ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	
PETITION OF SOUTHERN	)	
ILLINOIS POWER COOPERATIVE	)	
FOR AN ADJUSTED STANDARD	)	AS 21-6
FROM 35 ILL. ADMIN. CODE	)	(Adjusted Standard)
PART 845 OR, IN THE	)	
ALTERNATIVE, A FINDING OF	)	
INAPPLICABILITY	)	

DAY TWO -- JUNE 11, 2025
(Pages 221 - 478)

Proceedings held on June 11, 2025, commencing at 8:59 a.m., at the Market Street Hall, 310 North Market Street, Marion, Illinois, before Carol Webb, Hearing Officer.

Reported By: Karen Waugh, CSR, RPR
CSR License No: 084-003688

APPEARANCES

Board Staff Members present:

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PROCEEDINGS

(June 11, 2025; 8:59 a.m.)

HEARING OFFICER WEBB: All right. We are back on the record for AS 21-6. It is 9 o'clock a.m., and before we start with our third witness, we have one gentleman who would like to make a public comment. Bruce Mosby, would you step forward, please? There's a microphone for you right there. You may either stand or sit while you make your comment, whatever is more comfortable for you. Oh, and would you please spell your name for the court reporter?

MR. MOSBY: Okay. Bruce, B-R-U-C-E, Mosby, M-O-S-B-Y. Thank you for allowing me to comment. The reason I'm here, I am a retired area bank president. I served over 42 years. All my years with -- in banking was in the Southern Illinois Electric Cooperative service area. As a rural cooperative member, landowner, resident, I would respectfully ask that the IEPA and the IPCB give consideration to the implications that this proposed action would have on all SIPC customers. Already SIPC serves a disadvantaged area. Continued economic stress would be detrimental. Enforcement actions and fines would be passed on to the consumer. Ultimately, the ramifications to households and

businesses when making financial decisions could cause hardships, possibly impacting local economies and jobs.

I've seen firsthand what happens when hard-working, well-intentioned folks are pinched financially by an unexpected source. In today's economy, not everyone might make it. Many of the cooperative members are self-employed farmers or work at an ag-related business. This sector of our economy can be difficult enough without additional expenditure outlays.

To emphasize in detail, our economy, both local and poverty levels, according to the Illinois Policy and USAFacts, six of the eight poorest counties in Illinois are actually serviced by SIPC. The first is Alexander; number two, Pulaski; number three, Jackson County; number six is Franklin County; number seven is Saline County; number eight is Gallatin County. Since 2000, 64 of Illinois' 102 counties saw their population decline. Illinois population shrank 2 percent while the overall US population actually grew 7.7 percent.

While we realize there are many factors that contribute to our decline, the potential addition of more burden will not benefit our area. As in any business, any increase in cost of doing business is typically passed on to the customer. Given some of the information

I've shared, it's a given that some may not be able to handle it. For those on a tight budget, it could impact such things as college education accounts, retirement, just day-to-day living. I ask that your decision be favorable to SIPC and all of its customer base. Thank you.

HEARING OFFICER WEBB: Thank you. Can I have that? Thank you. Okay. We are ready for Petitioner's third witness.

MS. LODE: Thank you. We're going to call Mr. Jason McLaurin.

HEARING OFFICER WEBB: Have a seat up here and the court reporter will swear you in.

(Witness sworn.)

JASON MCLAURIN, produced, sworn and examined on behalf of the Petitioner, testified as follows:

DIRECT EXAMINATION

BY MS. LODE:

Q. Good morning, Mr. McLaurin. Will you please state and spell your name for the record?

A. First name is Jason, J-A-S-O-N; last name is M-C-L-A-U-R-I-N.

Q. Thank you. And what is your educational background?

A. I have a bachelor in plant and soil science from SIU Carbondale, 2003.

Q. And where are you currently employed?

A. Southern Illinois Power Cooperative.

Q. What's your position there?

A. I'm the environmental coordinator.

Q. And as environmental coordinator, what are your duties?

A. I oversee the implementation and monitoring of all environmental regs and policies that affect SIPC.

Q. And how long have you been in this position?

A. July of 2007.

Q. What was your involvement in preparing and submitting SIPC's second amended petition in this matter?

A. Collecting and submitting factual background information as needed.

Q. Did you prepare a support in declaration of that petition?

A. Yes, ma'am.

MS. LODE: If we may approach?

