearing
12 Exhibit No. 15 for
13 identification.)

14 HEARING OFFICER HORTON: All right.

15 Mr. Hutson, would you like to give a brief
16 introduction or summary of your testimony.

17 MR. HUTSON: Yes, I would. Can you
18 hear me all right?

19 HEARING OFFICER HORTON: Yes, you
20 are limited to five minutes. Please proceed.

21 MR. HUTSON: Okay. That will be
22 easy. Thank you. I'd like to take the
23 opportunity to give a little background for my
24 testimony today. As a young geologist fresh out

1 of college from Northern Illinois University, I
2 got a job with the Illinois EPA in the Springfield
3 Regional Office. One day during my training while
4 traveling to a landfill site somewhere in central
5 Illinois, I saw what appeared to be berms along
6 the side of a highway near a power plant. The
7 berms had liquid running down the outside and into
8 the roadside ditch that appeared to me to be
9 brightly colored leachate. I mentioned to my
10 trainers that I had seen what appeared to be
11 leachate and asked if we shouldn't stop to
12 investigate.

13 I was told that the berms
14 belonged to the power plant and power plant waste
15 were not covered by our solid waste rules. So
16 there was nothing to be done. My trainers went on
17 to explain that municipal landfill leachate was
18 covered by our rules, but leachate from fly ash
19 ponds was not covered.

20 This was my opening moment and
21 my initial introduction to fly ash back in 1978.
22 Now, here we are in 2020 and the stated rules
23 covering the handling of disposal of CCR are just
24 now being discussed. Can you imagine how much

1 more better managed CCR issues at current and
2 former generating facilities would be today if
3 rules covering the storage and disposal of CCR had
4 been in place since 1978?

5 In my opinion, the proposed CCR
6 rules are a good start. There are, however, a few
7 areas where the proposed rules can improve that I
8 have identified in my testimony. There are items
9 such as we need to specify that a permanent
10 disposal of CCR must not leave uncontrolled waste
11 below the water table. We need to specify that
12 floodplains are not an appropriate location for a
13 permanent waste disposal facility.

14 We need to specify that the
15 elevation of liquid and/or core water inside CCR
16 impoundments and landfills must be regularly
17 measured and reported. As I approach the end of a
18 40-year plus career working on waste disposal and
19 groundwater contamination sites, starting in
20 Illinois and extending across the country, I'm
21 amazed that we are still having this debate.
22 After all this time, we are essentially discussing
23 whether rules relating -- regulating disposal of
24 industrial wastes containing soluble metals should

1 allow that waste to be disposed in unlined pits,
2 submerged in groundwater and located on a
3 floodplain.

4 I do not believe that the young
5 geologist working for IEPA in 1978 would have
6 believed this would even be a topic of
7 conversation in 2020. With that, I'll take your
8 questions.

9 HEARING OFFICER HORTON: Okay.
10 Thank you. We'll begin with the first set of
11 questioners, which will be IEPA.

12 Do you have any questions for
13 Mr. Hutson?

14 MS. DIERS: Yes, I do. Can you hear
15 me okay?

16 MR. HUTSON: Not great.

17 MS. DIERS: We'll do our best. This
18 is Stephanie Diers from IEPA. This question is on
19 the question --

20 HEARING OFFICER HORTON: Ms. Diers,
21 can you -- Ms. Diers --

22 MR. HUTSON: I'm having trouble --

23 MS. DIERS: We're having trouble
24 with our audio in Springfield.

1 HEARING OFFICER HORTON: Can you
2 possibly sit closer to the TV setup?

3 MS. DIERS: I am basically sitting
4 on top of it.

5 HEARING OFFICER HORTON: Okay.

6 MS. DIERS: Can you hear it better
7 now? The only other thing I can think of is we
8 can try to work on our audio if you want to have
9 others go ahead and ask their questions while we
10 try to figure out the issue here. We can try to
11 do that.

12 HEARING OFFICER HORTON: Sounds
13 good. We'll skip you for now and move on and
14 circle back to you later.

15 MS. DIERS: Okay.

16 HEARING OFFICER HORTON: We'll move
17 on to Midwest Generation.

18 Ms. Gale, any questions for
19 Mr. Hutson?

20 MS. GALE: I have no questions for
21 this witness at this time.

22 HEARING OFFICER HORTON: Okay.
23 Thank you. City of Springfield, Ms. Williams?

24 MS. WILLIAMS: I have a couple of

1 follow-up questions for Mr. Hutson.

2 HEARING OFFICER HORTON: Okay.

3 Please proceed.

4 MS. WILLIAMS: Hello.

5 MR. HUTSON: Hello. Can -- you're
6 breaking up on me.

7 MS. WILLIAMS: Okay. Is this
8 better?

9 MR. HUTSON: That worked.

10 MS. WILLIAMS: Hearing Officer, are
11 you able to hear me?

12 HEARING OFFICER HORTON: Ms.
13 Williams, yes.

14 MS. WILLIAMS: Can you hear me okay,
15 Hearing Officer?

16 HEARING OFFICER HORTON: We can hear
17 you okay. Are you using the audio from your
18 computer or your phone?

19 MS. WILLIAMS: I am using my
20 cellphone right up to my face here.

21 HEARING OFFICER HORTON: Can you try
22 taking it off speakerphone and using it normally
23 as a phone. Sometimes it makes it better.

24 MS. WILLIAMS: How's that?

1 HEARING OFFICER HORTON: A little
2 bit better.

3 MS. WILLIAMS: Any better?

4 HEARING OFFICER HORTON: A little.

5 MS. WILLIAMS: I'm not sure this was
6 going to go very smoothly. This is the quality,
7 but I'll give it my best shot. I have -- is
8 Mr. Hutson's video on?

9 MR. HUTSON: I think so. Oh, no.

10 MS. WILLIAMS: Thank you.

11 E X A M I N A T I O N

12 BY MS. WILLIAMS:

13 Q. Hello. How are you?

14 A. I'm all right. We're getting there.

15 Q. Okay. We've met before, right,
16 Mr. Hutson?

17 A. I think we did.

18 Q. And you met at our facility in
19 Springfield, correct?

20 A. Correct.

21 Q. Okay. So I have a few questions.
22 It seems like a few of your responses to other
23 party's questions have used as an example things
24 from our facility that may have come up at that

1 visit and I want to get some clarification because
2 I think maybe there might have been some
3 confusion.

4 A. Okay.

5 Q. So I ask you first to turn to
6 Question 23 that was filed by Midwest Generation.
7 Let me know when you get there.

8 A. Okay.

9 MR. MORE: Ms. Williams, this is
10 Josh More. Can you point out the page number of
11 the PDF for Mr. Hutson's responses?

12 MS. WILLIAMS: It should be 43. No,
13 let me see. Yes, Page 43.

14 MR. MORE: Thank you.

15 MS. WILLIAMS: Page 43.

16 BY MS. WILLIAMS:

17 Q. Are you there?

18 A. I'm there.

19 Q. Okay. So I'm going to go to this
20 one question here --

21 THE COURT REPORTER: Wait. I can't
22 get --

23 HEARING OFFICER HORTON: Ms.
24 Williams --

1 BY MS. WILLIAMS:

2 Q. CWLP has been transported back to
3 the coal mines that supply the coal for use in
4 mine reclamation.

5 Now, I don't actually have an
6 issue with this statement, but I think it may be
7 out of context. It may appear to someone reading
8 this that you were testifying that wet ash from
9 Springfield surface impoundments has been sent
10 back to the mine, is that your testimony?

11 A. No, I don't know whether wet ash was
12 sent back to the mine.

13 Q. So just to clarify, are you
14 testifying this to be dry ash left in the mine?

15 A. The ash that I'm -- I know we talked
16 about was -- was dry ash. I don't know whether
17 any wet ash has gone back also.

18 Q. Okay. Thank you. I appreciate that
19 clarification.

20 A. Mm-hmm.

21 Q. There is one more question like this
22 that I want to look at and that would be Question
23 46 from Dynegey.

24 HEARING OFFICER HORTON: Ms.

1 **Williams, this is Vanessa Horton, can you hear --**

2 MS. WILLIAMS: Yes, ma'am.

3 HEARING OFFICER HORTON: When you
4 read the question, can you just do it a little
5 slower and clearer for us to hear.

6 MS. WILLIAMS: Yes, I will try.

7 This is Page 26.

8 BY THE WITNESS:

9 A. Okay.

10 BY MS. WILLIAMS:

11 Q. Why don't -- why don't you -- it
12 just may be easier for the record if you read
13 Question A and your response for the court
14 reporter.

15 A. What number?

16 Q. 46A.

17 A. Oh, 46A.

18 MS. BUGEL: Can I just clarify? I
19 just want to make sure if the witness is going to
20 read part of the response into the record, I
21 want -- I just want to make -- I mean,
22 traditionally, I would view that as something the
23 questioner should do for clarity because it's not
24 part of his response. It's part of the question.

1 I completely understand the circumstances we're
2 under, but if the witness is going to read it in
3 can he indicate that he is reading in a previous
4 answer and it is not part of his answer to the
5 current question?

6 HEARING OFFICER HORTON: Okay. I
7 think we'll indicate that now.

8 MS. BUGEL: Okay.

9 HEARING OFFICER HORTON: Does that
10 work? If Mr. Hutson will say that he is reading
11 Question 46 and then his pre-filed answer to
12 Question 46, is that --

13 MS. BUGEL: Yes. Yes. Just so we
14 are clear on the record what everything is.

15 HEARING OFFICER HORTON: Okay.

16 MS. BUGEL: Thank you. I appreciate
17 that.

18 HEARING OFFICER HORTON: No problem.
19 So, for the record, because of audio issues,
20 Mr. Hutson will be reading Question 46 and the
21 response to Question 46A. Please proceed,
22 Mr. Hutson.

23 BY THE WITNESS:

24 A. Okay. Question 46. On Page 10 of

1 your pre-filed testimony, you discuss rising
2 floodwaters in Wilmington, North Carolina and
3 allege they inundated coal ash storage in disposal
4 units. A: Are you aware of any such examples in
5 Illinois of rising floodwaters inundating CCR
6 surface impoundments?

7 My response is -- or was "I am
8 not aware of whether floodwaters have yet
9 completely inundated a CCR impoundment in
10 Illinois. There are, however, examples of sites
11 that have had floodwaters rise well up to the side
12 of the containment berms such as the Springfield
13 CWLP Dallman impoundment where flooding along
14 Sugar Creek caused berm erosion and damage to
15 monitoring wells.

16 BY MS. WILLIAMS:

17 **Q. Thank you. Can you explain your**
18 **basis for berm erosion to the CWLP Dallman**
19 **impoundments from flooding?**

20 A. At the time we did our site visit,
21 we had talked about whether there was erosion that
22 occurred on the outside of the berms along Sugar
23 Creek and I could see a damaged monitoring well
24 while we were out there.

1 **Q. So you're basing it on the damage to**
2 **a down gradient monitoring well?**

3 A. And the discussions of having to
4 maintain the outside of the berm. At the time we
5 were there, the outside of the berm had a layer of
6 bottom ash -- a fresh layer of bottom ash over the
7 berm and it was obviously maintained recently.

8 **Q. Okay. But did this evidence of**
9 **floodwaters from Sugar Creek, did you see any**
10 **evidence that Sugar Creek would come up to the**
11 **berms?**

12 A. Yes, we saw -- we saw trees with
13 weeds stuck in the trees up to an elevation that
14 would take the water up into the berm.

15 **Q. To where, that would take the water**
16 **to where?**

17 A. Up the side of the berm.

18 **Q. So this was a visual observation,**
19 **you personally saw it?**

20 A. Yes.

21 **Q. So it's your belief that the waters**
22 **were high up the berm, Mr. Hutson?**

23 A. I -- I don't have a reading on that.
24 It's been quite a while now.

1 Q. You reviewed quite a bit of
2 documentation on this facility also, correct?

3 A. I did.

4 Q. Is there any documentation from any
5 item or other expert reports -- of any floodwaters
6 reaching the berm --

7 HEARING OFFICER HORTON: Ms.
8 Williams, can you repeat the question.

9 BY MS. WILLIAMS:

10 Q. -- that you read?

11 HEARING OFFICER HORTON: Ms.
12 Williams, can you repeat the question.

13 MS. WILLIAMS: Repeat the question?

14 HEARING OFFICER HORTON: Yes.

15 BY MS. WILLIAMS:

16 Q. Have you reviewed any documentation,
17 section reports, expert reports, that would
18 document flood damage at the berms of the
19 facility?

20 A. I don't recall. As I said, it's
21 been quite a while since I've read the
22 documentation. I don't recall if I've seen
23 anything in the documentation on that or not.

24 MS. WILLIAMS: Okay. All right.

1 That's all I have. Thank you.

2 MR. HUTSON: Mm-hmm.

3 HEARING OFFICER HORTON: Thank you,
4 Ms. Williams. Moving on to Dynegy.

5 Mr. More, any questions for this
6 witness?

7 MR. MORE: No questions.

8 HEARING OFFICER HORTON: Thank you.
9 Moving on to Illinois Environmental Regulatory
10 Group, Ms. Brown, any questions for this witness?

11 MS. BROWN: Melissa Brown for IERG,
12 no questions for this witness.

13 HEARING OFFICER HORTON: Moving on
14 to Ms. Manning.

15 MS. MANNING: This is Claire
16 Manning. No questions.

17 HEARING OFFICER HORTON: Okay.
18 Moving on to the Attorney General's Office.
19 Mr. Sylvester, any questions?

20 MR. SYLVESTER: We do not have any
21 questions for this witness. Thank you.

22 HEARING OFFICER HORTON: Thank you.
23 Moving on to the Technical Unit of the Pollution
24 Control Board, Mr. Rao, any questions for this

1 witness?

2 MR. RAO: No questions for this
3 witness. Thanks.

4 HEARING OFFICER HORTON: Okay. So
5 we'll circle back to IEPA, any questions for this
6 witness?

7 MS. DIERS: Is it better now?

8 HEARING OFFICER HORTON: A little
9 bit.

10 MS. DIERS: All right. We'll try
11 again. Thank you.

12 E X A M I N A T I O N

13 BY MS. DIERS:

14 Q. Good morning, Mr. Hutson.

15 A. Good morning.

16 Q. I'm going to start by asking you
17 questions that relate to the questions that we had
18 filed in Question 1D.

19 Does the Agency intend to get
20 U.S. EPA approval of 845 in lieu of Part --

21 HEARING OFFICER HORTON: Ms. Diers,
22 could you first say what page that question is on.

23 MS. DIERS: Yes, let me look for
24 you. It will be on Page 4.

1 HEARING OFFICER HORTON: Thank you.
2 And also just slow down a little bit for our court
3 reporter. And one more thing. If there is a
4 letter at the end of the section heading, if you
5 can say B as in bravo.

6 MS. DIERS: I will do that.

7 BY MS. DIERS:

8 Q. So this is IEPA --

9 MS. CASSEL: I'm sorry. This is
10 Ms. Cassel. I just wanted to ask, Ms. Diers, if
11 you would give the witness a moment to get to the
12 page.

13 MS. DIERS: Absolutely.

14 MS. CASSEL: Thank you so much.

15 MS. DIERS: It's on Page 4 and it's
16 1D as in dog.

17 BY THE WITNESS:

18 A. I've got it.

19 BY MS. DIERS:

20 Q. All right. Since the Agency intends
21 to get U.S. EPA approval of Part 845 in lieu of
22 Part 257, do you think it may be easier to show
23 U.S. EPA that the Agency has included the location
24 restrictions of Part 257 and Part 845 if the

1 **Agency uses the same language where possible?**

2 A. Can you run that past me one more
3 time? I --

4 Q. We're -- go ahead.

5 A. A lot of references to parts there.

6 Q. We're talking about Part 257 and 845
7 and the Agency has done its best to mirror the
8 language as much as possible with 257.

9 A. Okay.

10 Q. So do you agree that is a better way
11 to go in a situation like this when the Agency is
12 seeking U.S. EPA approval discovery?

13 MS. CASSEL: This is Ms. Cassel. I
14 apologize for interjecting. I just want to apply
15 an objection noting that this is asking for a
16 legal opinion and Mr. Hutson is not an attorney.

17 So any response Mr. Hutson is
18 able to provide on this should be taken with that
19 grain of salt.

20 MS. DIERS: Thank you.

21 BY THE WITNESS:

22 A. I'm not sure that I know what the
23 better way to proceed would be. That really
24 sounds like it can be worked out amongst the

1 lawyers rather than the geologist.

2 BY MS. DIERS:

3 Q. Okay. Thank you. This is with
4 respect to IEPA Question 4. I'll get you a page
5 number. Page 6.

6 A. Uh-huh. I'm there.

7 Q. Would the piezometer you described
8 be installed in a CCR surface impoundment before
9 or after the receipt of CCR?

10 A. Well, I'd only see that done after
11 receipt of CCR, but I assume that if it was
12 designed in the beginning, it would be perfectly
13 fine to build it in before the CCR was in place.

14 Q. If it was put in after, could you
15 describe the process you envisioned for the
16 installation of a piezometer in standing water
17 over saturated CCR?

18 A. You -- I've not seen it -- I've not
19 seen anybody attempt to do it in the standing
20 water where they put the piezometers in at other
21 sites, they have gone on to -- basically, it's on
22 the ash delta that builds up on the edge of the
23 impoundment.

24 If they lower the water a little

1 bit during the impoundment, they can dry it out
2 sufficiently to get a geo-probe or some similar
3 flotation equipment out there to let them install
4 a piezometer through the soft sediments without
5 sinking. It's -- it's a -- you have to think
6 about how you're going to do it before you just
7 drive out there and try to install a piezometer.

8 Q. Our next question is a follow up to
9 our Question C and Dynegy 54. So that would be on
10 Page 8. I'm not sure if I have this Dynegy
11 question, but I think if you go to our Question 7C
12 on Page 8 that should be -- are you there?

13 A. Yes, I'm there.

14 Q. For Section 845.600(a)(1), you
15 suggest including iron, manganese and vanadium in
16 the list of groundwater production standards.

17 Are you aware that U.S. EPA
18 included iron, manganese and vanadium in their
19 analysis of potential contaminants of concerns for
20 Part 257?

21 A. I am aware of that.

22 Q. You proposed adding iron, manganese
23 and vanadium to the list of groundwater protection
24 standards.

1 **Are you aware these three**
2 **constituents were included in U.S. EPA's 2014 Risk**
3 **Assessment?**

4 A. I am aware of that.

5 **Q. Do iron, manganese or vanadium have**
6 **MCL's?**

7 A. I don't believe so.

8 **Q. Do arsenic and selenium have MCL's?**

9 A. Yes.

10 **Q. Are MCL's suppose to protect human**
11 **health by limiting exposure to constituents**
12 **consumed in drinking water?**

13 A. Yes, that's my understanding.

14 **Q. Do you know why U.S. EPA has never**
15 **adopted an MCL for iron, manganese or vanadium?**

16 A. No, I am not aware of that, but I am
17 aware there are Illinois standards, groundwater
18 quality standards.

19 **Q. Are secondary MCL's based on human**
20 **health consideration or esthetics?**

21 A. Secondary MCL's are esthetics.

22 **Q. Next question is a follow up to IEPA**
23 **Question 11, which would be on Page 9.**

24 A. Okay.

1 Q. How much time do you envision would
2 be needed for meaningful public input on
3 alternative source determinations depending -- I'm
4 sorry -- yeah -- Strike that.

5 How many -- how much time do you
6 envision would be needed for meaningful public
7 input on alternative source determinations?

8 A. In my experience, probably a month
9 or two.

10 Q. What experience have you had with
11 public input on alternative source determinations?

12 A. I have not done public input on
13 ASD's. I've done input to attorneys on ASD's who
14 asked me to look at them.

15 Q. Are you aware that Part 845 required
16 an assessment of corrective measures be undertaken
17 within 90 days of an exceedance of a groundwater
18 protection standard?

19 A. I am aware of that.

20 Q. Are you aware that Part 257 requires
21 an assessment of corrective measures be undertaken
22 within 90 days of an exceedance in Appendix IV for
23 groundwater protection standard?

24 A. I am aware of that.

1 Q. Do you believe Part 845 would be as
2 protective and comprehensive as Part 257 if more
3 than 90 days are allowed before the assessment of
4 corrective measure is initiated?

5 MS. CASSEL: Again, I'm going to
6 lodge an objection. This is Ms. Cassel with
7 Earthjustice. This is obviously asking for a
8 legal interpretation and Mr. Hutson is not an
9 attorney.

10 BY THE WITNESS:

11 A. In my opinion, the input that can
12 come from outside people -- is everyone still
13 there?

14 HEARING OFFICER HORTON: Yes, we can
15 hear you.

16 MS. DIERS: We can hear you.

17 BY THE WITNESS:

18 A. My video just went out. I'm back.
19 Where was I? Oh, in my opinion, the input that
20 can be gained from having outside people look at
21 the ASD's is a valuable source of information and
22 can be of assistance to the Agency. That's my
23 objective in this is to -- is to bring another set
24 of eyes to it and I think a small delay of a month

1 or two or maybe as much as 90 days I think when
2 you're looking at a site that has been sitting out
3 in the environment for the past, who knows, 40
4 years, an additional 90-day delay is not a
5 critical thing to me.

6 BY MS. DIERS:

7 Q. Okay. Moving on to follow up with
8 IEPA Question 12C, as in cat, with what looks like
9 Page 10.

10 A. Mm-hmm.

11 Q. In your response to 12C, you
12 indicate that the damage you observed takes place
13 after postclosure care, who is responsible for the
14 maintenance of the landfill after postclosure
15 care?

16 A. I actually don't recall what the
17 rules say about that. I assume it's the owner.

18 Q. Can a landfill site that was newly
19 constructed for the purpose of disposing CCR be
20 used inappropriately after postclosure care has
21 been completed?

22 A. It could be.

23 Q. Moving on to IEPA question follow up
24 for 13B, as in boy, on Page 11.

1 A. Okay.

2 **Q. Do you know if Illinois has water**
3 **quality standards, surface water, designed to**
4 **protect aquatic life?**

5 A. I assume. So I don't -- I've not
6 worked with Illinois surface water standards to
7 protect aquatic life in decades. So I don't know
8 currently.

9 **Q. Is it possible that groundwater**
10 **seepage into a stream could be at a rate slow**
11 **enough that the water quality standards in the**
12 **stream are not exceeded?**

13 A. That is very often the case and it's
14 also the case that we've seen cases where the slow
15 migration of groundwater carrying contaminants
16 into the surface water actually leads to build up
17 of high concentrations of contaminants in
18 sediments at the bottom of the river or the
19 groundwater discharges into the sediments even
20 though you can't detect contaminants in the
21 surface water.

22 **Q. If water quality standards in the**
23 **stream are not exceeded, would aquatic life be**
24 **protected?**

1 A. I think that would really be a
2 better question for a biologist, but, again, I
3 think there are certain aquatic creatures that get
4 exposed to bottom sediments that could be
5 affected.

6 **Q. Moving on to IEPA Question 14 on**
7 **page -- it looks like it starts on Page 11.**

8 A. Mm-hmm. Got it.

9 **Q. Do groundwater models that are used**
10 **to show corrective action will achieve groundwater**
11 **protection standards not also predict at what**
12 **point in time that will occur?**

13 A. Can you run that past me again? I
14 think I missed part of it.

15 **Q. Do groundwater models that are used**
16 **to show corrective action will achieve groundwater**
17 **protection standards not also predict at what**
18 **point in time that will occur?**

19 A. Yes, they -- they can do that. As
20 long as the question is asked, that -- they have
21 to answer it.

22 **Q. Moving on to IEPA Question 15 follow**
23 **up. This will be on Page 12. If you were to**
24 **model an assumed deterioration, how would that be**

1 **done?**

2 A. What you'd have to do would be
3 modify the infiltration through the cap over --
4 over a period of time.

5 **Q. So if you were doing this, what**
6 **extent of deterioration would you assume?**

7 A. I don't have -- I don't have a piece
8 of information to fall back on that. I haven't
9 done research to know what the appropriate amount
10 of determination would be. I'm just pointing out
11 that the assumption of the cap fully functioning,
12 as long as it's there, or as long as the model is
13 run, is not likely to be the case.

14 **Q. Do you know what model you would**
15 **use?**

16 A. Typically, MODFLOW.

17 **Q. Are there any programs that would**
18 **require this type of modeling?**

19 HEARING OFFICER HORTON: This is
20 Vanessa Horton. Mr. Hutson, could you repeat that
21 last word you said, what model you would use.

22 THE WITNESS: MODFLOW. It's
23 M-O-D-F-L-O-W.

24 HEARING OFFICER HORTON: Thank you.

1 MS. DIERS: Just a moment. Can you
2 hear us again?

3 HEARING OFFICER HORTON: Yes.

4 MS. DIERS: Sorry. We lost you for
5 a second.

6 BY MS. DIERS:

7 Q. Mr. Hutson, would you use MODFLOW
8 when looking at the deterioration of a final
9 cover?

10 A. Would I? Was that the question?

11 Q. Yes.

12 A. You could.

13 Q. Based on what? Like, what
14 experiences have you had that you've used MODFLOW
15 in that type of situation?

16 A. I've not tried to do a model with a
17 deteriorating cover at this point. It's a
18 suggestion for something that would be an
19 improvement to the current situation.

20 Q. All right. Moving on to Question
21 15D. It looks like Page 12.

22 You refer to synthetic cap
23 material deterioration with little to no
24 protective layer. What is the protective layer

1 **thickness required under proposed 845 over a**
2 **geomembrane used as a part of a final cover?**

3 A. What -- what was the question number
4 you're referring to again?

5 Q. IEPA Question 15D as in dog.

6 A. 15D. Okay.

7 Q. Sorry. I should have said that
8 better. Do you need me to repeat the question?

9 A. Yeah, would you, please.

10 Q. You referred to synthetic cap
11 material deterioration with no little to no
12 protective layer.

13 What is the protective layer's
14 thickness required under proposed 845 over a
15 geomembrane used as part of a final cover?

16 A. Yeah, what is it, 30 or 36 inches
17 required? What I'm referring to here is across
18 several different states CCR impoundments I work
19 on I'm seeing companies propose geomembrane
20 attached to basically astroturf with no -- with no
21 natural protective layer and that's why I want to
22 be sure that we don't fall into that problem here.

23 Q. Moving on to IEPA Question 16A, as
24 in apple. And I will get you a page number. It

1 **looks like Page 13.**

2 A. Uh-huh. Got it.

3 **Q. Would CCR added to the top of a CCR**
4 **surface impoundment for closure be segregated from**
5 **groundwater?**

6 A. It would depend on how high the CCR
7 added will -- at what elevation the base of that
8 CCR would be in relation to how high the
9 groundwater gets.

10 **Q. Question 16B follow up, as in boy,**
11 **Page 13. Would CCR added to the top of a CCR**
12 **surface impoundment for closure have an impact on**
13 **surface water and groundwater interactions in the**
14 **direction that a plume migrates?**

15 A. Without knowing the specifics of the
16 location, it's hard to make an accurate answer to
17 that. Adding elevation to the impoundment by
18 adding CCR could change floodwaters in how they
19 might flow across a site, but under normal
20 conditions, it's -- it's hard to tell.

21 **Q. I'm moving on to Board Question 8 on**
22 **Page 2.**

23 A. I'm there.

24 **Q. You say that you have worked for 40**

1 plus years on waste disposal and contamination
2 sites in Illinois and elsewhere.

3 Are you familiar with 35 Ill.
4 Adm. Code Part 742, the tiered approach to cleanup
5 objective?

6 A. I have seen it. I haven't regularly
7 worked with it.

8 Q. Okay. Have you used other
9 risk-based approaches to determine remedial
10 objectives?

11 A. Typically, that's the risk
12 assessment people that do that kind of stuff.

13 Q. So that's not something that you do?

14 A. Yeah, right.

15 Q. Is it used on a project you're
16 involved in?

17 A. It has been. I'm typically the
18 project manager.

19 Q. Does Part 845 require
20 owner/operators to achieve the groundwater
21 protection standards to end corrective action?

22 A. Is this pertaining to a question on
23 here?

24 Q. No, it's a follow up I had for you.

1 A. Does the new regs -- yes, I believe
2 it does.

3 Q. Wouldn't a corrective action that
4 requires the attainment of health and
5 environmentally-based groundwater protection
6 standards be more protective of the groundwater
7 resource than a corrective action that considers
8 only current groundwater uses?

9 A. Can you read that one more time?

10 Q. Sure. Wouldn't a corrective action
11 that requires the attainment of health and
12 environmentally-based groundwater protection
13 standard be more protective of the groundwater
14 resource than a corrective action that considers
15 only current groundwater uses?

16 A. I don't think I understand the
17 question.

18 Q. That's okay. I can move on. I'm
19 asking a follow up to Dynegy Question 56. I
20 believe it's on Page 29.

21 A. Okay. Got it.

22 Q. You state that you have viewed
23 groundwater monitoring results in Illinois for
24 many sites.

1 **How many of those sites, either**
2 **a number or percentage, were related to CCR**
3 **surface impoundments?**

4 A. Over the last, say, 15 years, I
5 think a hundred percent of them.

6 Q. **This is follow up to Midwest Gen's**
7 **Question 19(b) as in boy. It's on the bottom of**
8 **Page 42 and goes over to 43.**

9 A. Okay.

10 Q. **In response, you state that "It is**
11 **not the chemical composition of CCR in itself that**
12 **creates concern for human health and the**
13 **environment."**

14 **Is CCR composed primarily of**
15 **silica?**

16 A. I think that's probably the highest
17 percentage. I don't know offhand.

18 Q. **Do you know if OSHA has recognized**
19 **silica as a carcinogen?**

20 A. I have no idea. I doubt it.

21 Q. **In your experience, could the**
22 **drying, handling and transporting of CCR**
23 **potentially create exposure to airborne silica**
24 **that would not occur if the drying, handling and**

1 **transport of CCR is minimized?**

2 A. In my experience, we would have to
3 take measures to be sure that exposure does not
4 happen.

5 Q. I just have one more question, but
6 I'm looking for the page number for you.

7 A. Okay.

8 Q. This is Midwest Gen's follow up for
9 Question 23(d)(ii) and it looks like it is on Page
10 44.

11 A. Okay.

12 Q. Are you aware of the time limits
13 included in Part 257 and Part 845 that limit the
14 amount of time allowed to complete closure of CCR
15 surface impoundments?

16 A. I have seen the time limits and I
17 don't recall what they are, but, yes, I'm aware of
18 them.

19 MS. DIERS: I don't believe I have
20 any further questions at this time.

21 HEARING OFFICER HORTON: Okay.
22 Thank you.

23 Any follow-up questions at the
24 conclusion of Mr. Hutson's testimony? Okay.

1 MS. WILLIAMS: Can you hear me
2 better? This is --

3 HEARING OFFICER HORTON: Oh,
4 Ms. Williams.

5 MS. WILLIAMS: Yes. Is my audio
6 better now?

7 HEARING OFFICER HORTON: Maybe it is
8 a little bit.

9 MR. HUTSON: It is for me.

10 MS. WILLIAMS: I couldn't ask a
11 question because it was so hard to hear me and I
12 was wondering if it's better if I go back, but if
13 there's an objection, that's all right.

14 MR. HUTSON: What was that? I
15 missed part of that.

16 MS. WILLIAMS: You didn't hear part
17 of it?

18 MR. HUTSON: No.

19 MS. WILLIAMS: I thought I figured
20 out the problem, but maybe I have not.

21 Mr. Hutson, can I ask you one question about
22 Question 3?

23 THE WITNESS: Sure.
24

1 E X A M I N A T I O N

2 BY MS. WILLIAMS:

3 Q. I believe there was a question that
4 was very similar from Dynegy as well, maybe on
5 Page 33 and 34. It relates to where CCR that is
6 removed would go and I believe looking
7 specifically at Dynegy on Page 34 you say that in
8 your experience where ashes have been excavated,
9 some has been relocated to new lined disposal
10 onsite or nearby, some has been recycled and
11 transported to offsite landfills --

12 HEARING OFFICER HORTON: Ms.
13 Williams, is that --

14 BY MS. WILLIAMS:

15 Q. -- does that sound correct?

16 HEARING OFFICER HORTON: Ms.
17 Williams, this is Vanessa Horton. Could you try
18 switching the audio through your computer.
19 Typically using your cell phone gives us a better
20 audio quality, but maybe we can try switching your
21 audio through your computer if you're -- do you
22 know how to do that?

23 MS. WILLIAMS: I'm just -- we'll
24 see.

1 MS. TIPSORD: Vanessa, ask her to
2 speak directly into the microphone. I think she
3 keeps moving her phone.

4 MS. WILLIAMS: Can you hear me?

5 HEARING OFFICER HORTON: Yes.

6 MS. WILLIAMS: That's amazing. Do I
7 need to repeat?

8 HEARING OFFICER HORTON: Yes,
9 please.

10 BY THE WITNESS:

11 A. Did we get the question?

12 BY MS. WILLIAMS:

13 Q. No, we didn't get to the question.
14 I just need to figure out if I need to repeat the
15 build up, too.

16 HEARING OFFICER HORTON: Ms.
17 Williams, this is Vanessa. Yes, can you repeat
18 it. The court reporter didn't catch all of it.

19 BY MS. WILLIAMS:

20 Q. Okay. So you have testified that in
21 locations where ash has been excavated you have
22 seen the ash relocated to a combination of three
23 different places; onsite landfill, some has been
24 recycled and some has been transported to offsite

1 **landfills either new or existing, is that correct?**

2 A. That's correct.

3 **Q. Okay. What my question was is, do**
4 **you have -- is that -- is that a generalization or**
5 **have you had specific examples of closure by**
6 **removal using offsite landfills in the real world**
7 **and, if so, where?**

8 A. Offsite and onsite. A lot of the
9 CCR impoundments in North Carolina are going to
10 either onsite or offsite.

11 **Q. No, I'm not asking about either**
12 **onsite or offsite. I'm asking specifically about**
13 **offsite third-party landfills, do you have**
14 **examples of offsite third-party landfills being**
15 **used as an excavation removal in the real world?**

16 A. I know there are some. I don't know
17 which sites went to offsite third-party as opposed
18 to just offsite. I can't tell you which sites
19 that is. I know that some -- some ash has gone to
20 offsite third-party landfills. I don't know the
21 names -- I don't know which ones are which.

22 **Q. Okay.**

23 MS. WILLIAMS: Thank you. Thanks
24 for everyone's indulgence.

1 HEARING OFFICER HORTON: No problem.
2 I believe that concludes Mr. Hutson's testimony.
3 So you are dismissed and we'll move on to our
4 third -- yeah, we'll move on to our third witness,
5 which is Mr. Andrew Rehn.

6 Are you on the line, Mr. Rehn?

7 MS. DIERS: Vanessa, this is
8 Stephanie Diers. We just had a couple of
9 questions for Mr. Hutson. Sorry. We were trying
10 to get through and we were muted.

11 HEARING OFFICER HORTON: No problem.
12 Please proceed.

13 E X A M I N A T I O N

14 BY MS. DIERS:

15 Q. Mr. Hutson, are you familiar with 29
16 CFR 1910.1053, the silica regulations?

17 A. The silica regulations?

18 Q. Yes.

19 A. No.

20 Q. I just have one more. Is MODFLOW
21 used to monitor unsaturated flow through a final
22 cover?

23 A. MODFLOW is a saturated flow program.

24 Q. All right.

1 MS. DIERS: Thank you.

2 THE WITNESS: Mm-hmm.

3 HEARING OFFICER HORTON: Okay. I
4 believe that concludes Mr. Hutson's testimony.

5 Mr. Andrew Rehn, you popped up
6 on our screen here. So --

7 MR. REHN: Hello. Can you hear me?

8 HEARING OFFICER HORTON: Yes.

9 MR. REHN: Great.

10 HEARING OFFICER HORTON: One thing.

11 I think your microphone is catching your
12 breathing. So if you can move your microphone.

13 MR. REHN: How about now, is that
14 better?

15 HEARING OFFICER HORTON: That's
16 better. Okay. Great.

17 Would the court reporter please
18 swear in Mr. Rehn.

19 WHEREUPON:

20 ANDREW REHN
21 called as a witness herein, having been first duly
22 sworn, deposeth and saith as follows:

23 HEARING OFFICER HORTON: Okay.

24 Ms. Cassel, would you like to enter the witness'

1 pre-filed testimony as an exhibit?

2 MS. CASSEL: Yes, Hearing Officer,
3 we would. It's the testimony of the witness and
4 we'd also like to offer into evidence his
5 pre-filed answers. There is one exhibit as well
6 to that as well as one of the exhibits that we --
7 that we filed yesterday morning Exhibit 7.

8 HEARING OFFICER HORTON: Okay. So,
9 first, we'll enter as Exhibit 16 Andrew Rehn's
10 pre-filed testimony.

11 (Document marked as Hearing
12 Exhibit No. 16 for
13 identification.)

14 HEARING OFFICER HORTON: Then we'll
15 enter as Exhibit 17 Mr. Rehn's pre-filed answers.

16 (Document marked as Hearing
17 Exhibit No. 17 for
18 identification.)

19 HEARING OFFICER HORTON: And then as
20 Exhibit 18 it was -- what was the exhibit number
21 from yesterday's filing?

22 MS. CASSEL: Exhibit 7, the Cap and
23 Run Report.

24 HEARING OFFICER HORTON: Okay.

1 Exhibit -- so this would be -- would it be Prairie
2 River's exhibit?

3 MS. CASSEL: Correct, it's entitled
4 ELPC, PRN and Sierra Club's exhibit.

5 (Document marked as Hearing
6 Exhibit No. 18 for
7 identification.)

8 HEARING OFFICER HORTON: Just for
9 the record, you cut out there a bit. So it's
10 entitled ELPC, Prairie Rivers, Sierra Club?

11 MS. CASSEL: Right.

12 HEARING OFFICER HORTON: I'm sorry.
13 Once again, it was Exhibit 7?

14 MS. CASSEL: Exhibit 7. That's
15 correct.

16 HEARING OFFICER HORTON: All right.
17 So that will be Exhibit 18. Okay.

18 Mr. Rehn, do you wish to offer a
19 brief introduction or summary of your testimony?

20 MR. REHN: Yeah, I do.

21 HEARING OFFICER HORTON: Okay.
22 You'll be limited to five minutes. Please
23 proceed.

24 MR. REHN: So I'm Andrew Rehn. I'm

1 a water resources engineer with Prairie Rivers
2 Network. Prairie Rivers Network is a small,
3 non-profit located in Champaign, Illinois. I'm
4 not a consultant and no one has hired me to be
5 here at this testimony.

6 My job for the last five years
7 has been to understand coal ash in Illinois. When
8 I started, there was very little information that
9 was widely available to understand coal ash. Our
10 internal database had the results of a few FOIA,
11 Freedom of Information Act, requests with varying
12 degrees of information about each individual
13 plant.

14 Through further FOIA's, I've
15 been able to fill in some of these gaps and
16 Illinois EPA's FOIA office has been extremely
17 helpful and the folks do excellent work, but the
18 process itself can be limiting. So over the
19 years, I've pulled up an understanding of the
20 situation in Illinois and I've tried to make that
21 information acceptable to the public.

22 This rulemaking presents an
23 opportunity for transparency going forward through
24 the whole process so it doesn't require a

1 non-profit to -- to be the middleman disseminating
2 that information.

3 In the realm of coal ash in
4 Illinois, I suspect I'm the member of the public
5 with the most comprehensive understanding of coal
6 ash sites in Illinois and the most experience with
7 public review and participation. I've done my
8 best to read and review every closure plan sent to
9 the Agency for impoundments in Illinois, although
10 I may have missed a few. I have also identified
11 flaws and submitted comments --

12 THE COURT REPORTER: This is going
13 really fast.

14 HEARING OFFICER HORTON: Mr. Rehn?

15 THE WITNESS: Too fast?

16 HEARING OFFICER HORTON: Yes, a
17 little bit too fast.

18 THE COURT REPORTER: I may have
19 missed and whatever he said after that.

20 BY THE WITNESS:

21 A. Although I may have missed a few.
22 So I've identified flaws and submitted comments on
23 many of those closure plans. I've seen the
24 beneficial impacts of the public review process,

1 particularly in the NPDES, National Pollution
2 Discharge Elimination System, oh, gosh, I hope I
3 got that right, process where consideration of
4 public comment is required.

5 Public comments have lead to
6 tighten NPDES permits, permit limits, and
7 additional questions raised by the Agency on
8 closure plans. I see public inputs for an
9 inspection that led to a violation notice at
10 Vermilion, which was referred to the Attorney
11 General. My role is, and has always been, to ask
12 questions that help reveal the full scope of
13 problems at coal ash sites.

14 The main point of my written
15 testimony is to demonstrate the value of
16 disclosing as much information to the public as
17 possible so the public can see the full basis for
18 any decision. For example, I recommend that the
19 alternatives analysis includes consideration of
20 all transportation options and in support of the
21 recommendation with a series of maps, showing the
22 location of rail, coal ash and landfills in the
23 state.

24 I created these maps not to

1 answer the question of whether each individual
2 site has access to rail, but to make the point
3 that the question is worth asking. Decades of
4 piling coal ash in unlined impoundments has left
5 Illinois with a big problem. If we allow coal ash
6 to remain in water, Illinois will be left with
7 continual pollution. I've seen coal ash pollution
8 in person on the Middle Fork and tracked the
9 impacts of coal ash pollution on groundwater to
10 review many groundwater monitoring reports.

11 I also recognize that removing
12 coal ash has its own risks. This is why the Coal
13 Ash Pollution Prevention Act calls for the
14 responsible removal of coal ash so that
15 communities and workers can be protected while
16 coal ash is moved to a safe storage facility.
17 It's also why I recommended a comprehensive
18 alternatives analysis that considers the full
19 range of options available to transport and
20 dispose of coal ash.

21 Lastly, our coal ash problem
22 does not exist to impoundments alone. Coal ash
23 ends up in landfills, dumps, piles and coal mines
24 and more. Pollution at these sites is or could be

1 just as harmful as the pollution coming from an
2 impoundment. The Board should be developing
3 comprehensive rules that deal with the whole coal
4 ash problem, not just part of it. Thank you.

5 HEARING OFFICER HORTON: Thank you.
6 So we'll move to IEPA. Any questions for
7 Mr. Rehn?

8 MS. DIERS: Thank you. Can you hear
9 me okay?

10 HEARING OFFICER HORTON: Yes.

11 E X A M I N A T I O N

12 BY MS. DIERS:

13 Q. All right. Good morning. My name
14 is Stephanie Diers and I will be asking you
15 questions on behalf of the Agency.

16 I'd first like to draw your
17 attention to Board Question 1 on Page 1 of your
18 filing and that would be Exhibit 17.

19 A. Yes.

20 Q. Does IDNR, Illinois Department of
21 Natural Resources, administer a dam safety program
22 that evaluates many of the same impoundment safety
23 factors as Part 257?

24 A. I believe so. I'm not sure if every

1 dam is -- that would be a coal ash dam is covered.

2 I know there is a dam safety program.

3 Q. Moving on to Agency Question 1(a) as
4 in apple. Moving on to Page 3.

5 A. Okay.

6 Q. On Page 3 of your pre-filed answer,
7 you state that 845 regulations should require the
8 polluters to search for unknown surface
9 impoundments.

10 Doesn't the federal 257
11 regulations require utility companies to identify
12 the CCR surface impoundments already?

13 A. I'm not sure, but I guess I was
14 imagining a more broad search for coal ash that
15 wasn't just worried about surface impoundments,
16 but was instead considering all the places where
17 coal ash can be found at a site.

18 Q. Would you agree that the proposed
19 845 regulations follow the federal 257 regulations
20 closely? I don't know if you've compared the two.

21 A. I have not done a direct comparison.
22 Because they have to be at least as strong as the
23 federal rules, I would hope they do, but I leave
24 that to employers to do the comparisons.

1 **Q. In response -- in your response from**
2 **Agency question 1A, as in apple, you say that the**
3 **owner/operator should perform soil sampling to**
4 **find coal ash.**

5 **If additional coal ash were**
6 **found, would it meet the definition of CCR surface**
7 **impoundment?**

8 A. I'm not sure. Again, I was asked to
9 propose a regulatory scheme for identifying coal
10 ash and that's not certainly beyond what I would
11 consider myself having expertise in. I was
12 offering a speculative way that you might be able
13 to identify coal ash and, again, in my mind, this
14 question was about more than just surface
15 impoundments and I was answering it in that way.
16 I was thinking how would we figure out where coal
17 ash is located across sites and that includes the
18 coal ash outside of designated impoundments.

19 **Q. Is that covered in this rule, do you**
20 **know?**

21 A. Well, this rule isn't final. So --

22 **Q. Proposed rule, is it covered in the**
23 **proposed rule?**

24 A. I do not believe that the rules that

1 the Illinois EPA has proposed cover anything
2 beyond impoundments. That's one of my points is
3 that it should be.

4 **Q. Do you know if it's covered in**
5 **Senate Bill 9? Are you familiar with Senate Bill**
6 **9 I should ask first?**

7 A. Yes.

8 **Q. Do you know if this is covered under**
9 **the Senate Bill?**

10 A. Does Senate Bill 9 address
11 landfills, dumps onsite, other places where coal
12 ash is stored, is that what you're asking?

13 **Q. Yes.**

14 A. Senate Bill 9 specifies
15 impoundments, but it doesn't exclude anything else
16 and the Board certainly isn't -- has not been
17 instructed to exclude these other parts of the
18 problem and the -- the minimum is that it needs to
19 be as protective as the federal rule, but that
20 doesn't set a maximum. They can -- our rules can
21 be as strong as we want them to be.

22 **Q. Does the federal cover landfills and**
23 **impoundments?**

24 A. My understanding of the federal rule

1 is that there are also landfill -- it covers
2 landfills as well, yes.

3 Q. If a previously unknown area is
4 discovered that meets the definition of CCR
5 surface impoundments and was made known to the
6 Agency, doesn't the Agency have the ability to
7 hold the owner of that area accountable through a
8 violation notice?

9 A. First, I guess I would say I don't
10 know, but what I'm trying to get at with this
11 recommendation is finding those so we don't have
12 to wait until for some reason they get discovered
13 on some site.

14 Q. Are the old ash ponds at Meredosia
15 and West Pond 1 at Joppa on the list provided by
16 the Agency to the Illinois Pollution Control Board
17 and shown on the publicly available GIS map
18 online?

19 A. I don't know. I did not check
20 those.

21 Q. Are those the --

22 MS. CASSEL: Excuse me. This is
23 Ms. Cassel. I just wanted to make a request that
24 if the Agency is asking Mr. Rehn to refer to a

1 document if you would please -- if that document
2 is in the record just give him a moment to find
3 the document that you're asking about.

4 MS. DIERS: Yes, if he needs any
5 time, just let me know.

6 MS. CASSEL: Thank you.

7 BY THE WITNESS:

8 A. Do you want me to open that
9 document?

10 BY MS. DIERS:

11 Q. If you want to. If you have it and
12 want to, that's fine.

13 A. It would take me time to find it.
14 I'm not sure if I should be searching for that or
15 not.

16 Q. That's okay. We can move on.

17 A. Okay.

18 Q. Moving on to Agency Question 1B, as
19 in boy, on Page 3.

20 Are the CCR surface impoundments
21 at Meredosia and Joppa identified on the Agency
22 mapping tool?

23 A. Give me one second.

24 MS. CASSEL: Excuse me. This is

1 Ms. Cassel again. I guess I would object to that
2 notwithstanding my last request. He hasn't
3 specified any documents that were to be discussed
4 and during this hearing were to be exhibits filed
5 or otherwise in the record. I don't believe the
6 mapping tool is -- I don't know whether a website
7 could be put in the record, but my understanding
8 was that there was a limited universe of documents
9 that could be referenced in hearing.

10 BY MS. DIERS:

11 **Q. I would just ask, are you familiar**
12 **with the mapping tool?**

13 A. I am, and I did open the mapping
14 tool and they are on there.

15 **Q. Are you aware that typing "Illinois**
16 **EPA coal ash" yielded the Agency's website**
17 **dedicated to CCR surface impoundments as a first**
18 **result and contains what is called the coal --**
19 **coal ash map?**

20 A. Google, I guess, results change
21 depending on who is searching them. So it is
22 possible that we are getting different results.
23 But, yes, I just Googled Illinois EPA coal ash and
24 was able to find it there.

1 **Q. Thank you. Moving on to Agency**
2 **Question 2C, as in cat, and K, as in kite, which**
3 **looks like it's on Page 4 and 5.**

4 A. Okay.

5 **Q. How will the CCR get out of the**
6 **surface impoundment and into the train or barge?**

7 A. I don't know.

8 **Q. Would a constructed staging pad or**
9 **something of the like be necessary next to**
10 **transition areas between the CCR surface**
11 **impoundments and each of the receiving locations?**

12 A. I haven't looked at what
13 infrastructure is required for accessing barge or
14 rail.

15 **Q. Okay.**

16 A. But it's the sort of thing that
17 would be addressed in an alternatives analysis
18 that identifies all the different options and
19 whether or not they're possible.

20 **Q. Moving on to Question -- Question 2,**
21 **Page 4 and 5.**

22 A. Yes.

23 **Q. There are several answers in quotes**
24 **I do not know regarding the logistics of moving**

1 and transporting CCR via train and barge, could
2 conflicting or compounding regulatory requirements
3 within 35 Ill. Adm. Code and other Illinois
4 regulations such as transportation regulations
5 make these modes of transportation unfeasible?

6 MS. CASSEL: I'm just going to
7 object that that calls for a legal conclusion
8 requiring interpretation of the regulation and
9 Mr. Rehn is not a lawyer, but please continue.

10 BY THE WITNESS:

11 A. So I don't know, but, again, I'm
12 not -- I'm proposing that these things be looked
13 at, not that they -- it just needs to be included
14 in the alternatives analysis.

15 So all of these factors that --
16 all these concerns being raised, I'm just saying
17 we should look at them. I'm not saying that this
18 has to be what we do. We just need to know the
19 alternatives and if they do the analysis and find
20 all these barriers that we then decide are
21 insurmountable, okay, but we have to look at it.
22 We just can't not.

23 BY MS. DIERS:

24 Q. Have you looked at the technical

1 **feasibility of using these modes of**
2 **transportation?**

3 A. No.

4 Q. Moving on to IEPA Question 7, which
5 would be on Page 6.

6 A. Okay.

7 Q. Are you familiar with the length of
8 time modeling predicted it would take to reach
9 groundwater quality standards at the property
10 lines relative to Hutson Pond D after the
11 groundwater collection trends began operation?

12 A. I'm not sure what -- what the exact
13 number is that they stated.

14 Q. This is a follow-up question to your
15 response to CWLP's Question 8, Page 18.

16 A. Okay.

17 Q. Are CCR landfills already regulated
18 by the Agency?

19 A. I -- again, I think that's a legal
20 interpretation. So I'm not sure. I've heard that
21 the landfills have to follow the regs, but they're
22 somehow in a different space because they're on
23 the property, but I'm not an expert on how all
24 that -- that shakes out.

1 **Q. Next is a follow-up question to your**
2 **response to CWLP's Question 13, Page 21.**

3 A. Okay.

4 **Q. Your response to CWLP's Question 13**
5 **is about constructing a spatial map of the bottom**
6 **of a CCR surface impoundment. You require that**
7 **the spatial map would be similar to a groundwater**
8 **table map.**

9 **How would data be obtained to**
10 **make such a map?**

11 A. So I guess I would expect that there
12 would be records of construction that could be
13 accessed that would identify the lowest point in a
14 pond before they started filling it. There would
15 be that. They are determining the lowest point in
16 the pond somehow with the location restrictions.

17 So there is information that
18 points to the lowest point in the pond and we can
19 look at a set of lowest points and at least have a
20 number of -- couple different areas to get an idea
21 of what the elevation of the bottom of the coal
22 ash looks like in a particular site.

23 **Q. Are boring or placement of the**
24 **piezometers in the CCR surface impoundment a way**

1 **to obtain the data?**

2 A. I don't know if I want to recommend
3 that. I know I've heard some concerns with boring
4 into a pond because boring can be a risk, but just
5 having heard those concerns enough to know that
6 they are there I'd leave it to hydrogeologists or
7 somebody who works in the field to assess whether
8 or not determining the bottom of the pond using
9 like, you know, drilling is the appropriate method
10 or accessing a record of -- a record of, you know,
11 historical records or there may be other
12 techniques, things that use sound. I'm not sure.
13 But I think that there is ways to at least have
14 some of this information out there fairly easily.

15 MS. DIERS: All right. I have no
16 further questions at this time.

17 HEARING OFFICER HORTON: Okay.
18 Thank you. We'll move on to Midwest Generation.

19 Ms. Gale, do you have any
20 questions for Mr. Rehn?

21 MS. GALE: I have no questions for
22 this witness. Thank you.

23 HEARING OFFICER HORTON: Okay.
24 Thank you. Ms. Williams, any questions for

1 Mr. Rehn?

2 MS. WILLIAMS: No questions.

3 HEARING OFFICER HORTON: Thank you.

4 Mr. More, any questions?

5 MR. MORE: No questions.

6 HEARING OFFICER HORTON: Okay.

7 Ms. Brown, any questions?

8 MS. BROWN: No questions.

9 HEARING OFFICER HORTON: Ms.

10 Manning, any questions?

11 MS. MANNING: No questions. Thank

12 you.

13 HEARING OFFICER HORTON: The
14 Attorney General's Office, Mr. Sylvester, any
15 questions?

16 MR. SYLVESTER: I do not have any
17 questions. Thank you.

18 HEARING OFFICER HORTON: Okay.

19 Mr. Rao, any questions?

20 MR. RAO: Yes, I have a follow-up
21 question. Can you hear me?

22 THE WITNESS: Yes.

23

24

1 E X A M I N A T I O N

2 BY MR. RAO:

3 Q. This is a follow up to the Board's
4 Question No. 1. This question concerns the
5 third-party review that you had recommended and I
6 wanted to know if you're aware that the Board has
7 a number of different regulations that rely on
8 certifications by licensed professional engineers
9 or licensed professional geologists, for example,
10 we have the Board's underground storage tank
11 regulations, site remediation regulations and
12 clean construction debris regulations where we
13 require certifications by licensed professional
14 engineers and I want you to explain how the
15 reliance on -- reliance on licensed professional
16 engineers in this proposed rule is different from
17 other regulations?

18 A. I can't speak to other regulations.
19 The ones you listed I'm not familiar with them.
20 So I guess I don't know how it could be different,
21 but I think the point that only having a single
22 party verify any sort of -- you know, this sort of
23 calculation or this sort of determination and not
24 have any other step in the way, somebody who looks

1 at the numbers or the calculations or the
2 assumption is a risk.

3 I mean, certainly, there's zero
4 redundancy there, right. There is one person
5 doing the work or one entity. And that's the
6 concern I'm raising and I think it would exist in
7 those other programs, too. You know, if what
8 you're describing is the case, it would exist in
9 those programs, too.

10 **Q. So is it your understanding that the**
11 **only person going over the calculation is the**
12 **licensed professional engineer and the Agency does**
13 **not have any, you know, review of what the**
14 **professional engineer is certifying?**

15 A. For the case of the structural
16 assessment, my understanding is that the proposed
17 regulatory scheme is a review -- is verification
18 of the certification, not review of the materials
19 behind the certifications.

20 **Q. Okay. And do you expect this**
21 **third-party reviewing the calculations to also be**
22 **a licensed professional engineer?**

23 A. I guess I don't know enough about
24 the world of licensed professional engineers to be

1 able to say. I would hope there is staff. I
2 mean, again, if -- if the Agency doesn't have
3 someone who can look at it, perhaps another agency
4 in Illinois or some other form of third-party
5 verification.

6 I think -- I guess I don't know
7 enough about the accessibility of the PE to say if
8 that's the regional approach, but I think it needs
9 to be reviewed by somebody who can look at these
10 things and raise questions if they're there, raise
11 flags.

12 **Q. Okay.**

13 MR. RAO: Thank you. That's all I
14 have.

15 HEARING OFFICER HORTON: Okay. Any
16 follow-up questions for Mr. Rehn? Okay. Seeing
17 none, we'll dismiss you, Mr. Rehn. Thank you.

18 And right now it's 10:46 and
19 I'll propose let's take a short ten-minute break
20 and be back here at 10:56. We will pick up with
21 Scott Payne and Ian Magruder testifying jointly.

22 (Whereupon, a break was taken
23 after which the following
24 proceedings were had.)

1 HEARING OFFICER HORTON: We'll start
2 again.

3 Mr. Payne and Mr. Magruder, are
4 you on the line?

5 MR. PAYNE: Yes. Can you hear us?

6 HEARING OFFICER HORTON: Yes. So we
7 see you. Could you identify -- since you're in
8 the same screen, could you each identify
9 yourselves?

10 MR. PAYNE: I'm Scott Payne.

11 MR. MAGRUDER: My name is Ian
12 Magruder.

13 HEARING OFFICER HORTON: Okay. And
14 when you are both testifying, if you can both,
15 before you speak, say your name so it will be
16 "This is Scott Payne answering" just so our court
17 reporter can be able to tell who is speaking.

18 AGENCY: Madam Hearing Officer, can
19 you hold on just a minute. We need an attorney
20 back.

21 HEARING OFFICER HORTON: Oh, yes, of
22 course.

23 AGENCY: Yes.

24 HEARING OFFICER HORTON: Okay. We

1 will begin again.

2 Mr. Court Reporter, can you
3 please swear in these two witnesses.

4 WHEREUPON:

5 SCOTT PAYNE and IAN MAGRUDER
6 called as witnesses herein, having been first duly
7 sworn, deposeth and saith as follows:

8 HEARING OFFICER HORTON: Okay. So
9 would -- which attorney will be --

10 MS. BUGEL: I'll be representing
11 these witnesses.

12 HEARING OFFICER HORTON: Okay.
13 Ms. Bugel, would you like to enter Mr. Magruder
14 and Mr. Payne's pre-filed testimony as an exhibit?

15 MS. BUGEL: Yes, we would.

16 HEARING OFFICER HORTON: Okay. So
17 their pre-filed testimony will be Exhibit 19.

18 (Document marked as Hearing
19 Exhibit No. 19 for
20 identification.)

21 MS. BUGEL: And their pre-filed
22 answers, can we enter those as an exhibit as well?

23 HEARING OFFICER HORTON: Yes. So
24 their pre-filed answers will be Exhibit 20.

1 (Document marked as Hearing
2 Exhibit No. 20 for
3 identification.)

4 HEARING OFFICER HORTON: Mr.
5 Magruder and Mr. Payne, do you wish to offer a
6 brief introduction or summary of your testimony?

7 MR. PAYNE: Yes. This is Scott.

8 HEARING OFFICER HORTON: Okay. Will
9 one of you be speaking?

10 MR. PAYNE: Both of us. This is
11 Scott.

12 HEARING OFFICER HORTON: Okay. So
13 I'll limit you to five minutes and you may begin.

14 MR. PAYNE: Thank you. This is
15 Scott Payne and I appreciate the opportunity to
16 testify today. I'm the owner of Kirk Engineering
17 and Natural Resources, Inc. We do business as
18 Northern Rockies Engineering in Montana and the
19 company started in 1998, way back when, and I
20 actually had a career spanning much longer than
21 that back into the mid 1980's and, interestingly
22 enough, one of the persons that I worked with back
23 in the mid 1980's was a very famous Illinois
24 groundwater modeler and solid transport expert Tom

1 Prickett. Tom Prickett wrote the
2 Prickett-Lonnquist Aquifer Simulation Model and at
3 that point in time in the mid 1980's the
4 groundwater modeling industry was in its infancy,
5 so to speak.

6 MODFLOW had just come out
7 recently from the USGS and the Plaza Model that
8 Tom Prickett wrote was actually the precursor to
9 that that allowed some of the mathematical
10 numerical formulations to go forward with the USGS
11 model.

12 I worked with Tom and
13 Dr. William Woessner, who is the author of Applied
14 Groundwater Modeling and a well-known national
15 expert, way back as a graduate student and worked
16 on some of the early code to improve some of its
17 abilities to deal with storage coefficients and
18 also output and since then the industry has really
19 grown a lot.

20 It's -- it's really matured and
21 over the course of over 30 years I've had the
22 opportunity to not only do some fairly large
23 modeling efforts involving transient numerical
24 simulations for groundwater flow and solid

1 transport, but also on behalf of the U.S. EPA
2 reviewing dozens of different models that were
3 submitted for very complex sites.

4 So I guess my point is that we
5 do have some ties here at the company to folks in
6 Illinois that have done groundwater modeling.
7 First, Tom is no longer with us. But the point is
8 we have a very good handle on groundwater flow and
9 solid transport model.

10 So our testimony is focused on
11 trying to get a handle on just what type of
12 modeling has been to date on CCR and we were asked
13 to consider it and what we did is we actually
14 reviewed some different sites and our goal was to
15 look at what is the first submittal of some of
16 these groundwater flow solid transport models to
17 the Illinois EPA in terms of how do they handle
18 what are considered best practices within the
19 industry and we found some deficiencies, I think
20 fairly significant deficiencies, and our goal then
21 was to figure out what just would be needed to try
22 to get these first metals to meet a higher mark
23 and follow best practices that the industry
24 typically uses.

1 So we provide changes to some of
2 the regulatory -- proposed regulatory rules that
3 are out there and try to integrate these best
4 practices into the regulations. The other thing
5 that is important is that I think with these
6 regulatory changes guidance in terms of how to
7 interpret them is needed.

8 This is a fairly common thing,
9 other states have done this, and that guidance is
10 Illinois EPA's opportunity to tell the modelers
11 and industry folks exactly what they need to do to
12 meet the mark in terms of getting their models
13 submitted on these types of projects related to
14 CCR.

15 There might be other
16 opportunities to look at, for example, a checklist
17 that would be a lesser desirable type of approach
18 in terms of approach explaining to would be
19 modelers how to approach Illinois EPA needs for
20 these particular sites.

21 So I guess, with that, I'll let
22 Ian introduce himself and talk a little bit more
23 about his involvement on this work.

24 HEARING OFFICER HORTON: Okay.

1 Mr. Magruder, you're limited to five minutes.

2 MR. MAGRUDER: My name is Ian
3 Magruder. I'm a hydrogeologist. I have worked
4 with Scott for 20 years at Kirk Engineering.
5 Prior to that, I worked for the State Geological
6 Survey and similar to Scott I studied under
7 William Woessner who wrote Applied Groundwater
8 Modeling.

9 For this particular case, it was
10 my job to review three sites in Illinois, review
11 the groundwater modeling performed for those
12 closure plans. Those sites were Hennepin,
13 Meredosia and Wood River.

14 So our work began with reviewing
15 those sites and critiquing the modeling that was
16 done and then writing recommendations for changes
17 to the draft rule. If there are any questions on
18 our interpretation of those sites, I think I'm the
19 best person to answer those. I think that's it
20 for me.

21 HEARING OFFICER HORTON: Okay.
22 Great. We'll begin with Illinois EPA.

23 Do you have any questions for
24 Mr. Payne or Mr. Magruder?

1 MS. DIERS: Yes. Yes, we do.

2 E X A M I N A T I O N

3 MS. DIERS: Good morning. My name
4 is Stephanie Diers, and I'll be asking questions
5 on behalf of Illinois EPA. I would like to turn
6 your attention to Exhibit 20, your pre-filed
7 answer, and this is a follow up to Agency Question
8 4B as in boy. It's on Page 5.

9 MR. PAYNE: Okay. We found it.

10 MS. DIERS: In your response to the
11 Agency's Question 4B, you state "Our expectation
12 is that if the equipment necessary to complete
13 closure construction can access the impoundment,
14 then it is likely that boring or direct push
15 equipment can access the site."

16 Doesn't this statement assume
17 that there is no liquid standing overpath of the
18 CCR?

19 MR. MAGRUDER: This is Ian Magruder.
20 It assumes where you access the impoundment with
21 that equipment there would be no liquid at the
22 surface.

23 MS. DIERS: Wouldn't this map then
24 of data collection be impracticable for an

1 owner/operator who is still using the CCR SI and
2 is doing a closure alternatives analysis prior to
3 beginning closure?

4 MR. MAGRUDER: This is Ian Magruder.
5 That's a potential concern, yes.

6 MS. DIERS: When you refer to
7 leachate testing on Page 14 of your testimony, are
8 you assuming this leachate comes from a leachate
9 collection system?

10 MR. MAGRUDER: Was the question
11 about leachate testing?

12 MS. DIERS: Yes. Are you on Page 14
13 of your testimony?

14 MR. MAGRUDER: Yes, we are.

15 MS. DIERS: I'll repeat the
16 question. When you refer to the leachate testing
17 on Page 14 of your testimony, are you assuming
18 this leachate comes from a leachate collection
19 system?

20 MR. MAGRUDER: No, we were assuming
21 it would be boring samples.

22 MS. DIERS: Can you give more detail
23 about the LEAF, L-E-A-F, test protocol.

24 MR. MAGRUDER: Our understanding is

1 that the LEAF protocol is the best leachate
2 sampling method, laboratory method, for
3 identifying leachate concentration from coal ash.

4 MR. PAYNE: This is Scott. Can I
5 interject briefly?

6 MS. DIERS: Are you ready for a
7 question? I'm sorry.

8 MR. PAYNE: This is Scott. I was
9 going to interject on leachate testing.

10 MS. DIERS: Okay.

11 MR. PAYNE: So the idea of
12 collecting data to evaluate leachate
13 concentrations certainly works best on solid
14 ground, right. So if you have some type of solid
15 ground to have some kind of direct push technology
16 or other type of access, that's great.

17 As an engineering company, we've
18 actually done a lot of sludge testing on
19 wastewater ponds. We use both. And under soft
20 sediment conditions, there are definitely easy
21 hand-operated sampling equipment that can be used
22 to collect, at depth, you know, the sludge
23 material that is semiliquid, semisolid and have
24 that tested.

1 So my point is that every site
2 is characterized based on the best type of
3 technology to collect data and just because you
4 don't have a solid access for direct push
5 technology does not mean you cannot determine a
6 fairly simple way to collect leachate data.

7 MS. DIERS: Have you used both on
8 CCR impoundments?

9 MR. PAYNE: We have not. This is
10 Scott.

11 MS. DIERS: Is the LEAF method we
12 were talking about, is that a lab method?

13 MR. MAGRUDER: It is a lab method.
14 This is Ian Magruder.

15 MS. DIERS: Moving on to Board
16 Question 13B as in boy. It would be on Page 1 of
17 Exhibit 20.

18 MR. MAGRUDER: Okay.

19 MS. DIERS: Are the modeling
20 guidance documents for Georgia or North Carolina
21 written into a rule or regulation?

22 MR. PAYNE: I am not aware if they
23 are or they are not. I just know their guidance
24 they recommend for modelers to follow. This is

1 Scott.

2 MS. DIERS: Do you know if the one
3 in North Carolina is a policy?

4 MR. PAYNE: This is Scott. I'm not
5 a lawyer. So I really don't know the difference
6 between policy and guidance to be honest with you.
7 I'm a scientist and I typically talk to regulators
8 ahead of time to figure out what they want, why
9 they want it and what they need. If they have a
10 guidance document, I simply follow it or a policy
11 I simply follow it and that's kind of what we're
12 up to here is to have something similar.

13 MS. DIERS: Moving on to Agency
14 Question 6A as in apple. It would be on Page 6.

15 MR. MAGRUDER: We are there.

16 MS. DIERS: You testified that you
17 have not required daily groundwater level
18 measurements at all sites you have worked on.

19 Can you tell us why you have
20 determined daily measurements are needed at all
21 CCR sites in Illinois?

22 MR. PAYNE: Go ahead, Ian.

23 MR. MAGRUDER: The benefit of having
24 daily water level measurements from an electronic

1 transducer is it describes the actual groundwater
2 hydrograph and the frequency and magnitude of
3 hydraulic connection between CCR and groundwater.
4 The more frequent that data is the better you
5 understand the hydraulic connection.

6 MS. DIERS: Is your opinion of the
7 necessity for daily groundwater measurements
8 exclusive to CCR surface impoundments?

9 MR. MAGRUDER: This is Ian Magruder.
10 We focused our testimony on surface impoundments
11 for this project.

12 MS. DIERS: Are you aware of other
13 environmental regulations that require daily
14 groundwater measurements?

15 MS. BUGEL: I'm going to object. It
16 calls for a legal conclusion.

17 HEARING OFFICER HORTON: There's an
18 objection here in the room that it calls for a
19 legal conclusion.

20 MS. DIERS: I think it asks if he's
21 aware of regulations. It's not asking for
22 analysis.

23 MR. PAYNE: This is Scott. So I'm
24 not aware of any regulations that require it. In

1 the same token, I'm also very aware of people that
2 avoid collecting that type of data to not have a
3 complete dataset. I've seen it many times on
4 different sites working on Superfund and other
5 types of projects.

6 In this particular case, we
7 believe that some of the sites that we have
8 reviewed would have benefitted from having
9 continuous water level data. It's easy to
10 collect, you don't miss events when they happen
11 and, frankly, it's part of the best practices.

12 So in the event where best
13 practices are not being followed, it seems prudent
14 to require it. So as a person that has
15 characterized dozens and dozens of very complex
16 sites, I have used them many times, I've used them
17 selectively and not on all wells and it's not an
18 undue burden to collect this type of data. It's
19 part of doing hydrogeology. So as far as I can
20 tell, it needs to be required if it's not going to
21 be done.

22 MS. DIERS: Can you characterize a
23 site and determine groundwater flow direction
24 without daily or continuous groundwater flow

1 measurements?

2 MR. PAYNE: This is Scott. So the
3 answer is, yes, you can take any spot in time and
4 collect groundwater potentiometric data and create
5 a groundwater flow map. Now, two weeks later when
6 you didn't collect groundwater data, you can have
7 a complete change in your groundwater flow
8 direction and that may be significant in terms of
9 where the receptors are.

10 So the answer is it could be
11 very helpful to look for key events and those key
12 events you should have a groundwater flow map
13 where it's not assumed to be the same all the time
14 based on, for example, poor monitoring. So,
15 again, a hydrograph will tell you a lot and that's
16 why we recommend them as hydrogeologists, that you
17 need to have at least some data that tells you the
18 variability, both spatially and temporally, in
19 terms of how the site potentiometric surface
20 changes.

21 MR. MAGRUDER: This is Ian Magruder.
22 When I looked at the three sites in Illinois, I
23 found examples where groundwater flow reversals
24 and groundwater elevation events that contacted

1 coal ash were missed because of infrequency of
2 quarterly data.

3 MS. DIERS: How did you determine
4 that something was missed if you just said there
5 was no data to look at?

6 MR. MAGRUDER: I determined it by
7 looking at river hydrographs for rivers which are
8 adjacent to the impoundments and looking at
9 similar events in the river which did have data
10 for the site.

11 MS. DIERS: Would the duration of
12 the flood have an impact on the groundwater
13 elevation?

14 MR. MAGRUDER: Yes, potentially it
15 could.

16 MS. DIERS: Moving on to Agency
17 Question 6B as in boy. It's on Page 7.

18 MR. MAGRUDER: We have it in front
19 of us.

20 HEARING OFFICER HORTON: How would
21 you model a CCR impoundment if, for instance,
22 collected data shows CCR in groundwater five
23 percent of the time?

24 MR. MAGRUDER: Can you repeat the

1 question? I didn't fully hear it.

2 MS. DIERS: Sure. How would you
3 model a CCR impoundment if, for instance,
4 collected data shows CCR in groundwater five
5 percent of the time?

6 MR. MAGRUDER: I'd interpret that to
7 mean CCR in contact with groundwater five percent
8 of the time and I would attempt to create a model
9 which simulated groundwater contact five percent
10 of the time.

11 MS. DIERS: So would you do that on
12 an annual basis or a different timeframe?

13 MR. MAGRUDER: I would look at the
14 site specific conditions and determine if
15 simplification on an annual basis would work or if
16 I needed to be considering the realtime variant
17 conditions such as when the flood occurred,
18 duration of the flood, intensity of the flood and
19 the duration and intensity of the groundwater
20 response to the flood.

21 MS. DIERS: So if you're looking at
22 an annual basis or different timeframe, would that
23 potentially complicate the calibration depending
24 on which one you used?

1 MR. PAYNE: This is Scott. So the
2 idea is you can look at transient conditions in
3 a -- in a river system that has a contaminate
4 issue in it. So you can model for a year. You
5 can look at different recharge events in terms of
6 the service, you can look at different stage
7 levels of the river and how they affect the
8 groundwater flow system.

9 So you can have a lined source,
10 for example, as to when the groundwater table
11 intercepts the actual ash and you would then
12 release contaminants at that point in time.

13 So it is very possible to adjust
14 things to site specific conditions as to which you
15 characterize the site to exhibit. So if there is
16 a five percent time in which groundwater inundates
17 ash, your model should probably show that to
18 determine if you can mimic what you see in the
19 field because clearly it's probably happened in
20 the past. You have some historic remnant of
21 geochemistry in your database and you can then
22 calibrate, too, and that would allow you to have a
23 model that functions as a natural system, right.

24 I mean, it's a site specific

1 analysis following general best Agency -- sorry --
2 industry practices that allows you to determine
3 what that time scale should be.

4 MR. MAGRUDER: This is Ian Magruder.
5 I believe part of the question was whether it
6 would complicate calibration and my response to
7 that is it could make it take longer to calibrate,
8 but you would achieve a better calibration.

9 MR. PAYNE: This is Scott. I agree.

10 MS. DIERS: Moving on to Agency
11 Question 6C(i) and 6C(ii) on Page 7.

12 MR. MAGRUDER: We have it in front
13 of us.

14 MS. DIERS: You state you can
15 calibrate a transient model to daily measurements
16 over decades. You also state you average or
17 interpolate the calibration data to the stress
18 period.

19 So are you taking multiple daily
20 groundwater elevation data points and averaging
21 over periods of time from weeks to months to years
22 potentially in order to utilize one data point for
23 each stress period in the model.

24 MR. MAGRUDER: Do you want me to

1 answer that?

2 MR. PAYNE: Go ahead.

3 MR. MAGRUDER: Okay. The question
4 is about calibration and the answer is, yes, every
5 model is site specific and the modelers will have
6 to determine how to average data that is more
7 frequent than the model stress period. The model
8 stress period is the model -- is the period in
9 which the model considers all conditions to be
10 stable for the stress period.

11 So you may have to -- you have
12 to average data that is more frequent than the
13 model stress period or interpolate it more
14 appropriately so you can calibrate your
15 observations from the real world to the model
16 response.

17 MS. DIERS: The Agency has nothing
18 further at this time, but we reserve the right to
19 ask follow up.

20 HEARING OFFICER HORTON: Okay.
21 Great. We'll move on to Midwest Generation.

22 Ms. Gale, do you have any
23 questions for these witnesses?

24 MS. GALE: I have no questions for

1 these witnesses. Thanks.

2 HEARING OFFICER HORTON: Thank you.
3 I'll move on to City of Springfield.

4 Ms. Williams, do you have any
5 questions for these witnesses?

6 MS. WILLIAMS: No questions at this
7 time.

8 HEARING OFFICER HORTON: Thank you.
9 Moving on to Dynegy. Mr. More, any questions?

10 MR. MORE: I don't have any
11 affirmative questions, but I will have a follow-up
12 question to a question asked by the Agency.

13 Would you like me to reserve
14 that to go through the opening list of questioners
15 first?

16 HEARING OFFICER HORTON: No, I think
17 you can go ahead and ask that question now.

18 E X A M I N A T I O N

19 MR. MORE: Okay. Terrific. So on
20 follow up on your answer discussing river
21 hydrographs, can you identify the data source for
22 those river hydrographs that you referenced.

23 MR. MAGRUDER: The data source is
24 the United States Geological Survey. This is Ian

1 Magruder.

2 MR. MORE: Okay. Does that -- what
3 kind of information is provided in that USGS
4 hydrograph?

5 MR. MAGRUDER: This is Ian Magruder.
6 The hydrograph includes stage, which is the river
7 height, the flow and potentially some temperature
8 chemical parameters depending on the site.

9 MR. MORE: What is the frequency of
10 that dataset?

11 MR. MAGRUDER: The data -- this is
12 Ian Magruder. The data is usually reduced to a
13 daily average.

14 MR. MORE: And how do you use river
15 stage data to calculate groundwater elevation?

16 MR. MAGRUDER: This is Ian Magruder.
17 You don't, but you can infer from events where you
18 have groundwater elevation data the typical
19 response of the groundwater system to river stage.

20 MR. MORE: So can you estimate
21 groundwater elevation data using river elevation
22 information?

23 MR. MAGRUDER: This is Ian Magruder.
24 I wouldn't recommend doing that. I think it's

1 much easier and better to actually measure the
2 groundwater.

3 MR. MORE: My question, though, is
4 can it be done?

5 MR. MAGRUDER: This is Ian Magruder.
6 I don't know where it's been done or the accuracy
7 of how that would work.

8 MR. MORE: Explain to me how you
9 determined through using a hydrograph -- river
10 hydrographs that, in fact, with data missing
11 relating to groundwater elevation.

12 MR. PAYNE: This is Scott. Let me
13 talk a little bit about groundwater/surface water
14 interaction. So a lot of our work is focused on
15 this exact question. So a lot of these sites they
16 establish ahead of time in their characterization
17 work that there is a connection between
18 groundwater and surface.

19 What does that mean? It means
20 they're saying our aquifer discharges into the
21 river system or whatever. We see it all the time
22 in our projects, too. Once you've established
23 that there is a direct connection, if you can show
24 that the elevation of the river is extremely high,

1 perhaps in flood stage well above any normal
2 groundwater level that you've ever seen in your
3 historic data, you then change the hydraulic
4 gradient so it's flowing the other way. It's not
5 exact, but it's certainly a strong indication if
6 it flows one way most of the time once you reverse
7 it and raise the river it can flow the other way.

8 We've done a lot of modeling on
9 this and once you've established this type of
10 relationship, it's a pretty direct correlation and
11 you would not want to use it for very accurate
12 groundwater levels, but you certainly can say,
13 "Hey, we should have collected groundwater data
14 during this time. Because you missed it now we
15 have to estimate it."

16 The point that Ian made earlier
17 is that you need to collect the data so you're not
18 asking these types of questions. It's industry
19 standards to try to characterize and understand
20 how these relationships happen in the natural
21 system and it's not a very burdensome process to
22 simply put in some transducers in some select
23 wells. This is Scott.

24 MR. MAGRUDER: This is Ian Magruder.

1 To directly answer your question, when I look at
2 the hydrograph and I see a period where a river
3 flood creates a groundwater response that causes
4 the groundwater to have a direct hydraulic
5 connection with CCR in the impoundment and then I
6 see other floods in the river of greater magnitude
7 and potentially longer duration, I make the
8 qualitative inference that it causes a similar
9 response in the groundwater system and the coal
10 ash was inundated by groundwater.

11 MR. MORE: So I think I understand
12 the two of you to be saying if the data is not
13 available, it's appropriate to use the
14 groundwater -- the surface water elevation data to
15 estimate or model the groundwater elevation?

16 MR. PAYNE: No, that is not what
17 we're saying. We're saying we have to resort to a
18 less desirable process to try to ascertain what
19 data may have been missing from site
20 characterization data that was needed for a
21 modeling effort.

22 We highly recommend, encourage,
23 that daily data are collected using transducers in
24 selected wells. What you're proposing, as we're

1 saying, is not the best practice. We're saying
2 best practices is you collect the data. It's not
3 that hard to do with current technology. This is
4 Scott.

5 MR. MORE: I have no further
6 questions.

7 HEARING OFFICER HORTON: Okay.
8 Moving on to Ms. Brown. Any questions for these
9 witnesses?

10 MS. BROWN: No questions for these
11 witnesses.

12 HEARING OFFICER HORTON: Okay.
13 Ms. Manning, any questions for these witnesses?

14 MS. MANNING: No questions for these
15 witnesses. Thank you.

16 HEARING OFFICER HORTON: Okay.
17 Mr. Sylvester, any questions for these witnesses?

18 MR. SYLVESTER: We do not have any
19 questions. Thank you.

20 HEARING OFFICER HORTON: Mr. Rao,
21 any questions for these witnesses?

22 MR. RAO: No questions for these
23 witnesses. Thank you.

24 HEARING OFFICER HORTON: Okay. Any

1 follow-up questions?

2 MS. WILLIAMS: I'd like to ask one
3 follow up.

4 HEARING OFFICER HORTON: Ms.
5 Williams. Okay. Please go ahead.

6 E X A M I N A T I O N

7 MS. WILLIAMS: This is Deborah
8 Williams from Springfield City Water, Light and
9 Power. I want to ask the question a little bit
10 summing up what I think Ms. Diers and Mr. More
11 were asking about, you know, I understand your
12 recommendation of what is the best practice and
13 why you feel that the absence of daily data has
14 resulted in less ideal models, but what the Board
15 has to balance here is how long we're going to
16 require site characterizations to be delayed and,
17 therefore, closure plans delayed and closure
18 permits to be delayed to get the model to be
19 perfect.

20 So can you explain a little bit
21 what impact your recommendation is going to have
22 on the timeline for gathering that? We all know
23 that we have to act with imperfect data.

24 MR. PAYNE: This is Scott. You

1 mentioned the word perfect. I don't think anybody
2 is suggesting we need perfect models. I think
3 what you have in the past that has been submitted
4 to the Illinois EPA has been far from perfect and
5 could be greatly improved by simply requiring some
6 basic parameters that stipulate what a model
7 should be designed to include if it's going to
8 answer these very complex questions. Right.

9 If we had simple questions, the
10 answer is you could have a simple model. But
11 you're asking complex questions, therefore, the
12 models have to be robust, good, possibly
13 transient -- anyway. And I guess -- now, I lost
14 my train of thought. I apologize.

15 So the question is, how much
16 time do you need to collect temporal data in a
17 site characterization effort that would satisfy
18 best practices? You know, we collect data on many
19 different types of projects during site
20 characterization that would last one to two years,
21 for example, but not for 50 years, for example.

22 So it's based on best
23 professional judgment. So me as a person doing
24 site characterization, I will go to the Agency

1 saying, "Hey, I want to characterize this site.
2 I'm going to collect this type of data and I'm
3 going to try to collect groundwater data over this
4 course of period and have at least one year to two
5 years worth of, for example, potentiometric data
6 and I'm trying to go catch key events that relate
7 to floods or other types of major rain events that
8 may change how the potentiometric system is
9 modified during those events."

10 So it's not a forever thing and
11 some sites might require more data if it's very
12 variable and I'm not sure what that site would be,
13 but when I looked at it for the first time I would
14 know it when I saw it. So I don't believe that
15 we're saying you have to collect continuous
16 groundwater data forever before you can have a
17 perfect model. Far from that. We're seeing
18 used -- professional judgment, a guidance document
19 that Illinois EPA, in our recommendation, would
20 develop on their own would identify what that
21 actually should assess.

22 MR. MAGRUDER: This is Ian Magruder.
23 In our responses to pre-filed questions, we
24 addressed this question. The question is, how

1 long would daily water level measurements have to
2 be taken for before the site hydrogeologic
3 characterization could be finished and our answer
4 was it's appropriate I think for the site
5 hydrogeologic characterization to be finished
6 along the timelines of the other aspects of the
7 rule that are driving that characterization, but
8 that the daily water level measurements should be
9 taken for the duration of the groundwater
10 monitoring that applies to the impoundment.

11 My understanding is that the
12 model will be developed later in the life of the
13 impoundment and then that daily data will be
14 available for model calibration and any -- any
15 revisions to the site conceptual model that are
16 needed from having that additional dataset.

17 MS. WILLIAMS: Are you referring to
18 for a new impoundment?

19 MR. MAGRUDER: Yes. In that
20 instance, I am.

21 MS. WILLIAMS: Okay. Do you see any
22 flaws in this recommendation for impoundments that
23 are preparing now today to close?

24 MR. MAGRUDER: This is Ian Magruder.

1 Yeah, the potential flaw is you don't have the
2 data because it wasn't required in the past. Our
3 recommendation is that it's required going
4 forward.

5 MS. WILLIAMS: And that you wait
6 until you get it to do it right?

7 MR. PAYNE: You know, this is Scott.
8 It's always to do things right. The idea that
9 it's -- you already have the monitoring wells,
10 right, you're adding transducers to them. The
11 transducers collect the data for you. When you go
12 out there and do your quarterly monitoring for
13 water quality, you can get a water level and
14 calibrate your transducers and having at least
15 some data is better than no data. Catching those
16 events is going to be important to look at how the
17 water table changes over time and how it may or
18 may not affect receptors of potentially
19 contaminated water.

20 MS. WILLIAMS: Thank you.

21 HEARING OFFICER HORTON: No further
22 questions, Ms. Williams?

23 MS. WILLIAMS: Sorry. No further
24 questions.

1 HEARING OFFICER HORTON: Any other
2 follow-up questions for these witnesses? Okay.
3 Seeing none --

4 MR. MORE: I have a follow-up
5 question. This is Josh More.

6 HEARING OFFICER HORTON: Mr. More,
7 go ahead.

8 E X A M I N A T I O N

9 MR. MORE: Thank you. Your proposed
10 revisions to the IEPA's proposal includes
11 additional data collection other than groundwater
12 elevation data, is that correct?

13 MR. MAGRUDER: This is Ian Magruder.
14 Yes, we do require a number of parameters that we
15 believe are basic to groundwater contaminate
16 transport modeling be either measured or
17 estimated.

18 MR. MORE: No additional questions.

19 HEARING OFFICER HORTON: Okay. We
20 will, at this time, dismiss Mr. Payne and
21 Mr. Magruder as witnesses. Thank you. And we
22 will call Ms. Cynthia --

23 MS. DIERS: Melissa, this is
24 Stephanie. Can you hear us?

1 HEARING OFFICER HORTON: Yes.

2 MS. DIERS: Sorry. We were on mute
3 again. I just have one question.

4 HEARING OFFICER HORTON: Please go
5 ahead.

6 E X A M I N A T I O N

7 MS. DIERS: Are you aware of the
8 timeframe for closures that have been proposed in
9 845 and also requirements in 257?

10 MR. MAGRUDER: This is Ian Magruder.
11 I'm not aware of the specific closure timeframe.

12 MS. DIERS: Nothing further.

13 E X A M I N A T I O N

14 MR. MORE: Josh More. Are you aware
15 of the timeframes to submit construction permits
16 that include groundwater modeling for existing
17 surface impoundments?

18 MR. MAGRUDER: This is Ian Magruder
19 I'm not aware of the specific timeframe.

20 MR. MORE: Did you take into account
21 the timeframes when drafting your proposed
22 recommendations?

23 MR. PAYNE: This is Scott. So, you
24 know, what did we take into consideration to

1 develop our comments is a good question because it
2 relates to simply science. Now, if there is
3 missing data, the idea here would be if they need
4 more time maybe they should collect it to do it
5 right. So if the rules are going to change
6 midstream and some of these timelines are going to
7 be crunched, maybe it's time for the agencies and
8 industry folks to talk about what data should be
9 collected to do it.

10 It's simply a matter of applying
11 best practices and not missing some maybe not so
12 obvious conditions that may affect groundwater
13 quality and potentially surface water quality
14 issues.

15 MR. MORE: No further questions.

16 HEARING OFFICER HORTON: Okay. This
17 is Vanessa Horton. Any other follow-up questions?
18 Okay. At this time, we'll dismiss Mr. Payne and
19 Mr. Magruder and I'd like to call Ms. Cynthia
20 Vodopivec, are you on the line?

21 MS. VODOPIVEC: Yes.

22 HEARING OFFICER HORTON: Would the
23 court reporter please swear in this witness.

24

1 WHEREUPON:

2 CYNTHIA VODOPIVEC
3 called as a witness herein, having been first duly
4 sworn, deposeth and saith as follows:

5 HEARING OFFICER HORTON: Mr. More,
6 would you like that Ms. Vodopivec's pre-filed
7 testimony be entered into the record?

8 MR. MORE: Yes.

9 HEARING OFFICER HORTON: That will
10 be Exhibit 21 and then would you like for her
11 pre-filed answers to be entered into the record?

12 (Document marked as Hearing
13 Exhibit No. 21 for
14 identification.)

15 MR. MORE: Yes.

16 HEARING OFFICER HORTON: Okay. That
17 will be Exhibit 22.

18 (Document marked as Hearing
19 Exhibit No. 22 for
20 identification.)

21 HEARING OFFICER HORTON: All right.
22 So we'll begin with Illinois EPA. Do you have any
23 questions for this witness?

24 MS. VODOPIVEC: I have an opening

1 statement I'd like to open with.

2 HEARING OFFICER HORTON: I
3 apologize. That's correct. You're limited to
4 five minutes.

5 MS. VODOPIVEC: Sure. Good morning.
6 My name is Cynthia Vodopivec and I'm the Vice
7 President of Environmental Health and Safety at
8 Dynegy Midwest Generation, LLC, and IPH, LLC. I'm
9 here today to present testimony on behalf of five
10 entities, which are listed in my pre-filed
11 testimony I will refer to collectively as Dynegy.

12 On behalf of Dynegy, I'd like to
13 start by thanking the Board and the Illinois EPA
14 for their careful work throughout this rulemaking.
15 I'm aware that a sizeable record has been compiled
16 and I appreciate the work that the Board and its
17 staff has ahead of it to review and finalize
18 IEPA's proposed regulations.

19 On Friday, Dynegy submitted a
20 brief comment with the aim of highlighting three
21 key issues for the Board during this hearing.
22 First, the comment explained that the proposed
23 Section 845.710 Closure Alternatives Analysis will
24 require a comprehensive evaluation which will

1 ensure that closures will be protective of human
2 health and the environment. This analysis will
3 account for many of the concerns raised by some
4 participants in this rulemaking.

5 Second, the comment recommends
6 that the final cover system standards in Section
7 845.750 be revised to better align with IEPA's
8 past practice and the physical characteristics of
9 CCR surface impoundments.

10 Third, the comment requests that
11 the Board conform the definition of inactive
12 surface impoundments with the definition of
13 adopted by the Illinois legislature.

14 Specifically, the definition should reflect that
15 inactive CCR surface impoundments are subject
16 to 8 -- to Part 845 only if they contained liquids
17 after October 19th, 2015.

18 In addition to my testimony,
19 Dynegy has pre-filed testimony from six expert
20 witnesses who you will hear from today. These
21 experts are first Dr. Lisa Bradley, a toxicologist
22 whose testimony discusses the CCR rules,
23 regulations of CCR impoundments; second,
24 Dr. Melinda Hahn, whose testimony describes the

1 lack of risk to portable water sources associated
2 with CCR surface impoundments; third, Dr. Rudy
3 Bonaparte, a professional civil engineer whose
4 testimony discusses the appropriate standards for
5 final cover systems of closing impoundments in
6 place; fourth, David Hagen, a hydrogeologist, who
7 used groundwater modeling to show how different
8 closure methods may be used to achieve groundwater
9 protection standards and closure in place can be
10 protective when there is an interaction between
11 groundwater and CCR; fifth, Andrew Bittner, a
12 professional engineer, whose testimony
13 demonstrates that the elements of Section 845.710
14 are sufficient to ensure closures are protected
15 even if an impoundment is located within a
16 floodplain or CCR is in contact and; sixth, Mark
17 Rokoff, a professional engineer, whose testimony
18 provides a summary of the factor driving various
19 closure methods.

20 Again, we appreciate the Board's
21 consideration of this testimony and we look
22 forward to answering your questions.

23 HEARING OFFICER HORTON: Okay.
24 Thank you. Then we'll move to Illinois EPA

1 questions for this witness?

2 MS. DIERS: Can you hear me okay?

3 HEARING OFFICER HORTON: Yes.

4 MS. DIERS: All right.

5 E X A M I N A T I O N

6 BY MS. DIERS:

7 Q. I just wanted to ask one question
8 based on your statement that you just gave. I
9 wondered do you know if the legislators have
10 defined inactive CCR surface impoundment --

11 HEARING OFFICER HORTON: I'm sorry.
12 Could you repeat the question?

13 MS. DIERS: Yeah, we're getting some
14 feedback. Let's pause for one second. You can
15 continue. I'll repeat the question.

16 Do you know if the legislators
17 have defined inactive CCR surface impoundments in
18 Senate Bill 9?

19 A. I'm not aware.

20 Q. I know you're not an attorney so I
21 was wondering if you are aware of the WIN Act and
22 are familiar with it?

23 A. I'm aware of the WIN Act.

24 Q. So do you understand that the WIN

1 **Act is an amendment to RCRA?**

2 A. I'm sorry. Would you repeat the
3 question?

4 Q. Do you understand that the WIN Act
5 is an amendment to RCRA?

6 A. I do understand that.

7 Q. Are you aware that 29 CFR 1910.120
8 applies to all RCRA corrective actions?

9 A. Yes, I'm aware.

10 Q. So with respect to the WIN Act
11 having been an amendment to RCRA, what changes
12 were made to your safety and health plans,
13 emergency action plans and safety data sheets,
14 specifically our staff that manages CCR, required
15 to work 40-hour OSHA -- I'm going to do
16 H-A-Z-W-O-P-E-R training?

17 A. Could you repeat the last part of
18 that question?

19 Q. I was asking if the staff that you
20 manage, are they required to have the 40-hour
21 H-A-Z-W-O-P-E-R training?

22 A. HAZWOPER training, yes, our staff is
23 required to have that.

24 Q. I'm going to move to Agency Question

1 4 on Page 4. Are you there?

2 A. Yes.

3 Q. In Question 4, you did not state
4 what chemical properties are analyzed in the CCR.
5 Specifically, is chemical composition analyzed for
6 percentage of total composition of the CCR?

7 A. I'm not sure exactly. I have to
8 check with my technical staff as to exactly what
9 is being tested for. You know, what we did --
10 what I did respond in my answer was I think it
11 depends on what we're using the CCR for.

12 Q. Moving on to Agency Question 7, Page
13 7. Are you there?

14 A. Yes, I'm sorry.

15 Q. That's okay. In your response to
16 Agency Question 7, you retract your objection to
17 require to provide the Agency any necessary
18 licenses and software because Dynegy does not
19 believe it would be required to obtain any
20 software on the Agency's behalf when the MODFLOW
21 or MT3D is used.

22 Are you aware that groundwater
23 numerical modeling software uses different
24 software specific user interfaces to MODFLOW, Mod

1 **Pass and MT3D?**

2 A. I'm not specifically aware of the
3 different -- the different programs that were
4 used. I'd have to consult with my technical
5 experts.

6 **Q. Are you aware there are other**
7 **modules that may be used as part of the modeling**
8 **software that may be software specific?**

9 A. Yes, I'm aware.

10 **Q. Have you spoken to someone who has**
11 **imported a groundwater model developed in one**
12 **software into another software package to read and**
13 **run it?**

14 A. No, I have not.

15 **Q. Are you familiar with how many**
16 **different versions of numerical groundwater models**
17 **are available for use that utilize MODFLOW or**
18 **MT3D?**

19 A. I do not, to my knowledge.

20 **Q. Down to Agency Question 8, Page 7.**

21 A. I'm there.

22 **Q. You further state that to the extent**
23 **that the Agency will need any commercial software**
24 **beyond the free software, the Agency should**

1 purchase it. So you're aware there is a cost to
2 purchase many user interface software applications
3 for MODFLOW and MT3D?

4 A. I don't understand the question.
5 Could you say that again?

6 Q. So you're asking -- basically, you
7 say that the Agency should purchase it. So my
8 question is, are you aware there is a cost to
9 purchasing this interface software application
10 from MODFLOW for MT3D?

11 A. My understanding is that MODFLOW and
12 MT3D are free software.

13 Q. Just a second. I'm talking to our
14 staff. Can you hear me again?

15 A. Yes, we can.

16 Q. Are you aware there is a cost to all
17 of the many user interface softwares to MODFLOW?

18 A. I'm not aware.

19 Q. Moving on to Agency Question 12,
20 Page 10.

21 A. I'm there.

22 Q. Are there NOAA level data available
23 for every CCR surface impoundment location in the
24 State of Illinois?

1 A. I don't know for certain. I do know
2 that we evaluated all of our surface impoundments
3 that are within 500 feet of rivers and there is
4 data available for that.

5 Q. Okay. Moving on to Question 12A, as
6 in apple, Page 10. If the Board were to adopt the
7 proposed revisions to Justice, would the estimated
8 groundwater elevations derived from river levels
9 have to be compared with an existing quarterly
10 groundwater evaluation -- elevate? Sorry.

11 A. Yes, it would.

12 Q. Do you believe that estimated
13 groundwater elevations based on river level is an
14 accurate -- is as accurate as measured groundwater
15 elevation?

16 A. I believe it's an estimate.

17 MS. DIERS: I have nothing further.
18 I reserve the right to ask follow up.

19 HEARING OFFICER HORTON: Okay. This
20 is Vanessa Horton. Let's pause here. It's 11:55.
21 So let's break for lunch and then when we return,
22 let's return at 1:00 and we'll continue with
23 Ms. Vodopivec and with questions from the
24 environmental groups. Okay. Thank you.

1 (Whereupon, a break was taken
2 after which the following
3 proceedings were had.)

4 HEARING OFFICER HORTON: Okay. We
5 left off with Cynthia Vodopivec and I believe you
6 were beginning with questions for her from the
7 environmental groups as a whole; Little Village
8 Environmental Justice, Environmental Law & Policy
9 Center, Prairie Rivers Network and Sierra Club.

10 Do you have any questions for
11 this witness?

12 MS. COURTNEY: This is Kiana
13 Courtney, and we do.

14 HEARING OFFICER HORTON: Great.
15 Please proceed.

16 MS. COURTNEY: Can you hear me okay?

17 HEARING OFFICER HORTON: Yes.

18 MS. COURTNEY: Good afternoon. My
19 name is Kiana Courtney for the Environmental Law &
20 Policy Center.

21 E X A M I N A T I O N

22 BY MS. COURTNEY:

23 Q. My first question is follow up to
24 Page 2 of your responses Board Question 19 and

1 also same question -- similar question to Page 21
2 our Question 4B, beta.

3 A. Okay.

4 Q. Can there be impacts to groundwater
5 wells outside of impact to potable water wells?

6 A. Are you asking a theoretical
7 question if there can be impacts to groundwater
8 monitoring wells?

9 Q. So your answer mentions that as
10 discussed in Melinda Hahn's testimony we do not
11 believe any potable water wells exist whereas the
12 question was about any groundwater impacts.

13 So my follow-up question is that
14 can there be impacts to groundwater outside of
15 just impacts to what you see in a potable water
16 well?

17 A. Sorry. We're having some technical
18 difficulties. We can't hear you. Just hang on
19 one second.

20 MR. MORE: I'm sorry. We're still
21 having some audio problems on our end. If you
22 would just give us a couple minutes, we're
23 bringing in an IT person to help.

24 HEARING OFFICER HORTON: Okay.

1 Mr. More, are all your witnesses in that room with
2 you?

3 BY THE WITNESS:

4 A. I think we are good to go. If you
5 could please repeat the question.

6 MS. COURTNEY:

7 Q. Can you hear me now?

8 A. Yes.

9 Q. Okay. So the question -- the
10 question and answer -- the question was about
11 impact to groundwater and your answer stated that
12 "We do not believe any potable water wells are at
13 risk."

14 So my question is, can there be
15 impact to groundwater outside of those impacts to
16 potable water wells?

17 A. And I'll ask the follow-up question
18 to you just to clarify.

19 Are you talking about is
20 there -- hypothetically speaking, is that your
21 question?

22 Q. It can be hypothetically speaking.
23 I'm not asking specifically about a -- about the
24 Joppa impoundment for the Joppa site. I'm trying

1 to clarify your answer because the -- our question
2 on 21, 4(b) was about groundwater impacts and you
3 just talked about potable water wells.

4 A. Right. And your question was, has
5 there been groundwater monitoring in Joppa West
6 and we did respond, yes, there have been
7 groundwater monitoring conducted in Joppa West.

8 HEARING OFFICER HORTON: Can you
9 repeat your answer, Ms. Vodopivec, for the court
10 reporter.

11 BY THE WITNESS:

12 A. I'm sorry. I said that the question
13 that was posed was --

14 HEARING OFFICER HORTON: Ms.
15 Vodopivec, sorry, this is Vanessa Horton again. I
16 think someone in the room at Schiff is, perhaps,
17 seated right next to the microphone and flipping
18 pages. It's hard for our court reporter to hear
19 over that.

20 MS. DIERS: I think it's somebody
21 else.

22 HEARING OFFICER HORTON: All right.
23 Sorry about that.

24 Ms. Vodopivec, could you repeat

1 your answer again. Sorry.

2 THE WITNESS: Okay. I'm sorry. Can
3 you hear me now?

4 HEARING OFFICER HORTON: Yes.

5 BY THE WITNESS:

6 A. Okay. Great. So my response was
7 the question that was posed in 4B was, has there
8 been groundwater monitoring done at Joppa West and
9 we did respond that, yes, groundwater monitoring
10 was performed from 2010 to 2013.

11 BY MS. COURTNEY:

12 Q. Thank you. So my question is also
13 about Board Question 19. This question refers to
14 both of them.

15 In Board Question 19, the Board
16 asks "Is Dynegy aware of any groundwater impacts
17 of Joppa West?" So can there be impacts to
18 groundwater outside of those potable impacts to
19 potable water wells as mentioned by Melinda Hahn?

20 A. So, yeah, I mean, hypothetically,
21 yes, you could have groundwater impacts.

22 Q. And groundwater should be protected
23 for more than just potable use, correct?

24 A. I'm not sure -- I'm not sure how to

1 answer that depending on what the regulation is.

2 Q. Okay. My next question is follow up
3 to IEPA Question 5E, which is on Page 5 of your
4 responses.

5 So your answer stated that "I
6 cannot speculate as to the subsurface conditions
7 of the Joppa West Ash Pond over the past 50 or
8 more years."

9 My question is, are you aware of
10 how Dynegy would make this determination?

11 A. I'm not specifically aware of the
12 impact. I'd have to talk to our consultants and
13 our technical experts.

14 Q. My next question is related to
15 Question 13 by IEPA on Page 11.

16 Your answer proposes to amend
17 proposed Section 845.210. How recent would that
18 groundwater monitoring data be?

19 A. What we are proposing here is to,
20 you know, insert groundwater monitoring data. I'm
21 not sure that we're putting any bounds around
22 that. It's available data that we have.

23 Q. So it could be from any time?

24 A. I think it would be specific to the

1 site, depending on the site.

2 Q. By this proposal, are you -- I had
3 some feedback.

4 By this proposal, are you
5 suggesting that a previously completed water --
6 groundwater monitoring well system could be used
7 even if it does not meet the requirements of Part
8 845, Subpart F?

9 A. I think you may be able to use
10 portions of the groundwater monitoring program.
11 Clearly, it'd still have to meet the requirements
12 of 845 --

13 Q. I'm sorry. You cut out. Can you
14 repeat that answer?

15 A. I said you may be able to use
16 portions of the groundwater monitoring program to
17 give you some data. Clearly, we would have to
18 conform with the requirements of 845 for the
19 groundwater monitoring system.

20 Q. Okay. Next question is related to
21 page -- follow-up on Page 22 of your responses and
22 it would be 5C. This is the environmental group's
23 questions.

24 So the question asked about

1 analyzing the benefits to health and the
2 environment. You stated in your -- you also
3 stated in your testimony, which is Exhibit 21 on
4 Page 11 if you want to turn to that, too, so you
5 have it.

6 A. Okay.

7 Q. The Board should, therefore, accept
8 the more restrictive requirements that IEPA has
9 proposed only where clear evidence has been
10 presented that such requirements will lead to
11 meaningful environmental benefit.

12 If Dynegy has not, as indicated
13 in your answer, analyzed the benefits of
14 additional requirements, then how does Dynegy know
15 the additional measures are not meaningful?

16 A. So we have our -- if you look at
17 some of our testimony by our expert witnesses,
18 there are portions that they focus on that show
19 there are no benefits to -- to more restrictive
20 measures and those are specifically outlined in
21 our expert witness testimony.

22 Q. Next question is Page 19 of your
23 responses 1D. D as in dog.

24 A. Okay. I'm there.

1 Q. The question asks about missing any
2 scrubber sludge with bottom ash or coal ash in any
3 of its impoundments and your answer stated "That
4 information varies by site. Some CCR surface
5 impoundments at Dynegy's facilities may contain
6 bi-products from air pollution control devices."

7 To clarify, there are -- there
8 are Dynegy facilities that do contain bi-products
9 from air pollution control devices, correct?

10 A. That's correct.

11 Q. And, to clarify, Dynegy has at least
12 one site mix -- has had at least one site mix any
13 scrubber sludge with bottom ash or coal ash in any
14 of its impoundments, correct?

15 A. I'm not -- I'm not a hundred percent
16 sure about that. I said, you know, it may contain
17 bi-product from air pollution control devices.
18 I'd have to go back to our sites and verify
19 exactly for each of our sites.

20 Q. So your answer said that it varies
21 site by site.

22 So does that mean that there are
23 none or there are some?

24 A. It means that we believe there is

1 some. I can't -- at this point in time, I can't
2 point you to which ponds.

3 Q. Okay. Next question same Page 1E,
4 as in elephant.

5 When did the most recent use of
6 DSI, so that's dry sorbent injection, begin?

7 A. Most recent, I don't have a year off
8 the top of my head. Within the past -- within the
9 past couple years.

10 Q. And do you know when the first use
11 of DSI was used?

12 A. I don't know when the first use of
13 DSI was used.

14 Q. And to clarify your answer, when you
15 say site, do you mean by coal plant or by the
16 impoundment?

17 A. Coal plant.

18 Q. Okay. Would it also vary by
19 impoundment?

20 A. Would what vary by impoundment, the
21 use of DSI?

22 Q. I'm sorry. Within the -- actually,
23 I'll strike that question. Next question.

24 To clarify, there are

1 **impoundments at Dynegy sites that contain both CCR**
2 **that predates the use of DSI as well as CCR**
3 **generated after DSI use began, correct?**

4 A. That's correct.

5 MS. COURTNEY: Okay. That is it for
6 my questions, but I reserve the right to ask
7 follow-ups.

8 HEARING OFFICER HORTON: Okay.
9 Thank you. We'll move on to Midwest Generation.

10 Ms. Gale, do you have any
11 questions for this witness?

12 MS. GALE: I have no questions for
13 this witness. Thank you.

14 HEARING OFFICER HORTON: Okay.
15 Thank you.

16 City of Springfield,
17 Ms. Williams, do you have any questions for this
18 witness?

19 MS. WILLIAMS: No questions. Thank
20 you.

21 HEARING OFFICER HORTON: Okay.
22 Ms. Brown, any questions?

23 MS. BROWN: No questions for this
24 witness.

1 HEARING OFFICER HORTON: Okay.

2 Ms. Manning, any questions?

3 MS. MANNING: No questions for this
4 witness. Thank you.

5 HEARING OFFICER HORTON: Okay.

6 Mr. Sylvester, any questions?

7 MR. ARMSTRONG: Andrew Armstrong.

8 We have no questions for the witness.

9 HEARING OFFICER HORTON: Okay.

10 Thank you.

11 And, Mr. Rao, any questions for
12 this witness?

13 MR. RAO: No questions for this
14 witness. Thanks.

15 HEARING OFFICER HORTON: Okay. Any
16 follow-up questions for Ms. Vodopivec?

17 MS. DIERS: This is Ms. Diers. I
18 just have a couple follow-ups.

19 HEARING OFFICER HORTON: Okay.
20 Please proceed.

21 E X A M I N A T I O N

22 BY MS. DIERS:

23 Q. Do you analyze for chemical
24 composition of CCR to ensure compliance with OSHA

1 **worker safety regulations, specifically regarding**
2 **silica?**

3 A. I believe we do. I have to check
4 with our certified safety professional to see
5 exactly, but, yes, I believe we do.

6 Q. My last question is I'm going to go
7 to Page 21 of your responses and look at 4C, as in
8 cat, and we were asking what were the results of
9 the groundwater monitoring. I'm not sure if you
10 answered or not. So I just wanted to follow up on
11 that.

12 A. I don't have a copy of the report in
13 front of me. I know we did submit that report to
14 Illinois EPA back in the 2013 timeframe.

15 MS. DIERS: All right. We have no
16 further questions.

17 HEARING OFFICER HORTON: Okay.
18 Thank you. Are there any other follow-up
19 questions for Ms. Vodopivec?

20 Okay. With that, we will
21 dismiss you, Ms. Vodopivec, and move to Lisa
22 Bradley.

23 Are you in the office there at
24 Schiff or online?

1 MS. BRADLEY: I'm online. I'm at my
2 home.

3 HEARING OFFICER HORTON: Okay.
4 Would the court reporter please swear in this
5 witness.

6 WHEREUPON:

7 LISA BRADLEY
8 called as a witness herein, having been first duly
9 sworn, deposeth and saith as follows:

10 HEARING OFFICER HORTON: Okay. So,
11 Mr. More, would you like to have Ms. Bradley's
12 pre-filed testimony entered in as an exhibit?

13 MR. MORE: I would.

14 HEARING OFFICER HORTON: Okay. That
15 will be Exhibit 23.

16 (Document marked as Hearing
17 Exhibit No. 23 for
18 identification.)

19 HEARING OFFICER HORTON: Then would
20 you like Ms. Bradley's pre-filed answers entered
21 as an exhibit?

22 MR. MORE: Yes, I would.

23 HEARING OFFICER HORTON: Okay. That
24 will be Exhibit 24.

1 (Document marked as Hearing
2 Exhibit No. 24 for
3 identification.)

4 MR. MORE: I would also like to move
5 to have entered into the record as Exhibit 25
6 Ms. Bradley's Power Point presentation, her
7 summary, which is Exhibit -- Attachment A to our
8 exhibits submitted and filed yesterday.

9 HEARING OFFICER HORTON: So
10 Attachment A to yesterday's filed exhibit?

11 MR. MORE: Correct. Thank you.
12 Okay. That will be Exhibit 25.

13 (Document marked as Hearing
14 Exhibit No. 25 for
15 identification.)

16 MS. DIERS: Okay. Ms. Bradley, do
17 you have an opening statement or summary you'd
18 like to present?

19 MS. BRADLEY: I'm working off the
20 slide. Thank you. I appreciate the opportunity
21 to testify today. On my second slide is a summary
22 of my qualification and experience. I'm a
23 toxicologist and risk assessor with a Ph.D. in
24 toxicology from MIT and I'm an expert on coal

1 combustion residuals.

2 My third slide is a summary of
3 the opinions that were provided on my testimony
4 and today I will focus on Opinion's 2 through 5.
5 On Slide 4, my first opinion, is that because
6 proposed Part 845 is patterned on the federal CCR
7 rule, this conservative and overly protective
8 proposed Part 845 is also conservative and overly
9 protective.

10 The next slide, 5, the federal
11 CCR rule was based on the national risk assessment
12 of CCR disposal units that identify only one
13 scenario of the risk driver, the 90th percentile
14 risk for drinking water ingestion for surface
15 impoundment based on poor constituents. However,
16 the federal regulation must be on that single
17 scenario and, thus, be constituents and regulated
18 a broader range of disposal practices and longer
19 risk constituents.

20 The CCR Risk Assessment was
21 comprehensive in that it evaluated the full range
22 of potential exposures to CCR at a surface
23 impoundment and those are summarized in the slide
24 on the left. One reason for a conservative CCR

1 assumption is that when the CCR was published it
2 was not enforceable through a permit program.

3 Therefore, EPA developed the
4 regulations to apply to all settings nationally
5 and be protective of a worst-case scenario. This
6 lead to the national CCR Risk Assessment being
7 constructed to be conservative and inclusive of a
8 wide wage of environmental situations.

9 Based on this, there is no
10 risk-based reason for the Board to go beyond the
11 federal regulations in the scope of Part 845.
12 This won't necessarily provide any additional
13 health protectiveness.

14 My next opinion is on Slide 6, a
15 single exceedance of a groundwater protection
16 standard during groundwater monitoring should not
17 result in the initiation of corrective action
18 under proposed Part 845.

19 On Slide 7, Part 845 is
20 patterned on the federal CCR rule, they're
21 instructive to compare the two on this point.
22 Under the federal CCR rule, an exceedance of a
23 groundwater protection standard is determined
24 statistically to take into account variability of

1 groundwater concentrations. By contrast, Part 845
2 is proposing to use a single confirmed result to
3 define an exceedance of a groundwater protection
4 standard.

5 However, like Part -- like the
6 CCR rule, Part 845 does use specifics to define a
7 significant level of a background. The Board
8 regulations governing landfills in Part 811 uses a
9 statistical approach to identify a groundwater
10 exceedance for landfill, the same as the federal
11 CCR rule. This statistical approach for
12 identifying an exceedance of a groundwater
13 protection standard should be applied to CCR
14 surface impoundments as well under Part 845.

15 I'm going to skip Slide 8 and 9
16 out of consideration for time. On Slide 10 is my
17 fifth opinion that CCR units that are capped or
18 otherwise maintained and units that receive only
19 de minimis amounts of CCR do not present a risk
20 warranting regulations. Imposing requirements
21 upon such use, even on Part 845, goes beyond the
22 federal CCR rule and is unnecessary and
23 unsupported.

24 On Slide 11, with respect to

1 capped or otherwise maintained, the federal CCR
2 rule requires that all CCR surface impoundments
3 that contain CCR and liquids as of October 15th,
4 2015, must comply with the rules requirement.

5 U.S. EPA's position on what constitutes a
6 regulated surface impoundment is consistent with
7 the CCR Risk Assessment. The risk assessment
8 demonstrates that only an impoundment with a
9 significant amount of CCR with liquid creating a
10 hydraulic head produces a risk scenario that is
11 above a regulatory target.

12 U.S. EPA did not propose to
13 require closed surface impoundments to reclose and
14 that's actually a quote from them in the preamble.
15 With respect to units that contain liquids and de
16 minimis amounts of CCR, U.S. EPA identified
17 examples of ponds that would be excluded as de
18 minimis ponds such as cooling water and processed
19 water ponds.

20 U.S. EPA stated that units
21 containing only truly de minimis levels of CCR are
22 unlikely to prevent the significant risks this
23 rule is intended to address, i.e., impoundments
24 with a significant amount of CCR with liquid

1 creating a hydraulic head. Therefore, both of
2 these same approaches we believe should be
3 included in Part 845.

4 That conclude my introduction
5 and I'm happy to take questions now.

6 HEARING OFFICER HORTON: Okay.
7 Thank you. We will move to IEPA.

8 Do you have any questions for
9 this witness?

10 MS. DIERS: We do not.

11 HEARING OFFICER HORTON: Okay. For
12 the environmental groups, any questions for this
13 witness?

14 MS. LEGGE: Yes, this is Melissa
15 Legge of Earthjustice for Prairie Rivers Network
16 and I have questions for this witness.

17 HEARING OFFICER HORTON: Okay.
18 Please proceed.

19 E X A M I N A T I O N

20 BY MS. LEGGE:

21 **Q. Ms. Bradley, turning first to your**
22 **answer to IEPA's Question 2, which is on Page 7 of**
23 **your pre-filed answers.**

24 A. I'm there.

1 **Q. Okay. You state that Exhibit B of**
2 **your testimony presents the summarized result of**
3 **testing under EU's REACH program. Quote, for the**
4 **purpose of evaluating the materials put into**
5 **commerce, not the risk that may be associated with**
6 **any of its components in other contexts, end**
7 **quote.**

8 **Are you saying that the EU REACH**
9 **studies did not evaluate with -- associated with**
10 **coal ash in the context of storage and**
11 **impoundment?**

12 **A. No, not at all. IEPA's questions**
13 **were -- seemed to me to be focusing on individual**
14 **constituents of coal ash and the coal and their --**
15 **you know, risk assessment in the U.S. we look at**
16 **constituents one by one. The elegance of the**
17 **REACH study is that they looked at the potential**
18 **toxicity of the material as a whole.**

19 **Q. In your response to Question 1L, as**
20 **in Lima, to our questions, you listed the exposure**
21 **pathways that support --**

22 **A. Can I ask you -- can I ask you for**
23 **the page number for that?**

24 **Q. Yes. I believe it's on Page 28.**

1 A. Okay.

2 Q. So in your response here, again
3 that's Question 1L, as in Lima, you listed the
4 exposure pathways that support the following
5 statement in your testimony "When evaluating the
6 material as a whole, there is a wealth of
7 information on the toxicity testing of CCR in
8 mammalian and aquatic species that demonstrates
9 that CCR is not toxic," and the list of pathways
10 that you provide is sustained as the pathways in
11 that REACH study, is that correct?

12 A. That's correct.

13 Q. And oral ingestion of CCR
14 constituents via groundwater is not one of the
15 pathways in the REACH study, correct?

16 A. Correct, the REACH studies were
17 studies on the whole materials. So direct
18 exposure to coal ash.

19 Q. But not -- not leaching via
20 groundwater?

21 A. No, that's not --

22 Q. And yet --

23 A. -- relevant to REACH.

24 Q. Okay. And yet EPA's CCR Risk

1 **Assessment identifies groundwater contamination as**
2 **the main topic of concern for CCR impoundment, is**
3 **that correct?**

4 A. Yes, it is, which is consistent --
5 they screen out many other pathways, including
6 inhalation, direct contact through their risk
7 assessment, the screening steps for their risk
8 assessment. So, yes, they address these pathways
9 in which they screen for the risk assessment.

10 **Q. Following up on your response.**
11 **Turning the page to Page 31 following up on your**
12 **response to Question 2(a)(1), did you review any**
13 **of the studies, the underlying studies, in the**
14 **REACH dossier?**

15 A. No, as I said earlier in my
16 testimony, I did not. I looked at the dossier as
17 a whole.

18 **Q. And, to your knowledge, were any of**
19 **the studies in the REACH dossier peer reviewed?**

20 A. To my knowledge, I do not know if
21 they were peer reviewed or not.

22 **Q. To your knowledge, were any of the**
23 **studies in the REACH dossier reviewed by a**
24 **governmental entity?**

1 A. Yes, the entire dossier, REACH
2 dossier, to be submitted with an entry number has
3 to be reviewed by ECA, European Chemical
4 Administration or Association, I don't remember
5 which one it is, but ECA has to review the
6 dossiers and approve them before they become
7 published.

8 **Q. Is that a governmental agency?**

9 A. Yes, it is an EU agency, European
10 Union.

11 **Q. And in your response to Question 2H**
12 **on the next page, you stated "Based on my**
13 **understanding, the dossier is registered and**
14 **published only after peer review and approval by**
15 **ECHA"?**

16 A. Correct, that's the European
17 Chemical Association.

18 **Q. Mm-hmm. Before you said this, did**
19 **you research whether the European Chemical Agency**
20 **confirmed that dossiers are compliant with all**
21 **REACH testing requirements before the dossier is**
22 **available to the public?**

23 A. That is the goal of ECA's review,
24 yes.

1 **Q. Are you familiar with the conclusion**
2 **of ECA's ten-year review called Evaluation under**
3 REACH: Progress Report 2017?

4 A. You submitted that, I think,
5 yesterday as part of your exhibit. So, yes, I
6 looked at that quickly. I've also looked at more
7 recent ECA updates on the review study.

8 **Q. And I would actually like to turn to**
9 **that document now. It is pre-filed Exhibit 8 of**
10 **ELPC, PRN and Sierra Club's pre-filed exhibits.**

11 HEARING OFFICER HORTON: Exhibit 8?

12 MS. LEGGE: Exhibit 8, yes, I
13 believe.

14 Hearing Officer, can I go ahead
15 and move that into the record?

16 HEARING OFFICER HORTON: Yes. So
17 that will be Exhibit 26. What is the title of the
18 exhibit? Sorry.

19 (Document marked as Hearing
20 Exhibit No. 26 for
21 identification.)

22 MS. LEGGE: It's called ECHA --
23 ECHA's 10 Year Review -- that's not what it's
24 called. It's called Evaluation under REACH:

1 Progress Report 2017.

2 HEARING OFFICER HORTON: Okay.

3 MS. LEGGE: The author is the
4 European Chemical Agency.

5 BY MS. LEGGE:

6 Q. And I'd like to turn to the
7 executive summary Page 6, which is Page 171 of the
8 PDF. Are we all there?

9 So on the last full paragraph of
10 this page, it states "Overall, during the ten
11 years of evaluation, ECHA checked to various
12 degrees the compliance of 1,350, or 7.33 percent,
13 of dossiers in the greater than 1,000 tonnage per
14 annum tonnage ban and 430, or 3.79 percent, of
15 dossiers in the 100 to 1,000 tons per annum
16 tonnage ban. Due to the selection based on
17 screening of suspected data gaps, in the vast
18 majority of the cases, 69 percent and 77 percent
19 respectively, the compliance checks have confirmed
20 one or more non-compliances and resulted in ECHA
21 (draft) decisions."

22 So, in other words, ECHA has
23 checked roughly 5 percent of dossiers for
24 compliance and roughly 70 percent of them have

1 **been found to be non-compliant, is that correct?**

2 A. I don't agree with that conclusion
3 from that paragraph. I think what this progress
4 report is evaluating is kind of part of the
5 continuous improvement program within the ECA and
6 REACH program. So you've got a program that is
7 setup where dossiers are submitted. It's reviewed
8 and checked for compliance and then published or
9 not depending on that review.

10 I think what ECA is doing here
11 is saying, okay, we have a lot of dossiers that
12 have been submitted, we have done a lot of work,
13 let's go back and do a spot check of how we review
14 these -- these dossiers. So I think by the spot
15 check is of 7 -- the 7.33 percent. I don't
16 believe that this paragraph is saying that only
17 7.33 percent of the dossiers greater than 1,000
18 tons per year were ever reviewed. So I think
19 that's a very different process.

20 **Q. What is your basis for saying this**
21 **is part of a continuous improvement process?**

22 A. From my review of this document that
23 you provided and the conclusions that it makes.
24 Continuous improvement process is my own words

1 because that comes up in different blocks, but I
2 think that's helpful -- it's helpful for other
3 people to understand the process.

4 **Q. Do you recognize that the compliance**
5 **checks reveals that there are dossiers that are**
6 **out there that are not compliant with REACH's**
7 **standards and they discover that upon the**
8 **compliance check?**

9 A. I think they targeted certain types
10 of chemicals and, again, I just looked at that
11 part yesterday, but they're targeting chemicals
12 that may have higher levels of toxicity so they
13 can understand with respect to the hazard ranking,
14 has that hazard ranking been completed and they
15 conduct it correctly where there are issues where
16 is it between hazard ranking 2 and 3, which may
17 make a difference in how that chemical is
18 regulated and what kinds of regulations might be
19 needed to -- when that chemical is put into
20 commerce.

21 If you look at the types of
22 studies that they looked at, they were studies
23 that were dealing with -- more with mutations,
24 with teratogenicity, with reproductive toxicity.

1 So constituents that are on that higher end of the
2 spectrum and seeing potentially more hazardous
3 versus, you know, all of the REACH results
4 reported for coal ash and coal material don't even
5 warrant a hazard ranking of 1 where the ranking
6 system is 1 is low, 4 is high. So it's not ranked
7 as to hazards, which I think was summarized in my
8 tables and in my testimony as posing no hazard.

9 **Q. Ms. Bradley, I don't believe you**
10 **answered my question.**

11 **My question was, does the fact**
12 **that compliance reviews are finding non-compliance**
13 **dossiers in 70 percent of the ones they do check**
14 **indicate that some of the documents that are**
15 **publicly available are not compliant with REACH**
16 **standards?**

17 **A.** It does indicate that. I have to
18 say something on coal ash, though. All of the
19 studies that are required have been conducted for
20 coal ash, and none of the results resulted in a
21 hazard classification. Many of the dossiers
22 selected for review were those that did not have a
23 complete data set or were of higher hazard.

24 **Q. All right. And what is your basis**

1 **for that?**

2 A. By looking at the dossier and the
3 completeness of the types of tests that were
4 conducted, the dossier does not make estimations
5 about reproductive toxicity. It actually bases it
6 on reproductive toxicity testing, for example.

7 **Q. So you don't know whether a**
8 **compliance check has been done on the CCR dossier?**

9 A. I don't know. They haven't -- I
10 haven't seen that they have published the
11 constituents that they have done compliance checks
12 on. They have published a set of constituents
13 that they are rolling out into something called
14 the Community rolling action plan, where different
15 components of the EU, different EU states will be
16 reviewing certain of those dossiers, but that is
17 the only list that I've seen that has been
18 published and coal ash is not on that list.

19 **Q. Okay. Moving on to Question 10B of**
20 **IEPA's questions which is on Page 14.**

21 A. I'm there.

22 **Q. In your response to this question,**
23 **you say that you "Maintain that U.S. EPA's risk**
24 **assessment is comprehensive and thorough."**

1 **Do any of the models in EPA's**
2 **CCR Risk Assessment model scenarios where**
3 **groundwater is inundating coal ash?**

4 A. As I state later in answer to one of
5 these questions, the models that they use were
6 unable to model ash that was in the water table,
7 but they looked at results -- or they looked at
8 situations where ash was in communication with the
9 water table.

10 **Q. And the EPA risk assessment used**
11 **models to predict concentrations of coal ash**
12 **constituents in many pathways, including**
13 **groundwater, correct?**

14 A. That's correct.

15 **Q. Have you reviewed the actual**
16 **groundwater monitoring data that have been**
17 **reported from coal plants following implementation**
18 **of the CCR rule, the federal CCR rule?**

19 A. For some plants, yes, I have.

20 **Q. Does your testimony rely just on the**
21 **CCR Risk Assessment and model values or does it**
22 **rely on any of the actual groundwater data?**

23 A. No, I did it totally on my -- on the
24 information that I have on other sites and in

1 other states.

2 **Q. Based on your knowledge, at**
3 **approximately what percentage of coal plants, coal**
4 **ash sites, have exceedances of at least one coal**
5 **ash constituent impound?**

6 A. I don't -- I have not seen what I
7 would call maybe an authoritative review of that.
8 I believe, perhaps, Mr. Rokoff may have discussed
9 that in his testimony and that will be coming up
10 later. The facilities that I'm familiar with --
11 there are -- well, there are instances of
12 groundwater concentrations at CCR monitoring wells
13 above groundwater protection standards.

14 What I have found for the sum
15 total of that monitoring within a single facility
16 maybe 90 percent of the results are compliant with
17 drinking water standards or groundwater protection
18 standards and so although many facilities may have
19 some constituents that are above groundwater
20 protection standards, it's my experience that that
21 percentage of the total amount of groundwater
22 monitoring conducted at that facility is very low.

23 **Q. Let me re-ask the question.**

24 **Are you aware of approximately**

1 **what percent of coal ash sites is there an**
2 **exceedance of at least one coal ash constituent in**
3 **the groundwater?**

4 A. Not specifically I can't give you an
5 answer. I would expect it would be upwards of 80
6 percent, but that's a guess on my part here.

7 Q. At a coal combustion residuals
8 conference hosted by EUCI, did you state that the
9 environmental groups say about 95 percent of sites
10 have an exceedance, but you thought it was kind of
11 cool that 5 percent don't have any exceedances?

12 A. I'm not --

13 MR. MORE: This is Josh More. I'm
14 going to object to this line of questioning. The
15 purposes of this testimony she did not evaluate
16 groundwater monitoring data at this specific site.
17 She is relying just on a risk and, second, you're
18 going beyond the scope of her testimony and
19 follow-up questions related to the written
20 questions.

21 MS. LEGGE: I do believe that it is
22 relevant that her testimony focused on model
23 values and not on data that is reported by the --
24 by the coal industry across the country, that we

1 actually have at this point, but I do believe the
2 questions are relevant.

3 HEARING OFFICER HORTON: I'll
4 sustain the objection.

5 BY MS. LEGGE:

6 Q. I'll move on. In your response to
7 Question 1J, which I believe is on Page 27. Let
8 me know when you're there.

9 A. I am there. Thank you.

10 Q. So the question asks in comparison
11 to the TCLP test says, "The LEAF test evaluates
12 leaching under a wider range of environmental
13 conditions" and you stated essentially, yes,
14 however the test evaluates leaching under a wider
15 range of laboratory conditions.

16 My follow-up question is, aren't
17 the wider range of laboratory conditions meant to
18 reflect a wider range of environmental conditions?

19 A. In some cases, they can. I find
20 that the -- the wide range of pH's that are
21 employed in, I think, it's 13, 14, I get them
22 mixed up, they're the ones that employ the wide
23 range of pH's from 2 to 13 are not necessarily
24 relevant in the environment.

1 The most relevant leaching
2 condition would be which EPA requires in the LEAF
3 testing, the self-pH of the material which is the
4 pH that results if you mix the material with
5 deionized water, at least in the LEAF testing
6 regime. So that's the pH that's going to more
7 accurately represent how that material may behave
8 in the environment.

9 **Q. So the range of pH's, which you**
10 **replied in answer to Question 1E, you stated that**
11 **ECRI reports the range of pH ash in leachate**
12 **samples is 4.3 to 12 with a median range of 7.9.**

13 **Don't the wider range of**
14 **laboratory conditions used on the LEAF test more**
15 **closely approximate this reported range of pH's in**
16 **leachate?**

17 A. That reported range of pH in
18 leachate refers to the pH of that material. So if
19 a self-pH of the material is 10, it doesn't really
20 matter how that might behave under pH conditions
21 of 2 unless one is contemplating the use of that
22 material that would suggest it to a pH of 2, in
23 which case those results might be informative, but
24 if you are really questioning how the material is

1 going to behave in the environment, it's that
2 self-pH or the pH of -- like the TCLP test, the
3 precipitation leaching procedure looks at acid
4 rain which can be somewhere in those pH range of
5 4, but the sheer amount of materials that that
6 acid rain is going through the result is going to
7 be much closer to the self-pH of the material.

8 So although ash can exhibit a
9 wide range of pH's pH 2 -- or as here pH 4.3 is
10 really only relevant to that ash that adding
11 self-pH is 4.3.

12 **Q. So would you agree that the LEAF**
13 **test is more likely to approximate the conditions**
14 **in leachate -- coal ash leachate than the TCLP?**

15 A. Can you restate that, please?

16 **Q. Wider range of pH's in the LEAF's**
17 **test were -- isn't more likely to represent the**
18 **range of pH values in coal ash leachate samples**
19 **than in the TCLP?**

20 A. I'm going back to the answer I just
21 gave you. That wide range of pH conditions in
22 LEAF I don't think is relevant as to how the
23 material behaves in the environment. It's the
24 self-pH that is important and EPA says in the LEAF

1 testing protocol that if the self-pH is not
2 included in the specific page increments that are
3 included in the LEAF testing protocol, then we
4 need to add an extra leachate sample at that
5 self-pH. So that's the LEAF testing. I really
6 think it's the self-pH that is most -- those
7 results are most predictive of how coal ash may
8 behave in the environment.

9 TCLP is a different test. It
10 was developed by EPA to specifically evaluate
11 whether a material, any material, not just coal
12 ash, is suitable for disposal in a municipal waste
13 landfill or Subtitle D landfill, and municipal
14 waste landfills have a wide range of materials
15 that go into them and based on EPA's review of
16 leachate generally from municipal waste landfills
17 they found that the pH used in the TCLP test,
18 which was somewhere in the low 4 range, is more
19 consistent with the kind of leachate that you see
20 in a municipal solid waste landfill.

21 So that test was specifically
22 designed to say, okay, if you're going to put your
23 material in a solid waste landfill, how is it
24 going to behave in that environment of that

1 landfill with a pH of 4 something and they use
2 acidic acid in that test because it's more
3 representative of the type of acid you find in a
4 municipal waste landfill.

5 For the TCLP test, it's
6 specifically a regulatory test to let you know can
7 you dispose of the material in a solid waste
8 landfill or can you dispose of the waste in a
9 hazardous waste landfill.

10 Q. I'm not sure --

11 A. So it's the --

12 Q. -- what you're --

13 A. -- behavior in the environment.

14 Q. Okay. So results using the TCLP
15 test do not predict the behavior in the
16 environment?

17 A. I'm not saying it doesn't predict.
18 If you want the best predictor of behavior in the
19 environment, you'll do a leaching test at the
20 self-pH of the material, of any material.

21 Q. Okay. In response to IEPA Exhibit
22 17, which is on Page 19 of your pre-filed answers,
23 your response is on Page 19. The question is on
24 Page 18 -- the question is 17, correct?

1 A. Yes.

2 Q. Okay. The question asks about
3 studies related to inhalation exposure and your
4 response states, "The U.S. EPA CCR Risk Assessment
5 focused on the leaching to groundwater pathway.
6 The direct contact pathway in the CCR, including
7 ingestion and inhalation, were eliminated in U.S.
8 EPA's screening process after conducting a
9 conservative screening risk assessment for the
10 pathways listed on Page 18 and 19. U.S. EPA's CCR
11 Risk Assessment focused on the groundwater
12 pathway. U.S. EPA's screen risk assessment
13 determined that the other pathways are not of
14 concern."

15 At this point, I'd like to refer
16 to ELPC, PRN and Sierra Club's pre-filed Exhibit 9
17 which is that excerpt of the 2014 CCR Risk
18 Assessment.

19 MR. MORE: This is Josh More. Just
20 because the examiner purported to read the entire
21 response into the record, I just want the record
22 to note Ms. Legge only read a portion of
23 Ms. Bradley's response to question -- IEPA
24 Question 17 on Page 19.

1 HEARING OFFICER HORTON: Noted.

2 MS. LEGGE: I didn't realize that.
3 I missed that instruction. I apologize. Is that
4 the case? Some of these answers are quite
5 lengthy.

6 Is it the case that you would
7 always prefer the whole answer be read?

8 HEARING OFFICER HORTON: This is
9 Vanessa Horton. Go ahead, Mr. More.

10 MR. MORE: I was going to say it
11 depends how you represent what you're reading into
12 the record. In this instance, I believe you
13 represented that you were reading her response
14 which would leave one reading the record to
15 believe you read the entire response and you only
16 read a portion of the response into the record.

17 MS. LEGGE: Right, I read the
18 beginning of the responses.

19 MR. MORE: Correct.

20 HEARING OFFICER HORTON: This is
21 Vanessa Horton.

22 Were you intending to enter
23 Exhibit 9 into evidence?

24 MS. LEGGE: Yes.

1 (Document marked as Hearing
2 Exhibit No. 27 for
3 identification.)

4 HEARING OFFICER HORTON: Okay. That
5 will be Exhibit 27 and that's entitled Payment and
6 Ecological Risk Assessments of Coal Combustion
7 Residuals.

8 BY MS. LEGGE:

9 Q. Yes, and it's an excerpt, the
10 executive summary in Chapter 3.

11 So turning to Section 3.5.1,
12 which is on Page 3-24, which is Page 285 of the
13 PDF.

14 A. Okay. Sorry. Go ahead.

15 Q. What is page -- what is this
16 document 3-24?

17 A. Yes.

18 Q. So in the middle of that paragraph,
19 it reads -- one sentence of the paragraph it
20 states "Under the control management -- under the
21 uncontrolled management scenario, concentrations
22 of arsenic were found to pose acute risk, and PM
23 2.5 was found to exceed the 24-hour max."

24 This exact passage is actually

1 **quoted in your pre-filed response to IEPA Question**
2 **10E.**

3 **So based on the statement EPA**
4 **actually determined that without fugitive dust**
5 **control the NAC could be exceeded and there would**
6 **be an acute risk from concentration of arsenic,**
7 **correct?**

8 A. That's what that sentence says. I
9 believe the acute risk for arsenic and then to go
10 back to that, because context is important.
11 Higher or lower doesn't tell the full story - the
12 predicted arsenic concentration in the
13 uncontrolled scenario is only two times the
14 24-hour standard for PM 2.5, and only two times
15 the acute regulatory target. All of the predicted
16 cancer and noncancer risks for both the
17 uncontrolled and controlled scenarios were below
18 regulatory targets.

19 **Q. And are you reading from somewhere**
20 **in this document?**

21 A. Yes, those are the results that are
22 on Page 3-10 of the document, Table 3-4, and then
23 Table 3-2 on the previous -- no, Table 3-4 --
24 Table 3-4 -- 3-2, sorry, on Page 37 the acute

1 inhalation risk for arsenic, again, which is for
2 that 24-hour averaging time was 2 versus a
3 regulatory target of 1. So those are the only two
4 results of the inhalation analysis that were above
5 a regulatory target. I think it's really
6 important here to understand the context of this
7 analysis.

8 EPA says in my response to
9 Question 10B or 11 -- 10B that they use a landfill
10 scenario to evaluate the inhalation pathway and
11 they state that that's obviously very conservative
12 for a surface impoundment because a surface
13 impoundment has, by definition, liquids in it.

14 So to what extent that there
15 might be some dry material associated with -- or
16 the impoundment was very conservative for EPA to
17 just devalue a landfill scenario. The landfill
18 scenario looked at vehicular traffic and
19 bulldozing materials and loading and unloading of
20 materials and there are standard emission factors
21 associated with those materials and EPA added
22 those all together.

23 So very conservatively assuming
24 that all of these activities are occurring at the

1 same time at a landfill and then applied their
2 dispersion, deposition models to those emission
3 factors and compare the results in air
4 concentration either one hour or two averages or
5 longer term averages to reference concentrations
6 or an acute toxicity values for inhalation.

7 By doing that direct comparison
8 to those toxicity values, you're also assuming
9 that the receptor locations that EPA modeled that
10 someone is breathing that dust, the CCR derived
11 dust, in the air 24 hours a day. So that is
12 what -- that is what really serves as a basis for
13 the conservatism on the pathway and the fact that
14 even under those conditions it was really only two
15 scenarios in an acute timeframe for the
16 uncontrolled dust management scenario.

17 I think it's actually good news
18 for concerns about inhalation with CCR. Under the
19 controlled scenario, the EPA is requiring under
20 their rules that none of the inhalation pathway
21 results were above regulatory targets.

22 **Q. So returning to EPA's Ambient Air**
23 **Conclusions, which is the title of Section 3.5.1,**
24 **EPA did find acute risk from concentrations of**

1 **arsenic and exceedances of the NAC in an**
2 **uncontrolled management scenario and the risk only**
3 **fell below selected criteria in a controlled**
4 **management scenario, is that correct?**

5 A. Right. EPA specifically says in
6 that paragraph even with the conservative
7 assumptions used here, risk fell below the
8 selected criteria when dust controls were
9 considered. Thus, these screening results in
10 total are sufficient -- in total was my word --
11 are sufficient to characterize high-end risks for
12 this pathway that controls are required to be
13 considered protective.

14 **Q. But only with the application of**
15 **fugitive dust control?**

16 A. If the application is controlled,
17 yes. Again, I would just like to point out that
18 EPA modeling and source terms for this screen
19 level evaluation were very conservative and it's
20 unlikely that I would suggest in the real world
21 that all of those conservative exposure
22 assumptions would occur at the same time.

23 So I think it would be unlikely
24 to see those two single exceedances of risk

1 targets in the real world, which is my
2 professional opinion from my experience in this
3 capacity as a toxicologist.

4 Q. Thank you. In your response to our
5 Question 4B on Page 34 --

6 A. Okay.

7 Q. 4B.

8 A. B as in boy?

9 Q. I think I am on the wrong page. I
10 think it's 33, not 34.

11 A. It's 4B as in boy?

12 Q. Yes.

13 A. Okay.

14 Q. And the response begins on Page 34,
15 but the question is on Page 33.

16 A. Okay.

17 Q. The last sentence of your response
18 states "Note that EPA is obviously aware of 40 CFR
19 261 and its CCR rulemaking process and nonetheless
20 determined that coal ash was appropriately
21 regulated as a solid waste under Subtitle D, not
22 as a hazardous waste under Subtitle C of the
23 draft." You also state in response to Question
24 12B that you're aware of the Bevill Amendment,

1 correct?

2 A. Yes.

3 Q. And the Bevill Amendment details
4 EPA's determination about whether or not to
5 regulate assessments under Subtitle C, is that --
6 is that consistent with your understanding?

7 A. I'm sorry. Can you repeat the
8 question?

9 Q. The Bevill Amendment is related to
10 EPA making a determination that whether or not a
11 substance should be regulated under Subtitle C of
12 RCRA?

13 A. No, I don't think that's stated
14 quite correctly. EPA said in the preamble to the
15 rule that -- actually, let's step back a minute.
16 The Bevill Amendment was stated that EPA needed to
17 do an evaluation of coal ash before it could
18 classify it as either a solid waste under Subtitle
19 D of RCRA or as a hazardous waste under Subtitle C
20 of RCRA.

21 And so that -- until EPA did any
22 additional rulemaking exempted coal consumption
23 residual from regulation. EPA, then in 2014,
24 published their final rule and they did say, and

1 this is my response to your Question 12D, that EPA
2 is deferring its final decision on the Bevill
3 regulatory determination because of regulatory and
4 technical uncertainties that cannot be resolved at
5 this time.

6 This rule defers a final Bevill
7 regulatory determination with respect to CCR that
8 is disposed in CCR landfills and CCR surface
9 impoundments until additional information is
10 available on a number of key technical and
11 policy questions. This includes information
12 needed to quantify the risks of CCR disposal, and
13 the potential impacts of recent Agency regulations
14 on the chemical composition of CCR. The Agency
15 also needs further information on the adequacy of
16 the state programs

17 So EPA designed the rule. It
18 is requiring additional investigation of CCR
19 disposal sites and EPA deferred its final action
20 on the Bevill Amendment or final decision pending
21 the result. So they could also see the result of
22 the monitoring that they're requiring in the rule.

23 **Q. And the passage you just read from**
24 **EPA is from the preamble for the 2014 to 2015**

1 rule?

2 A. Correct, and that -- the specific
3 references are in that paragraph that I just read.

4 Q. Following up on our Question 8,
5 which is on Page 40.

6 A. Okay. I'm there.

7 Q. This question referred to the
8 statement in your testimony -- on Page 12 of your
9 testimony "Only the upper end of the range of the
10 measured concentrations of five constituents in
11 the coal ashes studied are above the residential
12 soil screening level in some but not all of the
13 coal ashes: Arsenic, chromium, cobalt, thallium,
14 and vanadium. Moreover, these concentrations are
15 only slightly above the screening levels.

16 HEARING OFFICER HORTON: Ms. Legge,
17 this is Vanessa Horton. Could you possibly read
18 that again slower for us.

19 MS. LEGGE: Sure. Sure.

20 BY MS. LEGGE:

21 Q. And this is from Ms. Bradley's
22 testimony on Page 12 "Only the upper end of the?
23 Range of the measured concentrations of five
24 constituents in the coal ashes studied are above

1 the residential soil screening level in some but
2 not all of the coal ashes: Arsenic, chromium,
3 cobalt, thallium, and vanadium. Moreover, these
4 concentrations are only slightly above the
5 screening levels."

6 In your answer to Question 8C,
7 you state that you are aware of the arsenic CCR in
8 fill in the Town of Pines at 340 mg/kg, correct?

9 A. Correct.

10 Q. And your answer to Subpart C states
11 that the level associated with a one-in-a-million
12 cancer risk is 0.68 mg/kg, correct?

13 A. Correct.

14 Q. To your knowledge, does IEPA --

15 A. Go ahead.

16 Q. To your knowledge, does IEPA use the
17 one-in-a-million target cancer risk?

18 A. Yes, to point what you brought up,
19 EPA -- IEPA does use the target cancer risk of
20 one-in-a-million in developing their groundwater
21 standards and in their TACO program (Tiered
22 Approach to Corrective Actions) for the screening
23 levels that they have in that program.

24 However, IEPA does, under their

1 mixtures rule, look at the combination of
2 constituents in the risk assessment and they work
3 with a risk range of one-in-a-million to
4 one-in-ten-thousand. So in my response to your
5 Question 8D, I provide the soil screening level at
6 each of the three target risk levels;
7 one-in-a-million, one-in-one-hundred-thousand,
8 one-in-ten-thousand and then on cancer screening
9 level.

10 It's important to keep in mind
11 that the tipping -- the use screening levels are
12 very conservatively derived and the toxicity
13 values are conservatively derived. So a risk
14 result above -- even above one-in-ten-thousand
15 does not necessarily mean that harm will occur and
16 we -- this is a very conservative risk range that
17 we work with in the regulatory world, the
18 one-in-a-million to one-in-ten-thousand.

19 The background cancer rate in
20 the U.S., which is published annually by the
21 American Cancer Society, is between one-in-two and
22 one-in-three for men and so this is -- we are
23 regulating -- in our world of regulatory risk
24 assessment and environmental regulations, we are

1 regulating potential carcinogens at levels that
2 are orders of magnitude lower than the background
3 cancer risks that we experience and I think those
4 are very important considerations to keep in mind
5 when looking at such data.

6 Q. But the levels used by IEPA in its
7 cancer screening, in its regulation, as you say,
8 are between one-in-a-million and
9 one-in-ten-thousand cancer risk level and the
10 one-in-ten-thousand cancer risk level you cite in
11 your testimony for arsenic and soil is 68 mg/kg?

12 A. Correct.

13 Q. And wouldn't you say that 340 mg/kg
14 is only slightly higher than 68?

15 A. That specific result of three or
16 four points higher is not an order of magnitude
17 necessarily higher. This is not data that I was
18 referring to in the previous analysis that I had
19 done with coal ash.

20 Q. So Question 11 of our questions,
21 turning to Question 11B, which is on Page 42, we
22 asked "Has U.S. EPA defined a safe level of
23 exposure to lead" and your answer cited EPA's
24 risk-based screening level for lead in residential

1 soil about which EPA states, and you're quoted in
2 your answer here, "It appears that some of these
3 effects, particularly changes in the levels of
4 certain blood enzymes and in aspects of children's
5 neurobehavioral development, may occur at blood
6 lead levels so low as to be essentially without a
7 threshold."

8 So by EPA's words the risk-based
9 screening level you cited has not been determined
10 to be a safe level, is that correct?

11 A. The EPA's use of the risk-based
12 screening level 400 mg/kg for lead in lead sites
13 across the U.S. and they're doing that in Region V
14 as well. So remediation is being conducted at
15 lead sites to 400 mg/kg. So I would say, yes,
16 that's considered to be a safe level. Our
17 understanding about lead changes over time, but
18 given the uncertainty this is still the number the
19 EPA is using in the regulatory risk world.

20 Q. But EPA has not determined this to
21 be, quote, safe, have they?

22 A. When you asked this question, I
23 actually did some searching to see if I can find
24 where does it say there is an unsafe level and I

1 could not find that kind of language from EPA to
2 be able to answer that question.

3 **Q. What is --**

4 A. So I'm giving you the context of
5 EPA's residential soil screening levels for lead
6 as they apply at sites across the nation of 400
7 mg/kg and based on their use of it and their
8 communications with public, it's considered to be
9 a safe level.

10 **Q. What is the maximum contaminant**
11 **level goal for lead in drinking water?**

12 A. For lead? Well, lead doesn't have
13 an MCL. Lead has something that's called a
14 treatment technology action level or TTAL. It's
15 listed with the MCL's in the MCL's publication,
16 but there's a footnote to it.

17 And for that, for the 15 µg/L of
18 lead in drinking water that number applies at the
19 tap. So when you take the water out of your tap.
20 And they do that because historically we have
21 copper pipes and lead solder. So despite what
22 water quality may be coming out of a municipal
23 water surface plan as being distributed to people
24 serviced by municipal water, lead can be

1 introduced to that water and especially in older
2 homes.

3 So because of the presence of
4 lead solder that treatment technology action level
5 applies at the tap when you turn the tap on and
6 take a glass of water. I can look here and see if
7 there is an MCL key for lead, but I'm just -- no.
8 They do have an MCLG, which they say is 0.

9 Q. Turning now to your response to CWLP
10 Question 1.

11 A. What is that?

12 Q. City Water. It's on Page 24.
13 Sorry. I should have defined the acronym City
14 Water, Light and Power.

15 A. I use a lot of acronyms in risk
16 assessment, but that hasn't been one of them yet.

17 Q. So --

18 A. Go ahead.

19 Q. Okay. Great. So in Question 1,
20 they ask you about boron and you state -- it's an
21 excerpt from your answer. You state "Direct
22 contact with boron in coal ash does not pose a
23 risk to human health."

24 When you say that, did you

1 include pathways of exposure such as leaching into
2 groundwater? Does the statement "direct contact
3 with boron" characterize leaching into --

4 A. No.

5 Q. -- drinking water?

6 A. No. So in the world of risk
7 assessment, direct contact is different than
8 drinking water contact.

9 Q. Turning back to U.S. EPA CCR Risk
10 Assessment on Page 3-20, which is Page 281 for
11 those on the PDF. It's Table 3-8. Let me know
12 when you're there.

13 A. I'm there.

14 Q. Does this table identify boron
15 having a risk to human health resulting from
16 groundwater and fish ingestion, to support
17 groundwater ingestion?

18 A. Yes, for groundwater ingestion.
19 Table 3-8 -- this isn't a screening analysis that
20 EPA did. Table 3-8 is the result of the screening
21 analysis. So this is where EPA used -- did a
22 point estimate risk assessment, did not do this
23 prior to the full probabilistic risk assessment
24 and it was these results based on the very

1 conservative screening risk assessment, 90th
2 percentile point estimates.

3 Constituent concentrations and
4 exposure parameters that's what these results are.
5 So these are results -- these results in Table 3-8
6 that EPA used to then go on and develop the more
7 detailed risk assessment for the drinking water
8 pathway. So this is a screening level risk
9 result. This is not a final risk result from the
10 full risk assessment.

11 **Q. But it does state that the result**
12 **for boron indicates a non-cancer human health risk**
13 **gives you groundwater ingestion with the boron?**

14 A. It does have a screening result. It
15 does -- no one in the risk world would use this to
16 represent that there is a potential risk at that
17 level under the conditions assumed of its risk
18 assessment. What this tells you is step one.
19 Okay. What can I screen out that I don't need to
20 look at and everything that is below one in this
21 table one can -- and EPA discusses this, too.

22 One can confidently screen that
23 out as a risk assessment. What these results say
24 is that not that there is really a risk for these

1 constituents when the screening result is above
2 one. It means we need to look at this in more
3 detail and that's what EPA did. They then moved
4 to the probabilistic risk concept. So that
5 concept is very important to that number 10.

6 **Q. Shouldn't EPA in its 2018 Phase 1**
7 **proposal find that boron had health risks for both**
8 **humans and ecological risks?**

9 A. EPA is considering including boron
10 on Appendix 4. Right now, it's on Appendix 3.
11 EPA has toxicity values for boron. The risk-based
12 screening levels that EPA publishes twice a year
13 has an entry for boron. I think the tap water
14 screening level for boron in that table is 7 mg/L
15 or 7,000 micrograms per liter. To the extent that
16 a drinking water concentration is above 7,000,
17 then one would want to look at that in more
18 detail, but I would not characterize what they are
19 saying by proposing to put boron in Appendix 4 and
20 saying it's causing health risks in people.

21 **Q. Okay.**

22 MS. LEGGE: Thank you very much.
23 That concludes my questions.

24 HEARING OFFICER HORTON: Okay.

1 Moving on to Midwest Generation.

2 Ms. Gale, any questions for this
3 witness?

4 MS. GALE: I have no questions for
5 this witness. Thank you.

6 HEARING OFFICER HORTON: City of
7 Springfield, Ms. Williams, any questions for this
8 witness?

9 MS. WILLIAMS: I don't have any
10 follow-up questions.

11 HEARING OFFICER HORTON: Okay.
12 Illinois Environmental Regulatory Group,
13 Ms. Brown, anyone questions?

14 MS. BROWN: No questions for this
15 witness.

16 HEARING OFFICER HORTON: Ms.
17 Manning, any questions?

18 MS. MANNING: I have no questions
19 for this witness. Thank you.

20 HEARING OFFICER HORTON:
21 Mr. Armstrong, any questions?

22 MR. ARMSTRONG: No questions. Thank
23 you.

24 HEARING OFFICER HORTON: Okay.

1 Mr. Rao, any questions?

2 MR. RAO: Yes, I have a question, a
3 follow-up question.

4 MS. BRADLEY: I haven't kept track
5 of everyone. What was your affiliation?

6 MR. RAO: I'm Anand Rao with the
7 Illinois Pollution Control Board.

8 MS. BRADLEY: Okay. Great. Thank
9 you.

10 E X A M I N A T I O N

11 BY MR. RAO:

12 Q. I have a follow up to the Board's
13 pre-filed Question 21.

14 A. I have that in front of me.

15 Q. Okay. Thank you for clarifying the
16 risks posed by these units receive de minimis
17 amount of CCR.

18 Are these facilities now covered
19 by the proposed rules, is that your understanding?

20 A. If they're not covered by EPA CCR
21 rule, it's potential they can be covered by Part
22 845 and I think at the last hearing the IEPA said
23 that they would be covered.

24 Q. Okay. And you are recommending that

1 **these units be excluded from being covered by the**
2 **regulations, right?**

3 A. Correct, I think we need to focus
4 our attention on where -- on the units that could
5 potentially pose a risk and the EPA decided do
6 not.

7 **Q. Would it be possible for you to**
8 **provide some regulatory language that the Board**
9 **could consider for these facilities?**

10 MR. MORE: This is Josh More. We'll
11 be happy to provide some language defining this
12 concept.

13 MR. RAO: Okay.

14 BY MR. RAO:

15 **Q. One more question I had was, does**
16 **Dynegy have these types of impoundments in**
17 **Illinois?**

18 A. I do not -- I have not worked with
19 Dynegy on their facilities and I have not reviewed
20 their facilities. So I don't know. I can't
21 answer that question.

22 MR. RAO: Mr. More, do you have any
23 input regarding this issue?

24 MR. MORE: Yes, it's my

1 understanding that we have a unit that contains a
2 de minimis amount of ash that the Agency is
3 imposing to keep a request on, suggesting that it
4 is subject to regulations.

5 MR. RAO: Are these --

6 MR. MORE: Two units. I'm sorry.
7 Two units.

8 MR. RAO: I'm sorry. Are these the
9 units that are under dispute whether they are
10 surface impoundments -- CCR surface impoundments
11 or not?

12 MR. MORE: Yes, that is correct.

13 MR. RAO: Okay. Thank you for that
14 clarification. That's all I have.

15 HEARING OFFICER HORTON: Okay. Any
16 follow-up questions for Ms. Bradley?

17 MS. DIERS: This is Ms. Diers. I
18 have one.

19 HEARING OFFICER HORTON: Please go
20 ahead.

21 E X A M I N A T I O N

22 BY MS. DIERS:

23 Q. Are you familiar with the Illinois
24 EPA Act?

1 A. I haven't reviewed it in detail.

2 **Q. Thank you.**

3 HEARING OFFICER HORTON: Any further
4 follow-up questions for Ms. Bradley? Okay. With
5 that, we will dismiss Ms. Bradley. Thank you.

6 And we will go on to Melinda
7 Hahn. Are you on the line?

8 MS. HAHN: Hello. I'm online.

9 HEARING OFFICER HORTON: Great.

10 MS. HAHN: And I think I have video
11 going.

12 HEARING OFFICER HORTON: Okay. We
13 see you. Thank you. Okay.

14 Will the court reporter please
15 swear in Ms. Hahn.

16 WHEREUPON:

17 MELINDA HAHN

18 called as a witness herein, having been first duly
19 sworn, deposeth and saith as follows:

20 HEARING OFFICER HORTON: Mr. More,
21 would you like to have Ms. Hahn's pre-filed
22 testimony entered into the exhibit -- entered into
23 exhibits?

24 Mr. More, can you hear us?

1 MR. MORE: Yes, I'm sorry. Go
2 ahead.

3 HEARING OFFICER HORTON: No problem.
4 Would you like to have Ms. Hahn's pre-filed
5 testimony entered in as Exhibit 28?

6 MR. MORE: Yes, I would. Thank you.
7 (Document marked as Hearing
8 Exhibit No. 28 for
9 identification.)

10 HEARING OFFICER HORTON: Okay. And
11 then Ms. Hahn's pre-filed answers as Exhibit 29.

12 MR. MORE: Please.
13 (Document marked as Hearing
14 Exhibit No. 29 for
15 identification.)

16 MR. MORE: Then I'd like to move to
17 have her presentation -- her Power Point
18 presentation admitted into evidence as Exhibit 30,
19 which is attached as Attachment B to our first and
20 second presentation of Dynegy's index, Dynegy's
21 proposed exhibits for second hearing.

22 HEARING OFFICER HORTON: Okay. So
23 that would be Exhibit 30.

24 MR. MORE: Yes.

1 (Document marked as Hearing
2 Exhibit No. 30 for
3 identification.)

4 HEARING OFFICER HORTON: Okay.
5 Ms. Hahn, do you have any -- do you have a summary
6 or prepared remarks that you'd like to begin with?

7 MS. HAHN: Yes, thank you. I'd like
8 to provide a summary of my testimony, my pre-filed
9 testimony, if that's acceptable.

10 HEARING OFFICER HORTON: Okay.
11 You'll be limited to five minutes. Please
12 proceed.

13 MS. HAHN: Yes. Thank you. Thank
14 you. Okay. So my name is Melinda Hahn and I'm
15 with Ramboll, a U.S. corporation, and I have a
16 double bachelors in physics and mathematics and
17 environmental engineering from John Hopkins
18 University. I tend to focus on the math and
19 physics of contaminant transport and migration,
20 specifically environmental data, site
21 investigation, remediation, contaminate
22 fingerprinting using statistics. You know, I have
23 projects that span many different types of
24 contaminates or constituents and many different

1 sectors of business and other sources of risk to
2 home health potentially.

3 So for some of my opinions to
4 explain what we did, Ramboll completed a water
5 well and surface water intake survey that included
6 private wells and non-community water supply,
7 community water supply wells in the vicinity of 23
8 coal-fired power plants in Illinois and then we
9 looked to review the publicly available databases
10 in Illinois and U.S. EPA and tried to identify
11 whether wells were present in those and then also
12 whether the wells were present in a down gradient
13 location and --

14 HEARING OFFICER HORTON: Ms. Hahn.
15 Ms. Hahn.

16 MS. HAHN: -- and whether or not
17 those wells were potentially at risk of exceeding
18 Class 1 groundwater standards or MCL's from coal
19 ash impacts.

20 HEARING OFFICER HORTON: Ms. Hahn,
21 this is Vanessa Horton in Chicago. Could you slow
22 down a little bit just for our court reporter.

23 MS. HAHN: Sure. I apologize. I'll
24 maybe a little bit more brief, but slow. So the

1 results of our survey was essentially consistent
2 with the Illinois Groundwater Protection Program
3 Biennial Report in 2012, which concluded that they
4 didn't find drinking water levels in the vicinity
5 of these facilities threatened by impacts from
6 these facilities. So this assessment was
7 essentially kind of an update from IEPA's
8 assessment from the 2012 IGPP report.

9 We also looked at the
10 Environmental Risk Cap and Run Report, which
11 alleges widespread groundwater contamination,
12 unsafe conditions and, you know, the report states
13 that the operators weren't aware of the extent to
14 which groundwater was used for drinking water
15 about the facility. So this exercise was an
16 attempt to identify potable water wells within the
17 search radius that could be impacted.

18 Slide 4 is a little information
19 about our process. We use the own property
20 boundaries for the facilities. We looked at
21 private wells, non-private wells and non-community
22 water supply wells within a 2,500 foot radius and
23 community water supply wells within the one-mile
24 radius.

1 As I mentioned before, some of
2 the desktop surveys of publicly available
3 databases didn't include a boots on the ground
4 survey or initial survey. The next slide is just
5 an example of what a figure looks like. There is
6 the certified boundary given by the property site
7 boundary and the 2,500 foot radius, the mile
8 radius and then wells plotted within those search
9 grids.

10 We also considered the apparent
11 direction of groundwater flow at these facilities,
12 we looked at topographic maps, we looked at site
13 specific reports, hydrogeologic assessment, the
14 presence of surface water, I identified these --
15 these future wells and surface water intakes that
16 were potentially down gradient and considered, in
17 addition, the type of well. Is it a piezometer, a
18 launching well, a drinking water well, what is the
19 depth of it, what is the location accuracy, do the
20 databases have consistent information about these
21 wells and in our conclusion we found -- or we
22 didn't identify any wells or surface water intakes
23 particularly down gradient and at risk of impact
24 above water quality standards or MCL's from coal

1 ash constituents.

2 So, to summarize, our
3 conclusions were consistent with the 2012 Illinois
4 Groundwater Protection Program Biennial Report
5 and, as I mentioned, we essentially provided an
6 update. There were very few additional wells that
7 we identified that were installed post-2010. Only
8 one was identified as potentially down gradient of
9 the property boundary, but this well wasn't down
10 gradient of the active portion of that facility --

11 HEARING OFFICER HORTON: Ms. Hahn.
12 Ms. Hahn.

13 MS. HAHN: Yes.

14 HEARING OFFICER HORTON: This is
15 Vanessa Horton. I'm going to have to cut you off
16 there. That's at five minutes.

17 MS. HAHN: Okay.

18 HEARING OFFICER HORTON: So we'll
19 just move on to questions at this point. Thank
20 you for that summary.

21 MS. HAHN: Thank you.

22 HEARING OFFICER HORTON: First,
23 Illinois EPA.

24 Ms. Diers, do you have any

1 questions for Ms. Hahn?

2 MS. DIERS: We do not.

3 HEARING OFFICER HORTON: Okay. The
4 environmental groups, any questions for Ms. Hahn?

5 MS. COURTNEY: Yes, this is Kiana
6 Courtney with the Environmental Law & Policy
7 Center. We do have questions.

8 HEARING OFFICER HORTON: Okay.

9 MS. COURTNEY: Can you hear me okay?

10 MS. HAHN: Good afternoon. Yes, I
11 can. Thank you.

12 E X A M I N A T I O N

13 BY MS. COURTNEY:

14 Q. Again, my name is Kiana Courtney
15 and I'm with the Environmental Law & Policy
16 Center.

17 My first question is a follow-up
18 to IEPA Question 1(a) on Page 3. I'm also going
19 to be referencing Exhibit 18, which has been
20 entered earlier today and that's the Cap and Run
21 Report.

22 A. Okay.

23 Q. So you mentioned the Cap and Run
24 Report that you or Ramboll reviewed in this

1 report, right, in the Attachment 2, Exhibit 29
2 which is your responses, correct?

3 A. Yes, we did.

4 Q. Does the Cap and Run Report state
5 that all of the groundwater is presently used for
6 drinking water?

7 A. No, I don't believe that Cap and Run
8 Report identifies the extent to which groundwater
9 is used as drinking water about these facilities.

10 Q. On Page 4 of the Cap and Run
11 Report -- give me a second to turn to that. It
12 states that -- first paragraph, second column "In
13 addition, nearby, many -- nearby, many drinking
14 water wells have not been tested or publicly
15 posted and it is possible that contamination may
16 flow to communities who draw their drinking water
17 from the affected air aquifers and rivers,"
18 correct?

19 A. I'm sorry. I'm not following you on
20 Page 4. You said second column, first full
21 paragraph?

22 Q. Second column, first full paragraph,
23 bottom of the paragraph.

24 A. Okay. Which sentence? It's the

1 paragraph that starts "the environmental impacts
2 of"?

3 Q. Yes, I'm referring to the last
4 sentence.

5 A. I'm sorry.

6 Q. I'm sorry. The last paragraph above
7 that. The paragraph above "the Illinois problem".

8 A. Yes.

9 Q. Okay. It states -- so it's correct
10 that it states "In addition, nearby, many drinking
11 water wells have not been tested or publicly
12 posted and it is possible that contamination may
13 flow to communities who draw their drinking water
14 from the affected aquifers and rivers."

15 A. I see.

16 Q. And the Ramboll Report, as you
17 mentioned, only looks at water wells and surface
18 water intakes when it comes to at-risk or impacted
19 as being at-risk or impacted in its conclusion,
20 but doesn't consider monitoring wells at risk,
21 correct?

22 A. That's correct. We were not looking
23 at monitoring wells. We were looking at wells
24 that could be used for potable purposes.

1 **Q. In your attachment, which is the**
2 **report, in Section 3.2.4 on Page 62 and elsewhere**
3 **in the report Ramboll mentions water levels is not**
4 **associated with the structure.**

5 **Does water -- does the well have**
6 **to be associated with a structure to be used for**
7 **drinking?**

8 A. Well, it depends. Sometimes you
9 plot these wells and the coordinates are perhaps
10 not accurate because the well will plot in a
11 railroad track or in a road or something or in the
12 middle of a swamp. So we use our professional
13 judgment to -- to make a conclusion about whether
14 or not these wells can be used for potable
15 reasons. If the well -- for example, the well was
16 installed in 1884 and it plots in the middle of a
17 swamp underwater, then it's unlikely that that
18 well was used for potable uses.

19 **Q. So there are instances, though,**
20 **where there could not be a structure identified,**
21 **but there could still possibly be potable -- or**
22 **potable?**

23 A. It depends on how far the structure
24 would be and I'm not sure what would be

1 economically practical or feasible.

2 Q. Still on Question 1(a). Your answer
3 states that your testimony is also intended to
4 rebut any suggestion or conclusions one may want
5 to draw from the Cap and Run Report, which may, in
6 turn, be contrary to the IEPA's GPPB report and
7 then on attachment Page 13 it states that the Cap
8 and Run Report authors opined that the proposed
9 closure in place strategy for many of the ash
10 disposal units will be inadequate to prevent
11 future deterioration of groundwater quality
12 surrounding the site.

13 Is one of the purposes of the
14 report to rebut that statement?

15 A. I'm sorry. You said the attachment.
16 You're meaning the report?

17 Q. The Ramboll -- Ramboll Report.

18 A. Right. Okay. Thanks. Can you
19 point me to where again?

20 Q. Page 13 of the Ramboll Report
21 towards the middle and the next to last full
22 paragraph.

23 A. Okay.

24 Q. So my question -- because in your

1 answer to 1A you mentioned that your testimony is
2 intended to rebut any suggestion or conclusion one
3 may want to draw from the Cap and Run Report.

4 So my question is, is the
5 Ramboll Report intended to rebut that statement?

6 A. Yes, I believe so because if there
7 are no potable wells at risk today and if these
8 facilities -- or these impoundments have been in
9 place for many decades, I think it's unlikely that
10 the situation will change materially over time.

11 Q. Is it possible that groundwater
12 quality could deteriorate over time if it
13 continues to be exposed to coal ash?

14 A. It depends on a number of factors;
15 water level, the age of the pond, the time of
16 contact of groundwater and coal ash and it's
17 possible -- it's possible, but particularly as far
18 as the older, unlined impoundments, I think it's
19 unlikely.

20 Q. Next, I want to direct your
21 attention to 1B the same -- still the same page of
22 IEPA's, Question 1B as in beta.

23 A. Okay. Thank you.

24 Q. So in that, they asked about

1 irrigation or you mentioned irrigation and on Page
2 36 of the report, the Ramboll Report, it mentions
3 that in relation to the Havana site there is a
4 down gradient well installed by an irrigation
5 company.

6 While your report only focused
7 on surface water -- or surface water intakes and
8 water wells, could there still be a risk of impact
9 to that well from coal ash constituents?

10 A. We didn't exclude any wells other
11 than those identified. Let's see. I can point
12 you to sort of the table in my report. Give me a
13 moment. I think this will be helpful to answer
14 your question. Okay. Starting on Page 17,
15 continuing to Page 18.

16 There is a -- there is a table
17 that it titled Subset of Water Well Descriptions
18 in ISGS Water and Related Well and so we did not
19 exclude any wells from consideration unless they
20 were shaded gray in this table and those wells
21 include wells identified as monitoring wells,
22 piezometers, water test holes, water dry holes.
23 So we did not exclude wells that were identified
24 as irrigation wells or livestock watering wells in

1 our analysis.

2 Q. Okay. My next question is on
3 Page -- is in relation to Page 5, Question 2(b)
4 and then also on Page's 10, 11 of your response
5 9F.

6 A. I'm sorry. Can you go a little bit
7 more slowly. Page 5 of the responses?

8 Q. Yes.

9 A. And then page which of the report?

10 Q. It's related to two questions. So
11 this is specifically about your responses. So
12 Page 5, Question 2B and then Page's 9, 10 through
13 11, all of 10, beginning of 11 9F. So the end of
14 your responses.

15 In those questions, it's talking
16 about MCL's, the maximum contaminant level, not --
17 the analysis does not include a risk assessment
18 and the other question is about factors that could
19 change at a surface impoundment that would alter
20 or with groundwater flow that would alter the
21 risk.

22 A. Okay. I'm on Page 5.

23 Q. So my first question is, why did
24 Ramboll not complete the risk assessment?

1 A. Well, we didn't complete it because
2 we didn't deem it necessary. In order to have an
3 unsafe condition or a condition that is
4 unacceptable risk, there has to be a complete
5 exposure pathway and we didn't identify wells for
6 potable use that were potentially at risk of being
7 impacted above these safety standards, the MCL or
8 the Illinois 620 groundwater protection standards,
9 in the evaluation. So if it actually has, then
10 the next step would be a risk assessment, but we
11 didn't find any wells that were at risk of
12 exceeding those standards.

13 **Q. If a well is up gradient, but the**
14 **groundwater gets pulled in opposing or different**
15 **directions and that water well is above the MCL,**
16 **could it be then at risk or impacted?**

17 A. I'm sorry. I'm not sure I
18 understood your question. Can you repeat it,
19 please.

20 **Q. Yes. So in this analysis, you**
21 **looked at whether wells were up gradient or down**
22 **gradient. However, if a well at the time of your**
23 **analysis is up gradient and then later the**
24 **groundwater is pulled in the opposing or --**

1 **opposing or different direction and then also**
2 **compounded with that water well being above the**
3 **MCL, could that well, drinking water well, then be**
4 **at risk or impacted as you all define it?**

5 A. I think that -- I answered in my
6 final -- I think the final answer on Page 10 and
7 11 I state as what could change the analysis and
8 so my answer was there could be relatively
9 localized changes based on natural conditions,
10 different changes in infiltration, rainfall, et
11 cetera, but I didn't see any dramatic changes
12 unless there could be some introduction of an
13 extraction well and it would have to be an
14 extraction.

15 So the extent to which a well
16 could be impacted depends on the location, the
17 depth, the pumping rate of the extraction well.
18 So in the sense that it is possible, you can draw
19 groundwater in a different direction other than
20 natural direction on flow. I would say that's the
21 factor that could change this assessment is the --
22 some of the manmade interventions of extraction
23 wells.

24 **Q. Did the report take into**

1 **consideration the potential for those manmade**
2 **changes?**

3 A. I'm not sure it's possible to
4 predict, you know -- no, we didn't consider the
5 change and additional groundwater flow direction.
6 We considered the natural direction of groundwater
7 flow as the predominant apparent direction of
8 groundwater flow.

9 Q. How would a site owner or operator
10 know if that groundwater is getting pulled in a
11 different direction?

12 A. I'm sorry. Can you repeat the
13 question? How would who know?

14 Q. Yes. How could a site owner or
15 operator, so someone paying attention to the
16 impoundments, know if the groundwater is getting
17 pulled in an opposite or different direction?

18 A. Oh, by the water level measurements
19 that are collected probably quarterly at the same
20 time the chemical samples are collected.

21 Q. So a quarter could go by without the
22 owner or operator knowing that the groundwater
23 levels are actually changing based on your answer?

24 A. Yes, my understanding is that the

1 groundwater monitoring frequency is by quarter.
2 So, three months. And groundwater moves -- tends
3 to move very slowly. Quick groundwater velocity
4 in a sandy environment is about 100 feet per year.
5 So I don't think that a three-month time lag is
6 very significant in terms -- in terms of the
7 distance groundwater might flow in that time.

8 **Q. My last set of questions is related**
9 **to Page 10 of your response, so 9B, but ultimately**
10 **it is about Page 68 of the report, of the Ramboll**
11 **Report. Bottom of Page 68, top of Page 69.**

12 A. Okay. I'm trying to remind myself
13 which one this site relates to.

14 **Q. This was the Lincoln Stone Quarry,**
15 **so Joliet 9.**

16 A. Joliet 9. Okay.

17 **Q. So my question is more about**
18 **clarifying. So it says -- and I'm going to leave**
19 **parts of it out just because it's long. I'll read**
20 **the whole thing.**

21 **So it states "Further, according**
22 **to the 2010 to 2011 GPPB report, the IEPA and the**
23 **Will County Health Department sampled private**
24 **wells in this area and found that the inorganic**

1 analyzed were consistent with background. They
2 concluded that the private wells were not impacted
3 by the site."

4 Do you know when that sampling
5 was done to make that determination?

6 A. No, I don't know the specificity. I
7 think that language mirrors the language from the
8 IPCB report.

9 Q. And are there conditions that could
10 have caused those levels to change in the past
11 eight or nine years?

12 A. I'll not aware of any -- any changes
13 in the groundwater directions at Joliet 9, but I
14 don't have the Joliet 9 documents in front of me.
15 I don't think I can answer that with specificity.

16 Q. Okay.

17 MS. COURTNEY: That is it for my
18 questions, but I reserve the right to ask
19 follow-up.

20 HEARING OFFICER HORTON: Okay. This
21 is Vanessa Horton. The time right now is 3:00.
22 So let's take a quick break and let's resume at
23 3:10 with Ms. Hahn and we'll resume with Midwest
24 Generation if they have questions for Ms. Hahn.

1 So, thank you. We'll be back in ten minutes.

2 (Whereupon, a break was taken
3 after which the following
4 proceedings were had.)

5 HEARING OFFICER HORTON: Hello.
6 This is Vanessa Horton in Chicago. We'll start up
7 again with Ms. Hahn and I believe we left off with
8 Midwest Generation. Any questions for Ms. Hahn?

9 MS. GALE: I have no questions for
10 this witness. Thanks.

11 HEARING OFFICER HORTON: Thank you.
12 Ms. Williams from City of Springfield, any
13 questions for Ms. Hahn?

14 MS. WILLIAMS: I'd like to ask one
15 clarifying question.

16 E X A M I N A T I O N

17 BY MS. WILLIAMS:

18 Q. Hi, Ms. Hahn. I'm Deborah Williams
19 with Springfield City Water, Light and Power. Can
20 you hear me okay?

21 A. Yes. Good afternoon.

22 Q. Good afternoon. If in your research
23 you discovered a private or semiprivate well, am I
24 interpreting correctly that you didn't do field

1 **work or further analysis to determine if that well**
2 **may have been abandoned or mis- -- mis-located in**
3 **the source materials?**

4 A. Our assessment did not include any
5 field work or field sampling, but in some of the
6 databases a well can be identified as having been
7 abandoned. It's not -- because a well is listed
8 in a database doesn't mean it's still active
9 because the reason it's within a database is
10 because the driller has to file a report upon
11 installation of a well and once a well is out of
12 use it's supposed to be properly abandoned in the
13 database and the form would get sent to the state
14 and that information would be pulled into the
15 database, but that doesn't always happen. So
16 there are wells in the database that have been
17 abandoned, but don't -- the database doesn't
18 reflect that.

19 MS. WILLIAMS: That's exactly what I
20 was trying to clarify. Thank you.

21 MS. HAHN: Okay. Thank you.

22 HEARING OFFICER HORTON: Moving on
23 to Illinois Environmental Regulatory Group.

24 Ms. Brown, any questions for

1 Ms. Hahn?

2 MS. BROWN: No questions at this
3 time.

4 HEARING OFFICER HORTON: Okay.
5 Ameren, Ms. Manning, any questions?

6 MS. MANNING: We have no questions
7 for Ms. Hahn. Thank you.

8 HEARING OFFICER HORTON: Okay.
9 Attorney General's Office, Mr. Armstrong, any
10 questions?

11 MR. ARMSTRONG: No questions. Thank
12 you.

13 HEARING OFFICER HORTON: Okay.
14 Pollution Control Board Technical Unit, Mr. Rao,
15 any questions for Ms. Hahn?

16 MR. RAO: No questions. Thank you.

17 HEARING OFFICER HORTON: Okay. Any
18 follow-up questions to Ms. Hahn?

19 MS. DIERS: Hi, this is Ms. Diers.
20 I have one question.

21 HEARING OFFICER HORTON: Go ahead.

22 E X A M I N A T I O N

23 BY MS. DIERS:

24 Q. Ms. Hahn, are you aware that many

1 **community water supply wells are ten or more miles**
2 **away -- ten or more miles from the communities**
3 **they serve?**

4 A. With specificity, I haven't looked
5 at the location of community water supply wells
6 with respect to their service areas, no.

7 **Q. Okay.**

8 MS. DIERS: Thank you.

9 HEARING OFFICER HORTON: Any other
10 follow-up questions for Ms. Hahn? Okay. With
11 that, we'll dismiss Ms. Hahn. Thank you.

12 MS. HAHN: Okay. Thank you. I
13 appreciate the opportunity to participate
14 virtually.

15 HEARING OFFICER HORTON: Thanks. No
16 problem. We'll move on to Dynegy's witness Rudy
17 Bonaparte. Are you on the line?

18 MR. BONAPARTE: Yes, I am on the
19 line. Can you hear me okay?

20 HEARING OFFICER HORTON: Yes
21 Mr. Court Reporter, will you please swear in this
22 witness.

23
24

1 WHEREUPON:

2 RUDOLPH BONAPARTE
3 called as a witness herein, having been first duly
4 sworn, deposeth and saith as follows:

5 HEARING OFFICER HORTON: Okay.
6 Mr. More, would you like Mr. Bonaparte's pre-filed
7 testimony to be entered into the record?

8 MR. MORE: Yes, I would like to move
9 to have it admitted into the record.

10 HEARING OFFICER HORTON: All right.
11 So that will be Exhibit 31.

12 (Document marked as Hearing
13 Exhibit No. 31 for
14 identification.)

15 HEARING OFFICER HORTON: And then
16 for Mr. Bonaparte's pre-filed answers, would you
17 like to have that entered into the record?

18 MR. MORE: Yes, I would like to have
19 that admitted into the record.

20 HEARING OFFICER HORTON: That will
21 be Exhibit 32.

22 (Document marked as Hearing
23 Exhibit No. 32 for
24 identification.)

1 MR. MORE: Sorry. Hearing Officer,
2 I'd like to then move to have admitted into the
3 record as Exhibit 33 Attachment C to Dynegy's
4 pre-filed exhibits, which is Mr. Bonaparte's Power
5 Point presentation.

6 HEARING OFFICER HORTON: Okay. That
7 will be Exhibit 33.

8 (Document marked as Hearing
9 Exhibit No. 33 for
10 identification.)

11 HEARING OFFICER HORTON:
12 Mr. Bonaparte, do you have -- do you have a brief
13 introduction or summary that you'd like to make?

14 MR. BONAPARTE: I do. Thank you.

15 HEARING OFFICER HORTON: You'll be
16 limited to five minutes. Please go ahead.

17 MR. BONAPARTE: Good afternoon. My
18 name is Rudy Bonaparte. I'm a senior principal
19 with the engineering firm Geosyntec Consultants.
20 I'm here today on behalf of my client Dynegy.

21 Slide 2 from my presentation
22 briefly summarizes my qualifications. Slides 3
23 through 8 summarize my pre-filed testimony by
24 subject area. In the next few minutes, I will

1 focus on three specific suggestions. The first of
2 the three is covered on Slides 10 and 11 and
3 addresses the proposed Part 845 provisions for
4 final cover systems when closing CCR impoundments
5 in place. Specifically, on Slide 10, I suggest
6 that Part 845 prescribe a minimal allowable
7 thickness of 18 inches with a compacted earth low
8 permeability layer component of the cover system
9 as opposed to the currently proposed 36-inch
10 thickness.

11 This would be consistent with
12 the federal CCR rule. An earth and low
13 permeability layer with this thickness can achieve
14 the 845.750 performance standards on a site
15 specific basis. The rationale for this suggestion
16 is summarized on Slide 11. The currently proposed
17 36-inch thickness appears to be modeled under
18 requirements of Illinois Part 811 for MSW
19 landfills. MSW landfills contain compressible
20 waste that biodegrades and undergoes large
21 postclosure settlements.

22 In contrast, a CCR surface
23 impoundment undergoes much less postclosure
24 settlement. Consequently, the low permeability

1 layer for a CCR surface impoundment doesn't need
2 to be as thick as that MSW landfill because the
3 layer doesn't undergo the same level of settlement
4 induced distortion and movement as does the MSW
5 landfill layer. I know, too, at some sites an
6 18-inch thick low permeability layer can be as
7 effective as a 36-inch thick layer in meeting
8 performance standards.

9 My second suggestion is on
10 Slides 12 and 13. It also addresses the proposed
11 Part 845 provisions for final cover systems. On
12 Slide 12, I suggest Part 845 prescribe a minimal
13 allowable final protective layer thickness of 18
14 inches as opposed to the currently proposed
15 36-inch thickness for cover systems where the low
16 permeability layer is a geomembrane. Eighteen
17 inches is an adequate layer thickness to protect a
18 geomembrane. The rationale for this suggestion is
19 summarized on Slide 13. Specifically, 845.750
20 indicates that the final protective layer must be
21 thick enough to protect the underlying low
22 permeability layer from freeze/thaw and root
23 penetration damage.

24 However, EPA -- U.S. EPA and

1 others have shown that geomembranes are not
2 adversely affected by freeze/thaw cycles and roots
3 do not penetrate through them. For this reason, a
4 final protective layer thickness of 18 inches will
5 often be adequate when a geomembrane is used as
6 the low permeability layer. I note, too, that
7 this suggested thickness is greater than the
8 prescribed minimum thickness of the federal CCR
9 rule.

10 My third and final suggestion is
11 on Slides 14 and 15. It address the proposed Part
12 845 provisions related to CCR grading and
13 contouring. Specifically, when CCR is used for
14 purposes of grading and contouring, Section
15 845.750 should allow, in my opinion, the final
16 cover system to be constructed on slopes steeper
17 than five percent, which is the currently proposed
18 maximum allowable slope. A steeper final cover
19 slope will, in some cases, enable onsite
20 consolidation of CCR, thereby, reducing the CCR
21 closure footprint in the size of the area
22 requiring postclosure monitoring and maintenance.

23 Placing CCR at slopes steeper
24 than five percent is technically and practically

1 feasible and will not diminish the ability of the
2 final cover system to meet performance standards.
3 Numerous final cover systems have been
4 successfully constructed and maintained at slopes
5 steeper than five percent. In fact, most MSW and
6 CCR landfills are constructed with final cover
7 slopes in the range of 25 percent or more.

8 I note, too, that this approach
9 is consistent with U.S. EPA's March 2020 proposed
10 changes to the federal CCR rule, which allow for
11 placement of CCR in a closing CCR surface
12 impoundment, provide performance criteria for that
13 placement and do not restrict the steepness of the
14 final cover system slopes. Thank you.

15 HEARING OFFICER HORTON: Thank you.
16 Okay. So we'll move on to questions and Illinois
17 EPA, Ms. Diers, do you have any questions for this
18 witness?

19 MS. DIERS: We do not.

20 HEARING OFFICER HORTON: Okay. To
21 the environmental groups, do you have any
22 questions for Mr. Bonaparte?

23 MR. CMAR: This is Tom Cmar with
24 Earthjustice on behalf of Prairie Rivers Network.

1 We don't have any questions for this witness at
2 this time, but we reserve the right to follow up.

3 HEARING OFFICER HORTON: Okay.

4 Midwest Generation, any questions for
5 Mr. Bonaparte?

6 MS. GALE: We have no questions for
7 this witness. Thank you.

8 HEARING OFFICER HORTON: City of
9 Springfield, Ms. Williams, any questions for this
10 witness?

11 MS. WILLIAMS: I don't have any
12 follow up to his written responses. Thank you.

13 HEARING OFFICER HORTON: Okay.
14 Illinois Environmental Regulatory Group,
15 Ms. Brown, any questions?

16 MS. BROWN: Not at this time. Thank
17 you.

18 HEARING OFFICER HORTON: Okay.
19 Ameren, Ms. Manning, any questions?

20 MS. MANNING: No questions for
21 Mr. Bonaparte. Thank you.

22 HEARING OFFICER HORTON: Okay.
23 Attorney General's Office, Mr. Armstrong, any
24 questions?

1 MR. ARMSTRONG: No questions. Thank
2 you.

3 HEARING OFFICER HORTON: Okay.
4 Pollution Control Board Technical Unit, any --
5 Mr. Rao, any questions for Mr. Bonaparte?

6 MR. RAO: No questions. Thank you.

7 HEARING OFFICER HORTON: Okay. Any
8 follow-up questions? Hearing none, seeing none,
9 thank you, Mr. Bonaparte. You will be dismissed.

10 MR. BONAPARTE: Thank you very much.
11 It was nice being part of this for at least a
12 short while.

13 HEARING OFFICER HORTON: Thank you.
14 Okay. Moving on to Dynegy's next witness David
15 Hagen.

16 MR. HAGEN: Hello.

17 WHEREUPON:

18 DAVID HAGEN
19 called as a witness herein, having been first duly
20 sworn, deposeeth and saith as follows:

21 HEARING OFFICER HORTON: Okay.
22 Thank you, Mr. Hagen. Mr. More, would you like to
23 have Mr. Hagen's pre-filed testimony entered into
24 the record?

1 MR. MORE: Yes, I would.

2 HEARING OFFICER HORTON: Okay. That
3 will be Exhibit 34.

4 (Document marked as Hearing
5 Exhibit No. 34 for
6 identification.)

7 HEARING OFFICER HORTON: And
8 Mr. Hagen's pre-filed answers, would you like
9 entered into the record?

10 MR. MORE: Yes, I would. Thank you.

11 HEARING OFFICER HORTON: Okay. That
12 will be Exhibit 35.

13 (Document marked as Hearing
14 Exhibit No. 35 for
15 identification.)

16 MR. MORE: Then I would have moved
17 to have entered into the record as Exhibit 36
18 Attachment D to Dynegy's pre-filed exhibits which
19 are -- which is Mr. Hagen's Power Point
20 presentation.

21 (Document marked as Hearing
22 Exhibit No. 36 for
23 identification.)

24 HEARING OFFICER HORTON: Okay. That

1 will be Exhibit 36.

2 Mr. Hagen, would you like to
3 give a brief introduction or summary of your
4 testimony?

5 MR. HAGEN: Yes, I would. Okay.
6 Good afternoon. I'm Dave Hagen, Senior Vice
7 President Haley & Aldrich. I am providing
8 testimony on portions of the proposed 845 rule
9 related to CCR surface impoundments. Slide 2 of
10 the slide on -- Slide 2, the second slide, is a
11 summary of my education and experience and
12 educated in biology and geology. I have an MS in
13 geology specializing in hydrogeology. I have over
14 34 years experience in environmental remediation
15 related to a variety of environmental programs and
16 matters, including the CCR Part 257 language.

17 The listing of my opinions is
18 provided on Slides 3 through 6 and I would
19 encourage folks to take a look at that for
20 reference. The remainder of my opening statement
21 concentrates on two of those opinions.

22 So if you'd move forward to
23 Slide 7, I'll describe my first opinion for
24 today's discussion which is removal is not always

1 necessary when CCR material is below the
2 groundwater table when situated within a
3 floodplain. It was developed to respond to Mark
4 Hutson's recommendation that closure by removal be
5 mandated under certain circumstances.

6 To develop the opinion, I
7 created two surface impoundment groundwater -- I'm
8 sorry. Next slide, Slide 8. To develop the
9 opinion, I created two surface impoundment
10 groundwater contaminate transport modeling
11 scenarios with differing hydrogeologic conditions
12 in CCR below the water table. I model boron
13 concentrations over time with CCR above water
14 table and a closure in place closure scenario.

15 I use boron because it is
16 commonly found in CCR sites, it is consistent with
17 other parts of my opinions and has come across
18 many different positions. In all modeling
19 scenarios, the groundwater protection standard is
20 met over time.

21 Next slide, Slide 9. I then
22 evaluated the Hennepin West Ash Pond data for CCR
23 impoundment with CCR below the water table and
24 found decreasing boron trends over time consistent

1 with the groundwater modeling results that I had
2 performed. With these two pieces of information,
3 I concluded that CIP remedies can achieve the
4 groundwater protection standards with CCR below
5 the water table and can be protected.

6 Accordingly, the closure in
7 place remedy for the modeled sites would meet the
8 requirements found in Part 845.670(b) and
9 845.710(g) and would proceed with comparative
10 analysis found in 845.670(e) and 845.710(b).

11 Next slide, please. The final
12 opinion I'm providing today is appropriate cap and
13 cover configuration, including cap permeability
14 and thickness is dependent upon site specific
15 conditions. I am providing this opinion as
16 additional context related to the Bonaparte
17 testimony about cap and cover thickness that you
18 all just heard.

19 Next slide, please. Slide 11.
20 To demonstrate this opinion, I utilize the HELP
21 model to estimate infiltration and cap and cover
22 configurations prescribed --

23 HEARING OFFICER HORTON: Mr. Hagen.

24 THE COURT REPORTER: Something about

1 the HELP model.

2 THE WITNESS: HELP model, H-E-L-P.

3 HEARING OFFICER HORTON: From there
4 on if you can continue.

5 MR. HAGEN: Okay. I'll just back up
6 and say to demonstrate this opinion I utilized the
7 HELP model estimate infiltration in cap and cover
8 configurations prescribed in the proposed rule in
9 the Bonaparte recommended cap and cover
10 configuration. I then used the infiltration rates
11 from the HELP model to predict the time to meet
12 the groundwater protection standard using the
13 different -- three different model sites developed
14 for other parts of my opinion.

15 The results of the modeling
16 indicate -- as shown on Slide 12, the results of
17 the modeling indicate little measurable effect on
18 the time to reach groundwater protection standards
19 between the rule and Bonaparte cap and cover
20 systems.

21 Thank you for providing this
22 time for my opening statement and I look forward
23 to answering your questions today.

24 HEARING OFFICER HORTON: Thank you.

1 Okay. We'll move on to questions from Illinois
2 EPA. Any questions from Mr. Hagen?

3 MS. DIERS: We do not.

4 HEARING OFFICER HORTON: From the
5 environmental groups, any questions for Mr. Hagen?

6 MS. BUGEL: I believe we have an
7 attorney who has questions. I don't know if
8 they're on mute.

9 MR. PAULEY: Ms. Cassel was muted.
10 She tried to talk. I muted her.

11 MS. CASSEL: Hi. Are you able to
12 hear me now?

13 HEARING OFFICER HORTON: Yes,
14 Ms. Cassel.

15 MS. CASSEL: Okay. Great. Thank
16 you. This is Jenny Cassel with Earthjustice on
17 behalf of Prairie Rivers Network.

18 E X A M I N A T I O N

19 BY MS. CASSEL:

20 **Q. Mr. Hagen, I'd like to turn, if you**
21 **would please, to your response to the**
22 **environmental groups Question 31, which is on Page**
23 **15 of your pre-filed answers.**

24 A. Okay. I'm there.

1 Q. Great. So, Mr. Hagen, you state in
2 that answer that I quote "The concentration of 10
3 mg/L is a median value from a collection of 1,651
4 analyses" and you go on to state "Much higher
5 groundwater concentrations have certainly been
6 identified, but in the context of these models
7 would be statistical outliers. The intention of
8 this modeling work was to model typical, rather
9 than extreme, cases." Do you see that answer?

10 A. I do.

11 Q. Before running your model with 10
12 mg/L of boron -- sorry -- in CCR surface
13 impoundments, did you review the concentrations of
14 boron in poor water in Illinois impoundments?

15 A. I relied on the document for poor
16 water concentrations which would be the study that
17 is cited in my documents.

18 Q. And before running this model, did
19 you review groundwater monitoring results from
20 Illinois impoundments to evaluate how frequently
21 and how broadly those results show concentrations
22 of boron that exceed 4 mg/L?

23 A. I have -- I did review
24 concentrations of constituents. That was part of

1 some of my other testimony. So there was --

2 Q. Can you let me know which sites?

3 I'm sorry.

4 A. There were several sites that I
5 reviewed as part of my testimony.

6 Q. Can you identify what those sites
7 were, please?

8 A. There was the Hennepin site --
9 actually, two different Hennepin ash pond sites.
10 There was Havana, there was Venice and one other.
11 I don't recall what it is right offhand.

12 Q. And that was the entirety of what
13 you reviewed in terms of preparations for this
14 modeling?

15 A. Yes, that would be the review that I
16 had done.

17 Q. Okay.

18 A. Hutsonville my last site. Sorry.

19 Q. Hutsonville. Moving on to your
20 response to the environmental groups Question 58
21 and 59 on Page 22 and 23 from your answers.

22 A. Yes.

23 Q. You state that in your models you
24 had assumed distances between the impoundment and

1 the river of 2,500 feet for Site 1. The measured
2 distance that you provide for nine impoundments in
3 Illinois range from 50 feet to 1,600 feet with
4 only one site where the impoundment is more than
5 1,000 feet from the river, correct?

6 A. I believe that is correct. There
7 were a couple of sites that were close to 1,000
8 feet, 900 feet. They were close to 1,000 feet, a
9 couple others.

10 Q. Can you tell us why you chose to
11 model a distance of 2,500 feet from a river for
12 Site 1?

13 A. Well, it was really -- my intention
14 in doing the modeling was to provide what I'll
15 call bookends or, in this case, actually most
16 worst -- worser case scenarios, but the greater
17 the distance from the river the longer the time it
18 would take for a groundwater protection standard
19 to be met. So if you notice in my response, I
20 indicate that these were really more along the
21 lines of what I call a worser case or worst-case
22 scenario.

23 Q. And where the contamination would go
24 would differ if the river was closer, is that

1 **correct?**

2 A. Well, the time it would take to get
3 there would be much shorter, get there and then
4 discharge into the river. When the rivers are
5 located more closely, the time to meet the
6 groundwater protection standard would be much
7 less. This is -- these are conservative with
8 respect to time.

9 Q. Okay. Now, with respect to a number
10 of questions that the environmental groups asked,
11 and I will tell you which ones they were, you
12 basically had the same answer or very similar
13 answer, at least a portion of your answer was the
14 same, and that is to Question 33 on Page 16; 38
15 and 36 on Page 17; 40 and 42 on Page 18; 44 and 46
16 on Page 19 and 20; and 48, 51, 53, 55, and 57 and
17 you testified that if multiple different variables
18 were different from the quantities or rates that
19 you had modeled, that would, and I quote, change
20 the timeline for each remedy, but proportional to
21 the remedy simulations, is that right?

22 A. That is correct. I believe that is
23 my statement.

24 Q. Can you tell us how much the

1 **timeline could vary if those variables you input**
2 **into your model were different?**

3 A. I couldn't -- certainly couldn't
4 quantify it. They would vary. They vary by the
5 parameter is my response as indicated. They could
6 be -- it's all dependent upon the site and site
7 specific conditions. So, for instance, if a
8 hydraulic conductivity were three orders of
9 magnitude -- or horizontal hydraulic conductivity
10 were three orders of magnitude lower, all else
11 being equal, the contaminate transport time would
12 generally be three orders of magnitude slower.

13 And then if you varied other
14 parameters at the same time that would vary the
15 time that it would take for a contaminate to meet
16 the groundwater protection standard. So I
17 couldn't even give you an estimate of variability.

18 **Q. So given the variety of**
19 **circumstances at the various different CCR**
20 **impoundments, could the timeline for achieving**
21 **groundwater protection standards vary on the order**
22 **of 100 years?**

23 A. I'd have to do the analysis to be
24 able to answer that specifically. I can tell you

1 it probably wouldn't surprise me given the fact
2 that one of the scenarios I ran the groundwater
3 protection standard was met or greater than 100
4 years, greater than 100 years. So it wouldn't
5 necessarily surprise me. Groundwater systems can
6 be quite slow. Groundwater contaminate travel
7 times can be quite slow.

8 Q. Would it be possible or would -- I'd
9 say would it surprise you if the timeline varied
10 by multiple hundred years for the achievement of
11 certain of the groundwater protection standards?

12 A. I really would need to do the
13 analysis to be able to give you that answer.

14 Q. Okay. Are your statements that
15 changing those variables would not change the
16 outcome of the case, but you also answered to a
17 number of the questions, is that based on the
18 principle that under any scenario enough -- enough
19 contaminate mass will eventually leach out of the
20 CCR so that groundwater protection standards won't
21 be achieved at the monitoring well?

22 A. Could you -- could you ask that
23 question again?

24 Q. Sure. You made -- in several

1 **answers, you stated that I believe the same answer**
2 **as that I've referred to in the last sentence, you**
3 **said that changing those variables would change**
4 **the timeline, but not the outcome of each case.**
5 **And what I'm asking is are those statements that**
6 **the variable changes would change the timeline,**
7 **but not the outcome based on the principle that**
8 **under any scenario enough contaminate mass will**
9 **eventually leach out of the CCR so that**
10 **groundwater protection standards won't be achieved**
11 **at the monitoring well?**

12 A. I believe that the answer -- the
13 right answer is that there is what I'll call a
14 conservation of mass and I think that's what
15 you're getting at. There is a solubility and
16 there is contaminate in groundwater transport and
17 all of those things occur and create this
18 situation where groundwater protection standards
19 will be met over time. You'll have a depletion
20 source, you'll have groundwater contaminate
21 transport and you'll have discharge and
22 groundwater protection standards being met.

23 Q. **I'm sorry. That's -- that's a**
24 **function of these various different variables, the**

1 hydraulic conductivity, the amount that was
2 originally in the CCR, the geology of the site
3 groundwater flow, et cetera, ultimately will lead
4 to the groundwater protection standards being met,
5 is that correct?

6 A. Yes.

7 Q. Now, turning, Mr. Hagen, to your
8 response to the environmental groups questions 66,
9 68 and 70, which are on Page's 26, 27, 28 -- I'm
10 sorry. Question 75 is on Page 28 also referencing
11 that.

12 Specifically, in Question 75,
13 you state that, quote, the operation and
14 maintenance of the groundwater -- of groundwater
15 extraction well systems are an integral part of
16 such systems and its performance and would likely
17 be a requirement for -- be a requirement in any
18 construction or operating permit, end quote. Do
19 you see that answer?

20 A. I do.

21 Q. Is there language in Part 845 that
22 you believe ensures that operation and maintenance
23 of groundwater extraction wells will be a
24 requirement in any construction or operating

1 **permit that uses such wells?**

2 A. I would have to look at 845 to find
3 specific language relating to that. So sitting
4 here right now today I don't know of any specific
5 language. I'd have to look at the rule. I'm just
6 not aware of it.

7 Q. Okay. Mr. Hagen, could the failure
8 to operate and maintain groundwater extraction
9 wells result in exceedances of groundwater
10 protection standards even if the groundwater
11 protection standards had previously been achieved
12 while those wells were operated and maintained?

13 A. Well, I guess it's possible although
14 I'd have to look at the site specific conditions
15 to be able to answer that more specifically. Your
16 question was could it. I guess it's possible.

17 Q. Okay. I'd next like to refer to
18 your answer to environmental groups Question 78 to
19 88 on Page's 29 to 30 relating to slurry walls.

20 Mr. Hagen, could a slurry wall
21 be compromised if the underlying geology is
22 unstable?

23 A. Again, it would have -- I would have
24 to understand the site specific conditions about

1 which you're asking that question. Anything is
2 possible.

3 **Q. Are there any site specific**
4 **conditions that come to mind that would lead to a**
5 **slurry wall being unstable based on underlying**
6 **geology?**

7 A. Well, I thought your question
8 related to the change in the underlying geology
9 and I would have to evaluate that change. Maybe I
10 misunderstood your first question because I
11 thought your question was if there is a change in
12 the underlying value, would that lead to an
13 unstable -- not unstable, but a slurry wall that
14 wouldn't work. I'd have to understand the site to
15 answer that.

16 **Q. So can you tell me what other sort**
17 **of factors you would look at in understanding**
18 **whether the underlying -- or a change in the**
19 **underlying geology would lead to a problem with**
20 **the slurry wall?**

21 A. Well, certainly, I would look at --
22 I would probably look at the underlying geology
23 with respect to its integrity. Oftentimes, when
24 we install slurry walls, we install slurry walls

1 into material we call it keying into the geology.
2 We look for things like lower permeability, key
3 points like clay or till or something like that
4 till that we can key a slurry wall into.

5 I would like to see if that
6 condition from the original design had changed.
7 Anything like that. I'm not sure why it would,
8 but your question was if something changed. So
9 those are the things I would look at. I look at
10 the integrity of the underlying wall.

11 **Q. Have you ever seen a circumstance,**
12 **Mr. Hagen, where such changes in underlying**
13 **geology have taken place that could undermine the**
14 **integrity of a slurry wall?**

15 A. I have not.

16 **Q. Could a slurry wall be compromised**
17 **by erosion?**

18 A. I suppose it could. If there were
19 erosive forces on the slurry wall, it's possible.
20 Again, I'd have to look and see the factors that
21 would be involved in the erosion forces and do an
22 investigation, et cetera. It would really be a
23 site specific analysis to determine whether there
24 was erosive forces.

1 THE COURT REPORTER: I didn't get
2 the end of that.

3 HEARING OFFICER HORTON: We didn't
4 get the end of that response. Whether there was.
5 BY THE WITNESS:

6 A. Whether there was -- I actually
7 don't recall what my answer was. I'm sorry about
8 that. I'd have to understand the erosive forces,
9 those sort of things, and investigate the erosion
10 of that to determine whether or not properly --

11 THE COURT REPORTER: I'm still not
12 getting his last three words.

13 BY THE WITNESS:

14 A. I'm sorry. A properly designed
15 slurry wall really should be able to withstand
16 erosive forces and those sorts of things. So it
17 goes to the original design.

18 HEARING OFFICER HORTON: This is
19 Vanessa Horton. You're just drifting off a little
20 at the very end for our court reporter. So that
21 last response was great, but just in the future
22 speak loudly for us here in Chicago.

23 MR. HAGEN: I'll try to move closer
24 to see if that helps.

1 HEARING OFFICER HORTON: Okay.

2 Thank you.

3 MR. HAGEN: Thank you.

4 BY MS. CASSEL:

5 Q. Mr. Hagen, are there other
6 circumstances besides those that we've talked
7 about, meaning changes in the underlying geology
8 and erosion, that could compromise the slurry
9 wall?

10 A. Sitting here today, I really can't
11 think of those sorts of things. Is there any
12 possibility of anything? I guess there's a
13 possibility, but I can't think of anything. A
14 properly designed slurry wall should withstand all
15 of the events that we have talked about. I have
16 not had an occasion where a slurry wall had been
17 properly designed and has failed.

18 Q. Would the effectiveness of the
19 slurry wall be affected if groundwater flow
20 direction changed at the site?

21 A. Well, the effectiveness of the
22 slurry wall would still be the same. It's just
23 the groundwater flow direction changed. So it
24 depends what you mean by the effectiveness of the

1 slurry wall. The slurry wall is a low
2 permeability barrier to groundwater flow. That's
3 its functions. That's what it does.

4 **Q. So if a slurry wall was placed**
5 **between, for example, an impoundment in a river**
6 **and the groundwater flow from the impoundment**
7 **moved in the other direction, would a slurry wall**
8 **continue to work to block contamination from**
9 **moving offsite?**

10 A. Its function as a barrier to
11 contamination given the fact that the groundwater
12 flow direction changed would -- would not be the
13 same. With that said, I don't know why there
14 would be a circumstance as to why groundwater
15 direction would change. That would be a
16 fundamental question I would ask, particularly
17 given the fact that in this part of the rule, like
18 in Illinois, by in large groundwater flows towards
19 rivers, but I'm just not sure why that -- how that
20 circumstance would come to pass or come to be.

21 **Q. So if a slurry wall were**
22 **compromised, whether that is by change in the**
23 **underlying geology, erosion or some other issue**
24 **would that compromise or damage -- could that**

1 **result in exceedances of groundwater protection**
2 **standards even if the groundwater protection**
3 **standards previously had been achieved when the**
4 **slurry wall was fully functioning and intact?**

5 A. It's possible. Again, site specific
6 conditions would dictate and frankly you'd have
7 monitoring systems that would know, that would be
8 in place when that would be occurring. That would
9 be an important part of your operations.

10 Q. So if it's after the postclosure
11 period has ended, Mr. Hagen, would you have
12 groundwater monitoring systems in place that would
13 be evaluating whether that is happening?

14 A. You would as long as the groundwater
15 protection standard has not been met and --

16 Q. I guess my question -- sorry.

17 A. And that carries -- that carries for
18 some period of time after your corrective measures
19 have been achieved.

20 Q. But compromises to a slurry wall
21 could occur after that period is completed,
22 couldn't they?

23 A. I guess it's possible.

24 Q. Okay. Now, turning to your response

1 to the environmental groups question about -- I'm
2 sorry. Question 93 relating to sheet pile walls,
3 this is on Page 31 of your pre-filed answers.

4 A. Page 31?

5 Q. Yes.

6 A. Okay.

7 Q. In response to the question of
8 whether sheet pile walls need to be maintained,
9 you stated that, I quote, it depends on site
10 conditions. It is not uncommon to maintain sheet
11 pile walls with cathodic protection to minimize or
12 corrosion, do you see that?

13 A. Yes.

14 Q. Can I ask just for clarification.
15 Is there a word missing in your answer after the
16 word minimize?

17 A. There is actually an extra word. I
18 think the word or should be taken out.

19 Q. Okay. Could you explain briefly
20 what cathodic protection involves, Mr. Hagen?

21 A. It's basically almost like a
22 grounding of your steel sheet pile wall to
23 something else to make sure that you don't setup a
24 current along the sheet pile wall. When you setup

1 that current, you can have corrosion. So that's
2 really the purpose of cathodic protection is to
3 minimize that corrosive potential. Again, not
4 uncommon in sheet pile walls.

5 **Q. Does cathodic protection involve any**
6 **components that may need to be replaced?**

7 A. I'd have to think about that.
8 Actually, I don't believe it does. I think --
9 it's not like they're moving parts in cathodic
10 protection. They're not moving parts in cathodic
11 protection.

12 **Q. I'm sorry. I heard they're not**
13 **moving parts. Was your answer there are not parts**
14 **that need to be replaced?**

15 A. Correct, they are not moving parts
16 that would need replacement like a mechanical
17 system.

18 **Q. Are there any components of cathodic**
19 **protection that need to be maintained or operated?**

20 A. I don't believe so. Just installed.

21 **Q. Is there any possibility of**
22 **declining effectiveness of cathodic protection**
23 **over time?**

24 A. I have not experienced that. I

1 don't believe that's the case once you have the
2 system setup appropriately.

3 **Q. And what would you need to have to**
4 **have the system setup appropriately?**

5 A. Really just the ability to ground
6 your wall to some other feature, some other --
7 like a grounding source is what you would need.

8 **Q. So could shifting geology -- again,**
9 **understanding that it is site specific**
10 **consideration, but could shifting geology affect**
11 **your ability to ground the cathodic protection**
12 **system?**

13 A. I don't think that would have a
14 factor. I don't think that would be a factor in
15 cathodic protection.

16 **Q. Can I ask why?**

17 A. Because the cathodic protection
18 isn't dependent upon geology, shifting of geology.

19 **Q. Are there ways in which it could**
20 **become ungrounded?**

21 A. I'm not certain of that either. I
22 think that -- I just think -- I have never
23 experienced that with a sheet pile wall. So I
24 don't think that's a likelihood.

1 Q. Okay. Are there any other factors
2 that come to mind that can affect the
3 effective- -- excuse me -- impact the
4 effectiveness of cathodic protection?

5 A. Not that comes to mind.

6 Q. You note that the maintenance -- I'm
7 sorry. This is in reference to Question 100 of
8 the environmental groups questions on Page 32 in
9 which you state the maintenance of sheet pile
10 walls are an integral part of such systems and
11 their performance and would likely be a part of
12 any construction or operating system permit, do
13 you see that, sir?

14 A. Yes.

15 Q. What was that -- what does that
16 maintenance entail?

17 A. You can check -- most of the sheet
18 pile wall is below grade. If there is any
19 portions of the sheet pile wall above grade, you
20 can check that and I think I stated that somewhere
21 else in my opinion.

22 Q. What is it that you check it for?

23 A. Just check it for continued
24 integrity.

1 **Q. And how frequently is it appropriate**
2 **to do such tests?**

3 A. I don't know if there is a specific
4 frequency of inspection. I would say that under
5 normal -- normal operations of maintenance
6 inspection, it wouldn't surprise me that would be
7 something on the order every half year or so.

8 **Q. Do you think that that seems to you**
9 **as an appropriate frequency?**

10 A. That would be -- given my experience
11 with sheet pile walls, I think that would be
12 appropriate.

13 **Q. If that maintenance weren't**
14 **performed, so those inspections didn't happen,**
15 **could that failure result in exceedances of**
16 **groundwater protection standards even if the**
17 **groundwater protection standards had previously**
18 **been achieved while those sheet pile walls were**
19 **maintained?**

20 A. Again, my answer is really it
21 depends and it depends on site specific
22 conditions.

23 **Q. Moving next to your discussion of**
24 **in-situ treatment. Your response to the**

1 environmental groups Question 103 to 112 between
2 Page's 32 and 35, some follow-up questions on
3 those.

4 **Could you please describe**
5 **permeable reactive barriers which you mention in**
6 **those answers?**

7 MR. MORE: Ms. Cassel, I'd like to
8 make sure the witness understands this and takes
9 his time. You identified ten questions there.
10 I'd like him to understand that he can read
11 through those questions and answers to understand
12 the question you're asking.

13 BY THE WITNESS:

14 A. So, with that, can you rephrase your
15 question or restate your question?

16 BY MS. CASSEL:

17 Q. Sure. I'm simply observing that in
18 some of those answers that I referenced you
19 reference what you call a, quote, permeable
20 reactive barrier and I'm asking if you can please
21 describe what that is.

22 A. Well, that would be the injection of
23 materials that caused some sort of geochemical
24 change or reaction in the formation. A great

1 example would be permeable reactive barrier the
2 injection of something like NanoSteel iron into
3 the subsurface where the iron actually changes the
4 geochemistry of certain -- as an example,
5 potentially arsenic and things like that. So a
6 permeable reactive barrier is the injection of
7 these --

8 HEARING OFFICER HORTON: Could you
9 repeat the last --

10 BY THE WITNESS:

11 A. These materials like NanoSteel iron.
12 And the reason they're called permeable reactive
13 barriers is to allow water to passthrough them as
14 opposed to a slurry wall, which are impermeable.
15 Permeable barriers we want the water to pass
16 through to get the treatment associated with the
17 barrier walls.

18 BY MS. CASSEL:

19 **Q. Do any components of permeable**
20 **reactive barriers require replacement, Mr. Hagen?**

21 A. It is possible that over time a
22 permeable reactive barrier will -- actually, we
23 could evaluate and determine whether or not it was
24 still functioning as it should, but it's possible

1 that their effectiveness could change over time.

2 Q. Can you describe what -- some of the
3 ways in which it might no longer function as it
4 originally was intended?

5 A. Well, the geo- -- the geochemistry
6 would change.

7 Q. Is it possible for such barriers to
8 become non-permeable, like get clubbed up by the
9 things that they're capturing in the walls
10 themselves?

11 A. That depends. It really depends on
12 the formation and the geochemistry and all those
13 sorts of things. So the answer to your question
14 is it depends.

15 Q. Okay. Is there any particular
16 frequency with which it is appropriate to maintain
17 or at least inspect a permeable reactive barrier?

18 A. I don't know if there is what I call
19 a typical frequency. So I don't know if I can
20 answer that question with respect to a typical
21 frequency.

22 Q. Do you have any opinions about what
23 the frequency should be?

24 A. No, and I didn't develop that as

1 part of my opinion.

2 Q. Right. But you recommended the
3 possible use of such walls. So I'm just trying to
4 understand how they work.

5 A. Right.

6 Q. Are there -- are there any other
7 sort of operation or maintenance needs that are
8 part of a functional, permeable, reactive barrier?

9 A. None that I can think of.

10 Q. How -- how does one go about
11 evaluating sort of whether the effectiveness of
12 the barrier has -- has decreased?

13 A. We would look at things like
14 geochemistry and the chemistry of the constituents
15 and the formation and -- the formation that we're
16 testing to determine its effectiveness.

17 Q. So would that be by means of
18 groundwater monitoring or how would you accomplish
19 that?

20 A. Groundwater monitoring would be part
21 of that process.

22 Q. Okay. And what would be the other
23 parts?

24 A. Evaluation of all the data you get

1 from it, the groundwater monitoring.

2 Q. So you would evaluate by means of
3 samples that you take as well as the results of
4 the analysis, is that correct?

5 A. We take into consideration all the
6 factors -- all those factors.

7 Q. Okay. Just to make sure.

8 Is there anything else that you
9 should look at when you're trying to figure out if
10 the permeable reactive barrier is still
11 functioning as it should?

12 A. I can't -- I can't think of anything
13 today. I mean, again, all of the regular
14 monitoring things that we do would be appropriate.
15 I think the groundwater monitoring requirements
16 would be appropriate.

17 Q. Okay. Could the failure to continue
18 evaluating the effectiveness of the permeable
19 reactive barrier lead to it no longer being
20 effective at limiting constituent concentrations
21 or migration of contaminants?

22 A. It depends. It certainly depends on
23 the site specific condition.

24 Q. And could the failure of permeable

1 reactive barrier to function as it should result
2 in exceedances of groundwater protection standards
3 even if the groundwater protection standards
4 previously had been achieved while that barrier
5 was effective?

6 A. Again, my answer is I think it
7 depends on site specific conditions.

8 Q. In your discussion about the
9 groundwater extraction wells, you had noted --
10 and, I'm sorry, this is on Page 7 to 8 of your
11 answers Question 2. So I'll wait for you to get
12 there.

13 A. Yes.

14 Q. In response to Question 2, you had
15 stated that, quote, the owner or operator will
16 need to post financial assurance for the expected
17 cost of the extraction wells to make sure they are
18 operated and maintained, end quote, do you see
19 that?

20 A. Yes.

21 Q. So to make sure I'm clear, your
22 opinion is that financial assurance for
23 groundwater extraction wells would need to include
24 the ongoing cost for operation, maintenance,

1 replacement of components, et cetera, for such
2 wells, is that correct?

3 A. I'm going to read my answer.

4 Q. I apologize. I had a five-year old
5 distraction. Can you repeat your answer?

6 A. I'm reviewing my answer that I gave
7 to you.

8 Q. Okay.

9 A. The operation -- again, this is
10 based on my experience. The operation and
11 maintenance of groundwater extraction wells would
12 be factored into a financial assurances plan.

13 Q. And when you say factored in, that
14 should continue to be -- that should be included
15 in the financial assurance for that --

16 A. I believe that -- that's correct. I
17 believe that was my answer. So, yes.

18 Q. Okay. Is that conclusion also
19 correct with regard to your operation and
20 maintenance requirements for, say, the permeable
21 reactive barrier, do you believe that also needs
22 to be taken into account in the financial
23 assurance request barriers when they are utilized?

24 A. The operation and maintenance of a

1 permeable reactive barrier is much different and
2 far less. I mean, once they're installed,
3 maintenance of that would probably be a factor or
4 consideration that could be part of financial
5 assurance.

6 **Q. Would maintenance of a slurry wall**
7 **also be something that should be factored in to**
8 **financial assurances for use of any slurry wall?**

9 A. Again, I go back and look at my
10 answer, but the fact is that once a slurry wall is
11 installed, its maintenance -- I have never had a
12 situation where I've had to maintain a slurry wall
13 because once it's installed, it's functional and
14 no longer requires any maintenance.

15 **Q. And I apologize. I misspoke. I**
16 **meant to say a sheet pile wall where you had**
17 **referenced maintenance.**

18 A. Yes. I mean, there is some
19 maintenance to ensure the cathodic protection, if
20 it's required, would be maintained, that's
21 correct, and inspected if you can see parts of it.
22 That's correct as I have stated all that before.

23 **Q. I'm sorry. So you believe that**
24 **should be made part of -- that should be taken**

1 into account, factored into financial assurance if
2 such sheet pile walls were being used?

3 A. Yes.

4 Q. Now, moving to ELPC, Prairie Rivers
5 Network and Sierra Club Question 150 on Page 48 of
6 your pre-filed answers.

7 A. Okay.

8 Q. You state in that answer that boron,
9 quote, impacts to Monitoring Well 8 could be
10 attributed to former bottom ash pond, former coal
11 storage yard, or former Ash Pond C, end quote.

12 Could you please describe the
13 basis for your statement that boron impacts to
14 Monitoring Well 8 could be attributed to former
15 bottom ash pond, former coal storage yard, or
16 former Ash Pond C.

17 A. In our analysis of data from these
18 items, including the Hutsonville site which this
19 is in reference to, we looked at up gradient
20 appurtenances and up gradient water quality to
21 help us do a determination of what wells was
22 appropriate for us to look at and probably the key
23 factor in MW-8 was there was a relatively high up
24 gradient boron concentration of MW-8.

1 So we did not believe that it
2 was appropriate to put into our analysis because
3 of that high up gradient water quality result.

4 Q. I'm sorry. Could you explain why
5 that up gradient -- high up gradient boron quality
6 result was related to the former bottom ash pond,
7 former coal storage yard or former Ash Pond C?

8 A. To my understanding those other
9 appurtenances were up gradient of MW-8. That's my
10 recollection.

11 Q. When you have coal ash contaminants
12 in groundwater, can you -- I'm sorry. Scratch
13 that question. Let me move on to ELPC, PRN and
14 Sierra Club's Question 151, which is on Page 49.
15 Let me know when you're there, please.

16 A. Yes.

17 Q. You state that at the Venice CCR
18 surface impoundment, quote, arsenic concentrations
19 in field leachate samples taken from the ash ponds
20 were lower than the maximum concentrations
21 observed in groundwater, end quote. Do you see
22 that?

23 A. Yes.

24 Q. Do you know where -- from where in

1 the CCR surface impoundment the field leachate
2 samples were taken or if they were taken outside
3 of the impoundment?

4 A. I -- I do not know where those
5 samples were taken.

6 Q. Would you agree that samples taken
7 from the top of the water column in a CCR surface
8 impoundment likely do not contain the same
9 concentration as poor water at the bottom of a CCR
10 surface impoundment, Mr. Hagen?

11 A. It really depends. I -- I can't
12 opine on that particularly with respect to this.
13 I don't know where those samples were taken. So
14 there is a high-degree of variability in any water
15 sampling that is undertaken. I'd have to look at
16 the data from a particular site to make judgments
17 with respect to the data.

18 Q. Okay. Now, moving to -- let's see.
19 Environmental groups Question 153 and this is on
20 Page 50 of your pre-filed testimony.

21 A. Yes.

22 Q. You discussed remediation being,
23 quote, destined for failure, do you see that?

24 A. Yes.

1 **Q. Could a remediation be destined for**
2 **failure, meaning that it failed to achieve the**
3 **groundwater protection standards, if there is an**
4 **onsite source of the same pollutant that is not**
5 **addressed by remediation?**

6 **A. So I'm not sure I understand the**
7 **answer -- I mean, the question. If you can**
8 **rephrase or I could restate my answer to you if**
9 **you'd like that.**

10 **Q. No, I think this is a different**
11 **question. I'm asking whether a remediation could**
12 **fail to achieve the groundwater protection**
13 **standards if there is an onsite source of the same**
14 **pollutant that is not addressed by the**
15 **remediation?**

16 **A. If I'm understanding your question**
17 **correctly, I believe that's what my answer is is**
18 **that if a remediation is undertaken, but is not**
19 **addressing the actual source of the contamination,**
20 **it is likely that that remediation will fail.**

21 **Q. Okay. And then finally I wanted to**
22 **ask you about your response to Illinois EPA**
23 **Question 5C to 5B. This is on Page 5 of your**
24 **pre-filed testimony.**

1 A. I'm there. Do you want me to read
2 it?

3 Q. Great. Sure. Go ahead and take
4 your time and read those two answers if you'd
5 like.

6 A. So you're going to ask me about 5B
7 and C?

8 Q. Correct.

9 A. I'll read.

10 Q. So you state in that -- in 5B, I
11 believe that a groundwater model, quote, would not
12 likely have the sensitivity to predict, end quote,
13 the increase in boron concentration between two
14 sampling events such as you identified in your
15 testimony on Page 30. Is that correct?

16 A. Well, you can read my response. I
17 do say a model would not likely have the
18 sensitivity to predict such a small change in two
19 sampling events as identified, that's correct.

20 Q. And then you follow that testimony
21 with the answer to 5C where you state that you
22 believe, quote, a groundwater model that predicted
23 such an increase would be a valid justification
24 for an alternative source demonstration, do you

1 see that as well?

2 A. Yes.

3 Q. So my question is when a groundwater
4 model likely lacks the sensitivity to predict the
5 type of increase between sampling events, is it
6 appropriate, in your opinion, to rely on that
7 model alone to make an alternative source
8 demonstration for such increase?

9 A. If you actually look at my answer,
10 there's a couple of things. One is that I
11 indicated that an alternative source
12 demonstration -- oftentimes weight of evidence
13 demonstrations do not rely solely on one
14 justification such as a model. And oftentimes in
15 my experience the use of groundwater models --

16 HEARING OFFICER HORTON: Mr. Hagen,
17 this is Vanessa Horton. The court reporter
18 didn't -- in my experience. After that was cut
19 off.

20 THE WITNESS: Okay.

21 MR. MORE: Just start over.

22 BY THE WITNESS:

23 A. So there is two parts to the answer.
24 The first is alternative -- alternate source

1 demonstrations are oftentimes weight of evidence
2 determinations. I do not rely solely on one
3 justification such as a modeling result. Use of
4 groundwater models can be part of ASD
5 determinations, though. I think they're
6 appropriate and valid.

7 The second part of my answer is
8 that in reviewing that question I was really
9 answering from a more generic position of, yes,
10 groundwater models can be used in ASD's and that's
11 really what I meant.

12 BY MS. CASSEL:

13 **Q. I apologize, Mr. Hagen. Now, I**
14 **missed the last part of your answer. I know you**
15 **were saying that modeling is one portion in your**
16 **experience as various things that go into**
17 **alternate source demonstration.**

18 **I guess what my question was is**
19 **whether you'd rely on that model alone to justify**
20 **an alternative source -- alternate source**
21 **demonstration in that circumstance?**

22 **A. In that circumstance, I would be**
23 **looking at it more as the weighted evidence and**
24 **just part and parcel of all the facts related to**

1 the alternate source demonstration.

2 Q. So if there were nothing else than
3 the alternate source demonstration, would you rely
4 on that model to justify an alternate source
5 demonstration in the circumstances described?

6 A. The answer to that is likely not,
7 although as I mentioned what you didn't hear is my
8 interpretation of that question was more along the
9 lines can you use groundwater models and alternate
10 source demonstrations and my answer was yes. So
11 that is how I interpreted that question.

12 Q. Okay. Where a groundwater model may
13 lack the sensitivity to predict a particular
14 outcome, in your opinion, would it be prudent to
15 have more than one person familiar with modeling
16 to review that modeling to evaluate whether an
17 outcome is accurate or justified?

18 A. Yeah, I'm not quite sure I
19 understand the question and certainly it's beyond
20 the scope of my opinion that I provided to the
21 Board.

22 Q. I'm asking about the reliability of
23 a circumstance like that where you have the model
24 that lacks sensitivity to predict an outcome, do

1 you think it's useful to have more than one person
2 review such an alternate source demonstration, if
3 it's used for that, in evaluating whether it's
4 successful -- or makes a successful demonstration?

5 MR. MORE: I'm going to object to
6 the question. Asked and answered.

7 MS. CASSEL: Mr. Hagen said it was
8 outside the scope of his testimony. It's within
9 the realm of what is relevant to this rulemaking
10 and my understanding is that is the standard here
11 and he is an expert on the use of such models so
12 I'm asking his opinion as to the use of -- the
13 worthiness of multiple eyes on such modeling.

14 MR. MORE: The scope of the question
15 is limited to the scope of the testimony presented
16 and the response to the questions -- the
17 questions. Mr. Hagen has testified that he's not
18 offering an opinion on what regulatory oversight
19 and review should occur for an ASD determination.

20 HEARING OFFICER HORTON: This is
21 Ms. Horton.

22 Mr. Hagen, so your answer to
23 Ms. Cassel's question would be you don't know
24 or --

1 BY THE WITNESS:

2 A. The answer is oftentimes -- most
3 oftentimes when we do any work all of our work is
4 checked by someone else. So I don't have any
5 problem answering that our work is checked and
6 when I do calculations, I have someone check them.
7 When someone else does calculations, we have those
8 checked. When groundwater models are developed,
9 we have people crosschecking those groundwater
10 models. So the answer is we have people looking
11 over groundwater models before we even submit
12 them.

13 BY MS. CASSEL:

14 Q. So just to follow up to that answer,
15 Mr. Hagen, so you believe there is value in having
16 models and evaluations checked by other people?

17 MR. MORE: Who are the others in the
18 question? Mr. Hagen answered internally before he
19 submits something he has individuals within his
20 organization review it. Who are you referring to
21 should be reviewing these models?

22 MS. CASSEL: I'm not limiting my
23 question to particular entities or not. I'm
24 simply saying is it valuable to have others check

1 the work when it involves, for example,
2 complicated groundwater models and the assumptions
3 that go into them?

4 MR. MORE: Yeah, I -- objection.
5 Asked and answered. He's answered the question.

6 HEARING OFFICER HORTON: I'll
7 sustain the objection. I do believe he did ask --
8 answer that question.

9 MS. CASSEL: All right. That
10 concludes my questioning although I reserve the
11 right for follow up.

12 HEARING OFFICER HORTON: Okay.
13 Thank you. We'll move on to Midwest Generation.

14 Ms. Gale, any questions for
15 Mr. Hagen?

16 MS. GALE: I have no questions for
17 this witness. Thank you.

18 HEARING OFFICER HORTON: Thank you.
19 City of Springfield, Ms. Williams, any questions
20 for this witness?

21 MS. WILLIAMS: No questions.

22 HEARING OFFICER HORTON: Illinois
23 Environmental Regulatory Group, Ms. Brown, any
24 questions?

1 MS. BROWN: No questions for this
2 witness.

3 HEARING OFFICER HORTON: Okay.
4 Ameren, Ms. Manning, any questions?

5 MS. MANNING: No questions at this
6 time. Thank you.

7 HEARING OFFICER HORTON: Okay.
8 Attorney General's Office, Mr. Armstrong, any
9 questions?

10 MR. ARMSTRONG: No questions. Thank
11 you.

12 HEARING OFFICER HORTON: Pollution
13 Control Board Technical Unit, Mr. Rao, any
14 questions?

15 MR. RAO: No questions. Thank you.

16 HEARING OFFICER HORTON: Okay. Any
17 follow-up questions for Mr. Hagen?

18 MS. DIERS: This is Ms. Diers. I
19 have one question, please.

20 HEARING OFFICER HORTON: Please go
21 ahead.

22 E X A M I N A T I O N

23 BY MS. DIERS:

24 Q. Mr. Hagen, do contaminants pass

1 **through slurry walls by dispersion?**

2 A. That's an interesting question. To
3 the extent that there is groundwater flow through
4 a slurry wall, which is very minimal, it's the
5 purpose of the slurry wall, any of that minimal
6 groundwater flow would also have a component of
7 dispersion because all groundwater flow has an
8 element of dispersion.

9 **Q. Do they pass by diffusion?**

10 A. The answer to that is, yes,
11 diffusion is, again, a very slow process and
12 particularly with respect to groundwater velocity
13 and contaminant transport the fusion would be far
14 slower, but the answer is, yes, it can -- the
15 fusion can be a process by which contaminants go
16 through a slurry wall.

17 MS. DIERS: Okay. Nothing further.
18 Thank you.

19 HEARING OFFICER HORTON: Okay. Any
20 other follow-up questions for Mr. Hagen?

21 MR. MORE: Yes, this is Josh More.
22 I have a couple of questions for him.

23 E X A M I N A T I O N
24

1 BY MR. MORE:

2 Q. Mr. Hagen, would you turn to
3 Question 87 on Page 30 and Question 99 on Page 32
4 of your pre-filed responses to questions.

5 A. 87 and 99?

6 Q. Yes.

7 A. Yes.

8 Q. Have you had a chance to look at
9 those questions and those answers?

10 A. Yes.

11 Q. And in response to questions -- are
12 those questions -- are those answers correct that
13 the functionality of the slurry wall should not
14 change, the changing of environmental conditions
15 and the functionality of the sheet pile wall
16 should not change with changing environmental
17 conditions, those answers remain correct?

18 A. They do.

19 MR. MORE: I have no further
20 questions.

21 HEARING OFFICER HORTON: Okay. Any
22 follow-up questions for Mr. Hagen?

23 Seeing none, hearing none,
24 Mr. Hagen, thank you. You are dismissed.

1 MR. HAGEN: Thank you.

2 HEARING OFFICER HORTON: All right.

3 We'll move on to Dynegy's next witness Andrew
4 Bittner.

5 Mr. Bittner, are you on the line
6 or in person?

7 MR. BITTNER: I am. I'm here. Can
8 you hear me?

9 HEARING OFFICER HORTON: Yes. Yes,
10 we can hear you and see you. Mr. Court Reporter,
11 can you swear in Mr. Bittner?

12 WHEREUPON:

13 ANDREW BITTNER
14 called as a witness herein, having been first duly
15 sworn, deposeth and saith as follows:

16 HEARING OFFICER HORTON: Mr. More,
17 would you like to enter Mr. Bittner's pre-filed
18 testimony as an exhibit?

19 MR. MORE: Yes, I would. Thank you.

20 HEARING OFFICER HORTON: Okay. That
21 will be Exhibit 37.

22 (Document marked as Hearing
23 Exhibit No. 37 for
24 identification.)

1 HEARING OFFICER HORTON: And then
2 would you like to enter Mr. Bittner's pre-filed
3 answers as an exhibit?

4 MR. MORE: Yes, I would. Thank you.

5 HEARING OFFICER HORTON: Okay. That
6 is Exhibit 38.

7 (Document marked as Hearing
8 Exhibit No. 38 for
9 identification.)

10 MR. MORE: And then I would move to
11 admit into the record as Exhibit 39 Attachment E
12 to Dynegy's pre-filed exhibits, Mr. Bittner's
13 Power Point presentation.

14 HEARING OFFICER HORTON: Okay. That
15 will be Exhibit 39.

16 (Document marked as Hearing
17 Exhibit No. 39 for
18 identification.)

19 HEARING OFFICER HORTON:
20 Mr. Bittner, do you wish to offer a brief
21 introduction or summary of your testimony?

22 MR. BITTNER: I do.

23 HEARING OFFICER HORTON: Okay.
24 You'll be limited to five minutes. Please

1 proceed.

2 MR. BITTNER: Thank you. My name is
3 Andrew Bittner. I'm a principal at Gradient in
4 Boston, Massachusetts. I'm going to be referring
5 to my Power Point slide here. On Slide 2, I've
6 presented my experience and my expertise, but
7 because I don't have a lot of time I'm going to
8 move on to Slide 3. I know this is a summary of
9 all the opinions that I've presented in my
10 pre-filed testimony and that are presented in
11 greater detail of my pre-filed testimony.

12 In general, all of these
13 opinions pertain to certain aspects of Part 845,
14 Subpart F, which is the groundwater monitoring and
15 corrective action section, and Subpart G, which is
16 the closure and postclosure care section. I don't
17 have time to discuss each of these in detail now.
18 So I'm going to focus on the first three opinions.

19 My first opinion is that Part
20 845.710, which lays out the criteria that must be
21 evaluated during the closure alternatives
22 assessment, adequately ensures the protection of
23 human health and the environment. The factors
24 that are required for evaluation in each closure

1 alternatives assessment are consistent with
2 existing RCRA, CERCLA and federal CCR rule
3 standards. EPA has determined that these criteria
4 are sufficient to ensure protection of human
5 health and the environment.

6 I presented in this table a
7 comparison of the factors that are used in Part
8 845.710 with the existing environmental statutes.
9 This demonstrates that Part 845, the closure
10 alternatives analysis factors, are, in fact,
11 consistent with these pre-existing environmental
12 regulations.

13 Additionally, the closure
14 alternatives assessment evaluation factors are
15 sufficient for evaluating all CCR surface
16 impoundments, including those with intersecting
17 groundwater and those that may be located in
18 floodplains.

19 On Slide 5, worker safety should
20 be explicitly listed as an evaluation factor in
21 the closure alternatives assessment. Worker
22 safety is already listed as a factor of
23 consideration under existing regulations,
24 including RCRA, CERCLA and Illinois municipal

1 solid waste regulations.

2 On Slide 6, I believe that cost
3 should also be explicitly listed as an evaluation
4 factor in the closure alternatives assessment.

5 Again, cost is already listed as a factor of
6 consideration in existing federal and state
7 regulations, including CERCLA, RCRA and the
8 Illinois municipal solid waste regulations.

9 On Slide 7, this is the second
10 opinion that was on my summary slide, and that is
11 closure by removal is not always more protective
12 of groundwater than closure in place. The federal
13 CCR rule notes that both closure in place and
14 closure by removal can be equally protected if
15 they're implemented properly. Which closure
16 alternative is more protective depends on site
17 specific, hydrogeologic and environmental
18 conditions. So site specific analyses are
19 required to determine which closure methods are
20 more protective of groundwater at a given site.

21 On Slide 8, I performed modeling
22 illustrating this point. Models were developed,
23 for example, CCR surface impoundments. These
24 impoundments have broad applicability, but do not

1 represent an individual impoundment nor do they
2 represent the industry as a whole. Now, the
3 modeling conclusions demonstrate that closure in
4 place is more protective of groundwater at some
5 sites and closure by removal is more protective of
6 groundwater at some points.

7 Now, on Slide 9, the final
8 opinion that I think I'm going to have time to
9 discuss here is that the consolidation of CCR's
10 used during closure as defined in Part 850.750(d)
11 is protective of human health and the environment.
12 Because the fluids that flow through an
13 impoundment after capping are controlled by the
14 properties of the impermeable cap, using CCR in
15 support for closure has no effect on the CCR
16 constituent mass that is migrating downward to
17 groundwater or the ability to achieve performance
18 criteria or to meet groundwater protection
19 standards.

20 So, with that, I'd be happy to
21 answer some questions.

22 HEARING OFFICER HORTON: Okay.
23 Thank you, Mr. Bittner. We'll begin with
24 questions from Illinois EPA.

1 Ms. Diers, do you have any
2 questions for this witness?

3 MS. DIERS: We do not.

4 HEARING OFFICER HORTON: Okay. Then
5 to the environmental groups, do you have any
6 questions for Mr. Bittner?

7 MR. OZAETA: This is Mychal Ozaeta.
8 Can you hear me okay?

9 MR. MORE: Yes.

10 HEARING OFFICER HORTON: Yes.

11 E X A M I N A T I O N

12 BY MR. OZAETA:

13 Q. Good afternoon. Mychal Ozaeta on
14 behalf of Prairie Rivers Network.

15 A. Hi. How are you?

16 Q. Good. Good. How are you?

17 A. I'm good.

18 Q. Mr. Bittner, I'd like to start by
19 directing your attention to Page 7 of your
20 testimony.

21 A. All right. I'm there.

22 Q. On Page 7 of your testimony, you
23 state that, quote, the closure alternatives
24 evaluated against the rigorous Part 845.710

1 **criteria should be practicable, viable**
2 **alternatives.**

3 **Can you -- can you define how**
4 **you used the term viable for purposes of this**
5 **opinion?**

6 A. Sure. If you don't mind, I think
7 I -- this was one of the questions that I answered
8 in my response. So if you don't mind, can we go
9 to those?

10 Q. Sure. I'm good. Do you have the
11 question in mind?

12 A. I do. I have to find where it is,
13 but I know --

14 Q. I believe your -- sorry. I didn't
15 mean to speak over you. I believe you're talking
16 about Question 5, the environmental groups
17 Question 5, which is Page 9 of your pre-filed
18 responses.

19 A. It was out several times, but that
20 is one them.

21 HEARING OFFICER HORTON: Mr. Ozaeta,
22 sorry, this is Vanessa Horton. It was Page 5,
23 Question 9?

24 MR. OZAETA: Oh, no. Question 5 of

1 the environmental groups, ELPC, Prairie Rivers
2 Network and Sierra Club, Question 5 on Page 9 of
3 Mr. Bittner's pre-filed responses.

4 HEARING OFFICER HORTON: Thank you.

5 BY THE WITNESS:

6 A. I believe it was also Illinois
7 Environmental Protection Agency Question 1 was
8 this topic as well. So I believe that a -- you
9 know, when these alternatives are developed that
10 just -- you know, it's more than to say you should
11 evaluate what possible alternatives are. I
12 believe that viable implies a degree of
13 reasonableness and so that's why when I say a
14 practical, viable alternative, I was -- I was
15 indicating that the closure alternatives should
16 be -- should pass a degree of reasonableness.
17 They should be reasonably -- reasonable
18 alternatives that can be implemented at a given
19 site.

20 BY MR. OZAETA:

21 **Q. In general, is some form of analysis**
22 **then required to identify these viable**
23 **alternatives?**

24 A. Well, I think through a screening

1 level analysis, you know, you could determine
2 what -- what is viable and what is not. The
3 example that I think I gave is that there may be
4 some sites where an onsite landfill is not able to
5 be constructed simply because there may not be --
6 there may not be sufficient land to construct such
7 a landfill.

8 When you know a priori that such
9 an option is not available, then I don't think it
10 should be a required -- a required option that
11 needs to be analyzed in the closure alternatives
12 assessment.

13 MR. OZAETA: Is somebody -- I'm
14 getting some noise from somebody. Maybe Stu.

15 HEARING OFFICER HORTON: I think we
16 were able to mute that noise.

17 MR. OZAETA: Thank you.

18 BY MR. OZAETA:

19 **Q. Mr. Bittner, can I next direct your**
20 **attention to your pre-filed response to ELPC, PRN**
21 **and Sierra Club's Question 18 --**

22 A. Eighteen.

23 **Q. -- which is on Page 17 of your**
24 **pre-filed responses.**

1 A. Eighteen. Sure.

2 Q. And just for purposes of these next
3 several questions, these will all be -- these will
4 all be follow-up questions related to the
5 pre-filed questions from ELPC, PRN and Sierra
6 Club.

7 A. Okay. I'm at Question 18.

8 Q. Okay. Great. In this response, in
9 part of your response, you state that the federal
10 CCR rule was modeled on existing regulations,
11 quote, was modeled on existing regulations that
12 pertain to municipal solid waste landfills, end
13 quote. You also state in this response, quote,
14 Page 21409 of the preamble to the federal CCR
15 rule, which is Hearing Exhibit 5, for purposes of
16 this question I'd like to turn to Hearing Exhibit
17 5 which is the preamble to the federal CCR rule,
18 specifically that Page 21409.

19 A. Let me -- I have to find that. Hold
20 on a second. It was e-mailed to me yesterday, but
21 it's -- it will just take me a minute. You said
22 it was Exhibit 5?

23 Q. Yes. It's Hearing Exhibit 5.

24 A. All right. Do you know what page

1 number it is?

2 **Q. 21409 specifically.**

3 A. Do you know what page number of the
4 PDF it is? Let's see. I'll find it. Don't
5 worry. 21409.

6 **Q. Yes.**

7 A. Okay. I'm here.

8 **Q. And I'd like to specifically draw**
9 **your attention to the section in Column 3 entitled**
10 **M Closure and Postclosure Care?**

11 A. I don't see where that is. Oh,
12 Column 3. I see it. Yup.

13 **Q. Yeah. And so the second -- the**
14 **third sentence of the second paragraph under that**
15 **section, which is just two sentences after one of**
16 **the sentences you quoted in your response --**

17 A. Can you tell me what sentence
18 you're --

19 **Q. Yeah. Yeah, it's part of the**
20 **question. Can you please read the sentence that**
21 **starts with "For CCR surface impoundments."**

22 A. For CCR -- the one that starts CCR
23 landfills? I'm sorry.

24 **Q. No, the -- the third sentence of the**

1 **second paragraph. It starts --**

2 A. Sorry. I missed that part. Third
3 sentence of the second paragraph.

4 Q. It starts with "For CCR surface
5 impoundments".

6 A. Okay. "For CCR surface
7 impoundments, the Agency modeled the proposed
8 requirement on current regulations that apply to
9 interim state hazardous waste surface
10 impoundments, which are codified in Part 265."

11 Q. Thank you. I'd like to next draw
12 your attention to Page's 20 to 23 of your
13 pre-filed responses. For purposes of this
14 question, you can just start on Page 23 of your
15 pre-filed responses.

16 A. Okay.

17 Q. And starting with this line of
18 questions on Page's 20 to 23 of your pre-filed
19 responses you state multiple times, quote, the
20 development of my opinion did not require me to
21 review U.S. EPA's model in detail. Critiques of
22 the model and/or model inputs by U.S. EPA are not
23 relevant to my testimony and do not impact my
24 conclusions, end quote.

1 **On Page 16 of your testimony,**
2 **you rely on U.S. EPA's 2014 CCR Risk Assessment to**
3 **support the opinion that closure by removal is not**
4 **always more protective than closure in place,**
5 **correct?**

6 A. I did -- I did rely on it for that
7 statement, yes.

8 **Q. Is it accurate that before citing to**
9 **the 2014 U.S. EPA risk assessment in your**
10 **testimony, you did not review in detail the model**
11 **U.S. EPA relied on in coming to the findings that**
12 **you cite?**

13 A. I don't think I needed to go through
14 and review in detail the types of issues that were
15 raised in these questions in order to rely on the
16 U.S. EPA's finding.

17 **Q. So because you felt you didn't need**
18 **to, just to confirm, you didn't review the**
19 **detailed model?**

20 A. For the scope of this testimony, I
21 did not do a detailed review of the U.S. EPA's
22 model.

23 **Q. Thank you. I'd like to next direct**
24 **your attention to pre-filed response to Question**

1 **67 on Page 30.**

2 A. Okay.

3 **Q. You state that arsenic is a common**
4 **risk-driving constituent associated with CCR**
5 **surface impoundments and that you did not evaluate**
6 **other constituent modeling in your testimony, are**
7 **there any other common risk-driving constituents**
8 **associated with CCR surface impoundments besides**
9 **arsenic?**

10 HEARING OFFICER HORTON: Mr. Ozaeta,
11 could you just repeat your question. You broke up
12 a little bit over here.

13 MR. OZAETA: I apologize. Yes. The
14 question, right? Did you get the part just
15 talking about the arsenic or should I just repeat
16 the whole?

17 HEARING OFFICER HORTON: Just repeat
18 the whole thing. That would be best. Thank you.

19 MR. OZAETA: Yeah. No problem.

20 BY MR. OZAETA:

21 **Q. Mr. Bittner, on -- in your pre-filed**
22 **response to Question 67 on Page 30, you state that**
23 **arsenic is a common risk-driving constituent**
24 **associated with CCR surface impoundments and that**

1 you did not evaluate other constituents as part of
2 the modeling in your testimony.

3 Are there any other common
4 risk-driving constituents associated with CCR
5 surface impoundments besides arsenic?

6 A. I would say that depends. Arsenic
7 is, in my experience, the most common risk-driving
8 constituent at CCR sites. That is due to, you
9 know, the low groundwater protection standard and
10 its other properties associated with arsenic. At
11 other sites, though, there may be -- there may be
12 other CCR constituents that are driving risks, but
13 I would say arsenic is the most common
14 risk-driving constituent that I've seen in my
15 experience.

16 Q. Are there other -- in your
17 experience, have you seen other common -- I know
18 you say it depends. For instance, you say arsenic
19 is the first, the most common. I mean, can you
20 think what would be the second most common?

21 A. I don't know what the second most
22 common constituent would be. I mean, I haven't
23 rated it like that. It all varies, you know, site
24 specifically and I think arsenic is certainly I

1 think what was most commonly represented in EPA's
2 risk assessment, but the -- in my experience,
3 arsenic is what I see come up the most, but there
4 may be others that, you know, at other sites, but
5 what is number two? I don't know. It's -- you
6 know, there are too many site specific factors
7 that play into that.

8 **Q. But for purposes of your modeling,**
9 **notwithstanding the site specific factors, you**
10 **were able to still identify arsenic as one of**
11 **the -- and use arsenic for purposes of your**
12 **modeling?**

13 A. For the purposes of the modeling, I
14 used arsenic. Again, I used Arsenic 3 and Arsenic
15 5 because they present a range of different
16 mobilities, which was relevant for the modeling.
17 You get kind of relatively fast and relatively
18 slow constituents and for the purposes of the
19 modeling that I was looking at, you know, looking
20 at being able to demonstrate that closure in
21 place -- or that closure by removal is not always
22 more protective of groundwater, I was able to do
23 that using arsenic and arsenic made sense to do
24 that because that is the most common risk-driving

1 constituent that I'm aware of.

2 Q. Thank you. I'd like to next draw
3 your attention -- direct your attention to your
4 pre-filed response to Question 80 on Page 33.

5 A. You said 33?

6 Q. Yes. Question -- response to
7 Question 80 on Page 33.

8 A. Sure. I'm there.

9 Q. In this response, you state that for
10 purposes of your modeling you, quote, assumed a
11 reasonable truck size of 10 cubic yards, end
12 quote, to be used for closure by removal of a CCR
13 surface impoundment. Elsewhere in your pre-filed
14 testimony -- this might require you, I apologize
15 to go in between responses.

16 Elsewhere in your pre-filed
17 responses, specifically response to Question 98 on
18 Page 37, you, quote, assumed reasonable truck
19 sizes of 10 and 15 cubic yards, end quote, when
20 discussing closure by removal at the Vermilion
21 site near Oakwood, Illinois, do you see that?

22 A. I see that, yes.

23 Q. For purposes of closure by removal,
24 is there a range of reasonable truck sizes?

1 A. In my -- yes, in my experience, the
2 truck sizes that are generally allowed on
3 highways, on roads, varies between 10 to 15 cubic
4 yards. Maybe there are some that are bigger.
5 Obviously, it depends on what the road limitations
6 are and what the -- you know, what the turning
7 radius, you know, is, what the access is, but
8 between 10 and 15 cubic yards is generally what
9 I've seen to be a typical truck size.

10 **Q. And so the basis for using 10 and 15**
11 **cubic yards within your testimony, that basis is**
12 **based on your experience with closure by removal**
13 **projects?**

14 A. That's based on my experience of
15 what the typical truck sizes are that are used in
16 these types of applications.

17 **Q. Are you aware of whether trucks that**
18 **hold more than 15 cubic yards have been used for**
19 **the closure by removal of CCR surface**
20 **impoundments?**

21 A. I am not aware of any situations
22 where they have. There may be, there may be cases
23 where -- where they -- where they have been. I
24 was simply trying to, you know, pick what I

1 thought was a reasonable truck size for the
2 analysis that I was doing.

3 Q. I'd like to next direct your
4 attention to your pre-filed response to Question
5 84 on Page 34.

6 A. Okay.

7 Q. You state that you assume, quote, a
8 reasonable number of 100 roundtrip truck trips per
9 day, end quote, for the closure by removal
10 modeling in your testimony. Elsewhere in your
11 pre-filed response -- responses, specifically your
12 response to Question 99 on Page 37, you assumed,
13 quote, a reasonable number of 60 roundtrip truck
14 trips per day, end quote, when discussing closure
15 by removal at the Vermilion site.

16 Can you please explain the
17 variation in your assumptions of roundtrip truck
18 trips per day for modeling closure by removal?

19 A. Again, in my experience, I think
20 both of those are typically within the, you know,
21 range that you see, you know, for closure by
22 removal applications. Whether it's -- whether
23 it's 60 or 100, you know, that depends on site
24 specific considerations. You know, how many

1 trucks you have coming and going to a site and
2 driving through communities and, you know, what
3 the truck traffic is on the roads. Those are all
4 site specific considerations, but I think these
5 values that I use are within the range of, you
6 know, the typical numbers that I'm aware of for
7 these types of applications.

8 **Q. And what is the basis for your**
9 **opinion that these are both reasonable numbers for**
10 **roundtrip truck trips per day?**

11 A. My basis is my experience for, you
12 know, working in CCR industry.

13 **Q. And if you assumed 100 roundtrip**
14 **truck trips per day at the Vermilion site, would**
15 **that affect your estimates on -- your estimate on**
16 **Page 23 of your testimony that the excavation at**
17 **the Vermilion site would take approximately 13**
18 **years?**

19 A. Sorry. What page did you say?

20 **Q. On Page 23 of your testimony, you**
21 **provide the Vermilion site as an example for**
22 **closure by removal.**

23 A. Can you repeat the question?

24 **Q. Yeah. Yeah. Of course. You -- for**

1 purposes of the Vermilion site, you assume 60
2 roundtrip truck trips and you estimated that, you
3 know, as part of the 60 roundtrip truck trips that
4 the excavation process at the Vermilion site would
5 take approximately 13 years. So my question is if
6 you assume 100 roundtrip truck trips per day at
7 the Vermilion site, wouldn't that affect this
8 estimate of 13 years for the excavation process?

9 A. If you assumed -- if you assumed 100
10 truck roundtrips per day, you know, for this case,
11 it would definitely reduce the years that are
12 required. It would -- you know, 13 would change,
13 but I will say that, you know, this analysis
14 demonstrated that based on 60 roundtrips a day,
15 there's going to be a truck passing through the
16 community every five minutes.

17 So if you increase that from 60
18 to 100 trucks, that's going to go down to three
19 minutes. So it's going to have -- you're going to
20 have a shorter duration of the overall -- of the
21 overall process, but you're going to have more
22 truck traffic going through the neighborhoods and
23 through the communities.

24 Q. Thank you. I'd like to next direct

1 your attention to your pre-filed response to
2 Question 87 on Page 35.

3 A. Okay.

4 Q. In this response, you state that you
5 are aware of multiple sites where CCR removal has
6 been performed by trucks.

7 Are you aware of sites where CCR
8 removal has been performed by rail or barge or a
9 combination of truck, rail and/or barge?

10 A. I am aware of one site that I can
11 think of off the top of my head that CCR removal
12 was performed by barge. In my experience, most --
13 most CCR removal is generally performed by truck.
14 I know of a number of sites where there is not --
15 you know, the sites can't support barge traffic,
16 either the rivers are not deep enough or there is
17 not a loading and unloading station that is
18 available.

19 I'm also aware of sites where,
20 you know, there is no -- there is no train access.
21 For example, I know of a number of sites where the
22 power plant itself may be served by rail, but the
23 surface impoundments are located on the opposite
24 side of a surface water feature and that side is

1 not serviced by road.

2 So in my experience, truck is
3 the most common way. It is not the only -- it is
4 not the only transportation method that is
5 possible, but, in my experience, it's the most
6 common one.

7 Q. Thank you. I'd like to next direct
8 your attention to your pre-filed response to
9 Question 100 on Page 38.

10 A. Thirty-eight. Okay.

11 Q. In this response, you state that
12 you, quote, assumed a reasonable number of five
13 work days per week, end quote, when discussing
14 closure by removal at the Vermilion site, what is
15 the basis for this assumption?

16 A. I was simply choosing what I thought
17 was a reasonable -- you know, a reasonable number.
18 Perhaps in reality it's seven days, maybe it's
19 four days. I was picking what I thought was a
20 reasonable number.

21 Q. So if you assumed an average between
22 five and seven work days per week, for instance at
23 the Vermilion site, specifically at the Vermilion
24 site, would that affect your estimate on Page 23

1 **of your testimony that the excavation process**
2 **would take approximately 13 years?**

3 A. The number -- the number of work
4 days would affect the duration estimate although,
5 again, it would also affect, you know, the number
6 of days per week during which truck traffic is
7 traveling through the nearby communities and the
8 nearby roads. So it would, you know, affect both
9 of those factors.

10 **Q. Thank you.**

11 MR. OZAETA: I apologize. Can you
12 bear with me one second. My landscapers decided
13 to come conveniently right now.

14 HEARING OFFICER HORTON: This is --

15 MR. OZAETA: I'm just going to close
16 a window real fast.

17 HEARING OFFICER HORTON: Okay. This
18 is -- I'll wait until you get back.

19 MR. OZAETA: Thank you. Hopefully
20 that should take care of any potential noise. I
21 apologize again.

22 HEARING OFFICER HORTON: This is
23 Vanessa Horton in Chicago. Mr. Ozaeta, I note
24 that we're right at 5:00, which is our stopping

1 point for the day. I'd just like to ask, I guess
2 generally, how many more questions do you envision
3 asking Mr. Bittner?

4 MR. OZAETA: I only have a few more.
5 If everyone is willing to stay maybe five minutes
6 past, I think we can get done. I can complete my
7 questions, at least.

8 MR. MORE: This is Josh More. I
9 would prefer we finish with Mr. Bittner, all of
10 the questioning, so that he doesn't have to
11 carryover to the next day and worry about it
12 tonight.

13 HEARING OFFICER HORTON: Okay.
14 We'll try and finish today and go for another 10
15 or 15 minutes.

16 MR. MORE: Thank you.

17 MR. OZAETA: Thank you. Can I
18 proceed?

19 HEARING OFFICER HORTON: Yes.

20 BY MR. OZAETA:

21 Q. Mr. Bittner, I'd like to next direct
22 your attention to your pre-filed response to
23 Question 121 on Page 44.

24 A. One second. You said 121?

1 **Q. Yes, 121 on Page 44.**

2 A. Okay.

3 **Q. In this response, you state, quote,**
4 **onsite CCR consolidation in an existing SI that**
5 **increases the height of the stored CCR's above the**
6 **water table will not increase constituent**
7 **migration to the underlying aquifer, because the**
8 **downward hydraulic flux after consolidation would**
9 **be controlled by the overlying impermeable cap,**
10 **end quote.**

11 **Does this statement assume a**
12 **fully functioning cap that has not deteriorated?**

13 A. This statement does -- does require
14 that the -- you know, that the cap is working as
15 designed and, you know, as appropriate. It is
16 limiting the downward flux. You know, typically
17 as is the case for surface impoundments and
18 landfills, there's a monitoring process to make
19 sure that that landfill cap is continuing to
20 function as designed. So, yes, it does assume
21 that there -- that that impermeable cap is
22 operating as it -- as it is designed to do.

23 **Q. And does this statement mean there**
24 **are no circumstances in which onsite consolidation**

1 of CCR could result in an increase of CCR
2 constituent mass migrating to the underlying
3 aquifer?

4 A. State that again.

5 Q. Yeah. So quoting this statement,
6 does it mean that there are no circumstances in
7 which onsite consolidation of CCR could
8 potentially result or could result in an increase
9 of CCR constituent mass migrating to the
10 underlying aquifer?

11 A. Sure. My opinion is that I don't
12 believe that onsite consolidation will result in
13 an increase in hydraulic mass migrating vertically
14 downward into the underlying groundwater.

15 MR. MORE: This is Josh More. It is
16 unclear. Did that answer mean you do not believe
17 or you believe?

18 BY THE WITNESS:

19 A. My opinion is that I do not believe
20 that the onsite consolidation of CCR could result
21 in the increase of CCR constituent mass migrating
22 vertically downward to groundwater.

23 THE WITNESS: Did you get that?

24 MR. MORE: Yes. Thank you.

1 BY MR. OZAETA:

2 Q. And so then are there -- in your
3 opinion, are there any circumstances in which a
4 CCR surface impoundment should not be permitted to
5 receive more CCR?

6 A. I think what is defined in Part
7 857(d) sets forth the requirements and I think it
8 does so adequately for what those requirements
9 should be. It says that the consolidation must
10 happen within the footprint of the existing -- of
11 the existing impoundment, must come from ash that
12 was generated at that site.

13 I don't know if it says this or
14 not, but I think -- you know, I think it's clear
15 that it should not -- you should not be allowed to
16 put -- you know, consolidate ash into the
17 groundwater. So if it's -- you know, any of that
18 consolidated ash should not be intersecting
19 groundwater. It has to be above the water table,
20 which is what I said in my response here.

21 Q. Thank you. I have only -- I
22 apologize. There's the background noise again.
23 If you hear me, I'd like to direct your attention
24 to pre-filed -- your pre-filed response 111 on

1 **Page 41.**

2 **Okay. In this response, you**
3 **state that 845.780 requires the integrity and**
4 **effectiveness of the final cover system for a CCR**
5 **surface impoundment to be maintained. If**
6 **maintenance is not provided, how -- in your**
7 **opinion, how may that affect the functionality of**
8 **the cap?**

9 A. Well, I -- I mean, I guess that
10 depends. I'm not sure I quite understand the
11 foundation of this. So the requirement in Part
12 845.780 is that the cap must be maintained. So
13 you're saying that if there is an impoundment that
14 is violating that rule, is that -- I mean, is that
15 what you're asking?

16 **Q. Yeah, could that potentially affect**
17 **the functionality of a cap?**

18 A. You know, I don't know. That's a
19 site specific consideration, but I would guess if
20 the -- you know, perhaps the biggest problem is
21 that, you know, it would not -- you know, not
22 doing what was required in Part 845.780, which
23 does require maintaining the cap.

24 **Q. And, in your opinion, should caps**

1 then -- should caps over closed surface
2 impoundments be inspected?

3 A. Again, I believe that inspections
4 are one of the requirements of the rule and
5 routine inspections are, in fact, required.

6 Q. Thank you. I'd like to next direct
7 your attention to Page 30 of your testimony.

8 A. Of the testimony or questions?

9 Q. Of your testimony.

10 A. Okay.

11 Q. On Page 30, in this section in which
12 you discuss the onsite consolidation of CCR, you
13 state, quote, the addition of more CCR volume into
14 the SI, i.e., consolidated CCR's that is
15 chemically similar to the original CCR's, does not
16 change the soil water partition coefficients and
17 will not increase the equilibrium of leachate
18 concentration, end quote.

19 However, in Footnote 8 on the
20 same page, you state that if the consolidated CCR
21 generated by the combustion of coal source from a
22 different location or is a different type of CCR
23 compared to the original impounded CCR, there may
24 be differences in the associated leachate

1 concentrations.

2 However, you do not expect that
3 in most cases the chemical differences between the
4 consolidated CCR and the original impounded CCR be
5 minimal because, as required by 750(d)(1) --
6 845.750(d)(1), the CCR must have been generated at
7 the same facility and are thus likely reflective
8 of the same coal sources and the same types of
9 CCR.

10 So my question then is, is CCR
11 generated at the same facility always from the
12 same coal sources?

13 A. CCR, you know, a single facility is
14 not always from the same coal source. Typically,
15 those coal sources don't change, you know,
16 dramatically. I mean, once you've sourced your
17 coal, I think in my experience the utilities tend
18 to stick with that source. So it's not a changing
19 process in -- at least based on my experience from
20 year to year.

21 But even if there are different
22 sources or different types of CCR, the hydraulic
23 flux that is migrating vertically downward is
24 still controlled by that overlying cap and that is

1 what is limiting, you know, the water flow that is
2 going down through that consolidated ash.

3 So I still don't expect that
4 even if there are some different coal sources that
5 -- that produce the ash or even different sources
6 of CCR, that that is going to have a material
7 impact on the resulting impacts to groundwater.

8 **Q. Again, that's assuming a fully**
9 **functioning cap that is not deteriorated, correct?**

10 A. As required by Part 780, yes, the
11 maintenance of that cap must be maintained and
12 must be inspected.

13 **Q. And have you done any research into**
14 **whether Illinois coal plants source their coal**
15 **from different locations with different types of**
16 **coal over the many years they've been operating?**

17 A. That was outside the scope of my
18 testimony.

19 **Q. So just to confirm that's a no,**
20 **correct?**

21 A. It's -- it's outside the scope of my
22 testimony. I think that was asked in the
23 questions and responses and I can probably go and
24 find exactly what I said. We can do that if you

1 want, but I did not do that as part of this
2 testimony.

3 **Q. Sorry. There was some background**
4 **noise for a second.**

5 **Does CCR disposed of in**
6 **different impoundments at a site always contain**
7 **the same type of CCR?**

8 A. CCR disposed at different sites may
9 contain different -- different types of CCR. It
10 may contain the same types of CCR. But, again,
11 you know, if you're going to use that CCR for a
12 consolidation and as long as that consolidated CCR
13 is applied above the water table, you know, the
14 impermeable cap that is installed above it is
15 controlling that hydraulic flux vertically
16 downward. So I don't believe there would be any
17 material impacts on the -- on the flux of CCR
18 constituents to groundwater.

19 **Q. And one final question. Have you**
20 **done any research into whether Illinois coal**
21 **plants dispose of -- or dispose of different types**
22 **of CCR in different impoundments?**

23 A. That is outside the scope of my
24 testimony. I did not do that analysis for this

1 testimony, no.

2 MR. OZAETA: Thank you, Mr. Bittner.
3 I have no further questions, but I reserve the
4 right for any follow up.

5 HEARING OFFICER HORTON: Okay.
6 Thank you, Mr. Ozaeta. So we'll see if we can
7 finish up here in a couple of minutes with
8 Mr. Bittner, but, if not, we'll continue with him
9 tomorrow.

10 So, Midwest Generation, any
11 questions for this witness?

12 MS. GALE: I have no questions for
13 this witness.

14 HEARING OFFICER HORTON: City of
15 Springfield, any questions for this witness?

16 MS. WILLIAMS: One quick follow up
17 to Mr. Ozaeta's questions.

18 E X A M I N A T I O N

19 BY MS. WILLIAMS:

20 Q. Hi, Mr. Bittner. This is Deborah
21 Williams from Springfield City Water, Light and
22 Power, how are you?

23 A. Good. How are you?

24 Q. Mr. Ozaeta asked you a couple of

1 questions about what would happen if you increased
2 some of the estimates in your hypothetical -- I
3 won't say your hypothetical. Your sample of how
4 long it would take to truck ash from the Vermilion
5 site and I just wanted to ask 60 trucks, five-day
6 work week sounds like a lot to me. That's -- but
7 I'll take your word for it to be typical, but did
8 that presume any days where weather prohibited
9 activities or would you assume that every day was
10 acceptable for 60 trucks to get in and out of the
11 site?

12 A. That analysis assumes five days a
13 week were -- were accessible to the site. So it
14 did not account for any -- any sort of weather
15 delays or, you know, accessibility restrictions
16 that may occur over the life of the -- you know,
17 of the removal.

18 Q. Okay.

19 MS. WILLIAMS: Thank you. I
20 appreciate your follow up.

21 HEARING OFFICER HORTON: Okay.
22 Illinois Environmental Regulatory Group, any
23 questions?

24 MS. BROWN: No questions for this

1 witness.

2 HEARING OFFICER HORTON: Ameren, any
3 questions? Ms. Manning, Ameren, any questions for
4 this witness?

5 MS. MANNING: No questions.

6 HEARING OFFICER HORTON: Okay.
7 Thank you.

8 Attorney General's Office,
9 Mr. Armstrong, any questions?

10 MR. ARMSTRONG: No questions. Thank
11 you.

12 HEARING OFFICER HORTON: Pollution
13 Control Board Technical Unit, Mr. Rao, any
14 questions?

15 MR. RAO: No questions. Thank you.

16 HEARING OFFICER HORTON: Okay. Any
17 follow-up questions? Okay, seeing none, hearing
18 none, Mr. Bittner, you are dismissed. Thank you
19 very much.

20 MR. BITTNER: Thank you.

21 HEARING OFFICER HORTON: We'll begin
22 tomorrow at 9:00 a.m. with Jo Lakota who will be
23 sworn in right at 9:00 a.m. and then we'll proceed
24 with Mark Rokoff. All right. I'll see everybody

1 then. Thank you.

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1 BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

2
3 I, Steven Brickey, Certified Shorthand
4 Reporter, do hereby certify that I reported in
5 shorthand the proceedings had at the trial
6 aforesaid, and that the foregoing is a true,
7 complete and correct transcript of the proceedings
8 of said trial as appears from my stenographic
9 notes so taken and transcribed under my personal
10 direction.

11 Witness my official signature in and for
12 Cook County, Illinois, on this _____ day of
13 _____, A.D., 2020.

14
15
16
17
18
19 STEVEN BRICKEY, CSR, RMR, CRR
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21 Suite 2007
22 Chicago, Illinois 60603
23 Phone: (312) 419-9292
24 CSR No. 084-004675

<p style="text-align: center;">A</p> <p>A.D 306:13 a.m 1:11 13:6 304:22,23 aarmstrong@at... 3:16 abandoned 209:2 209:7,12,17 abilities 85:17 ability 70:6 217:1 243:5,11 273:17 able 9:12,21 10:8 25:11 37:18 62:15 68:12 72:24 81:1 82:17 132:9,15 179:2 225:11 230:24 231:13 234:15 237:15 277:4,16 284:10 284:20,22 absence 108:13 Absolutely 36:13 accept 133:7 acceptable 62:21 190:9 303:10 access 65:2 89:13 89:15,20 91:16 92:4 286:7 290:20 accessed 76:13 accessibility 81:7 303:15 accessible 303:13 accessing 73:13 77:10 accomplish 249:18 account 114:20 118:3 142:24 252:22 254:1 303:14 accountable 70:7 accuracy 104:6 193:19</p>	<p>accurate 10:5,9 49:16 105:11 125:14,14 198:10 261:17 281:8 accurately 160:7 achieve 45:10,16 50:20 100:8 119:8 214:13 223:3 257:2,12 273:17 achieved 231:21 232:10 234:11 240:3,19 245:18 251:4 achievement 231:10 achieving 230:20 acid 161:3,6 163:2 163:3 acidic 163:2 acronym 9:14,16 180:13 acronyms 180:15 act 16:8 62:11 65:13 108:23 120:21,23 121:1 121:4,10 187:24 action 45:10,16 50:21 51:3,7,10 51:14 121:13 142:17 155:14 173:19 179:14 180:4 270:15 actions 121:8 175:22 active 194:10 209:8 activities 168:24 303:9 actual 94:1 99:11 156:15,22 257:19 acute 166:22 167:6,9,15,24</p>	<p>169:6,15,24 Adams 5:2 add 162:4 added 49:3,7,11 168:21 adding 39:22 49:17,18 112:10 161:10 addition 8:2 118:18 193:17 196:13 197:10 298:13 additional 43:4 64:7 68:5 111:16 113:11 113:18 133:14 133:15 142:12 172:22 173:9,18 194:6 205:5 223:16 Additionally 271:13 address 69:10 144:23 148:8 216:11 addressed 73:17 110:24 257:5,14 addresses 214:3 215:10 addressing 10:2 257:19 adequacy 173:15 adequate 215:17 216:5 adequately 270:22 296:8 adjacent 97:8 adjust 99:13 Adm 1:6 7:7 50:4 74:3 administer 66:21 Administration 149:4 admission 14:22 admit 269:11</p>	<p>admitted 7:20 17:15 189:18 212:9,19 213:2 adopt 125:6 adopted 40:15 118:13 adversely 216:2 affect 99:7 112:18 115:12 243:10 244:2 288:15 289:7 291:24 292:4,5,8 297:7 297:16 affiliation 185:5 affirmative 102:11 aforsaid 306:6 afternoon 126:18 195:10 208:21 208:22 213:17 221:6 274:13 age 200:15 agencies 115:7 agency 2:7,12 35:19 36:20,23 37:1,7,11 42:22 63:9 64:7 66:15 67:3 68:2 70:6,6 70:16,24 71:18 71:21 73:1 75:18 80:12 81:2,3 82:18,23 89:7 93:13 97:16 100:1,10 101:17 102:12 109:24 121:24 122:12,16,17 123:20,23,24 124:7,19 149:8,9 149:19 151:4 173:13,14 187:2 276:7 280:7 Agency's 72:16 89:11 122:20 agree 37:10 67:18</p>	<p>100:9 152:2 161:12 256:6 ahead 24:9 37:4 93:8,22 101:2 102:17 104:16 108:5 113:7 114:5 117:17 150:14 165:9 166:14 175:15 180:18 187:20 189:2 210:21 213:16 258:3 265:21 aim 117:20 air 134:6,9,17 169:3,11,22 196:17 airborne 52:23 Aldrich 221:7 align 118:7 allege 31:3 alleges 192:11 allow 23:1 65:5 99:22 216:15 217:10 247:13 allowable 214:6 215:13 216:18 allowed 42:3 53:14 85:9 286:2 296:15 allowing 8:3 allows 100:2 alter 202:19,20 alternate 259:24 260:17,20 261:1 261:3,4,9 262:2 alternative 41:3,7 41:11 258:24 259:7,11,24 260:20 272:16 276:14 alternatives 64:19 65:18 73:17 74:14,19 90:2 117:23 270:21</p>
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