HEARING OFFICER WEBB: Yes.

Q. (By Ms. Lode) Bina is now showing you SIPC's Exhibit 32. Do you recognize this document?

A. I do.

Q. And what is it?
A. It's my declaration.
Q. Do those statements in that declaration remain true and correct?
A. Yes.
Q. Great. And what was your involvement in preparing SIPC's response to IEPA's recommendation?
A. Again, it's providing factual and background information to the best of my knowledge.
Q. Did you prepare a declaration in support of that response?
A. Yes, ma'am.
Q. Again, we're going to approach, and Bina will show you SIPC's Exhibit 41. Do you recognize this document?
A. Yes.
Q. And what is it?
A. It's the declaration I provided.
Q. And do the statements in that declaration remain true and correct?
A. Yes.
Q. Great. And I understand you have a Powerpoint to accompany your testimony today. Is that correct?

A. That's correct.

Q. One more document coming up. Bina's handing you a copy of a Powerpoint where the title slide reads Testimony of Jason McLaurin, which is also displayed as slide 1 here in the room. Do you recognize this document?

A. Yes, ma'am.

Q. Is this a true and correct copy of the Powerpoint prepared to accompany your testimony?

A. Appears so.

Q. Did you assist in drafting or otherwise review and approve the contents of this Powerpoint?

A. Yes.

Q. And just generally, what does the Powerpoint contain?

A. It's a summary of the information I provided for this proceeding.

Q. So I'd like to kind of walk you through that Powerpoint and some of the facts you laid out in your declaration. Let's start with pond 4 and slide 3 of your presentation. You were present and heard the testimony of Mr. Wendell Watson and Mr. Todd Gallenbach yesterday; is that correct?

A. Correct.

Q. Mr. Watson testified that pond 4 currently receives coal pile, stormwater and other plant runoff as well as decant water from pond 6. Do you agree with that statement?

A. Yes.

Q. And Mr. Gallenbach testified that pond 4 historically received decant water from ponds 1 and 2. Do you agree with that statement?

A. Yes.

Q. Let's talk a little bit more about each one of these water sources. Where is the intake point for pond 6 into pond 4?

A. Southwest corner.

Q. Is the arrow labeled "pond 6" on slide 3 approximately the correct location for pond 6's intake point?

A. Yes.

Q. Are there any unique characteristics about the pump in pond 6 that pumps water to pond 4?

A. It's a pump that's designed to pump clean water. We have the pump set up in a -- we call it clear well. We had rock berms on each side. The pump intake is suspended a foot or two below water line to ensure it's the cleanest water.

Q. And what about the pipe that runs from pond 6 to pond 4? Is there anything unique about that?

A. I mean, other than the fact that it's a significant elevation from where we pump up to the discharge into pond 4, and it's -- I mean, it's not designed to pump anything but clean water for that reason.

Q. And why is that upgradient unique or significant? Can you give us a little bit more information about how that works?

A. It's just -- I mean, the pump itself can't handle pushing solids, particularly up to the -- we're talking 78 feet in elevation change, and that's why we have to ensure that -- it's not even so much solids. It's also -- it's vegetation. We got to make sure it's clean at the intake in order to -- if not, we burn up pumps left and right.

Q. So moving to the coal pile runoff, where is the intake point for that runoff into pond 4?

A. Southeast corner.

Q. And is the arrow labeled "coal pile" in -- on slide 3 approximately the correct location for that intake point?

A. That's correct.

Q. And for pond 1, where is the intake point for pond 1 into pond 4?

A. Where the arrow's pointing at, which is actually on the east side. East side.

Q. Perfect. So that location on slide 3 is correct.

A. That's correct.

Q. And finally, the intake point for pond 2 into pond 4, where is that?

A. It's on the upper east side of the pond 4, where the arrow is.

Q. Moving to slide 4, when, if at all, was the last time pond 4 was dewatered and cleaned?

A. Fall of 2010.

Q. And why was that cleaning conducted?

A. Routine maintenance.

Q. Can you describe the scope of that dewatering and cleaning?

A. We drained the pond, let it dry for a few days, and then we removed the material, which was predominantly coal fines. The --

Q. And --

A. Go ahead.

Q. So you said it was predominantly coal fines.

Can you describe the entire scope of the sediment removed?

A. Most of it, like I said, it was coal fines. It was black, granular in nature, that we receive from our coal yard runoff, and like I said, that stuff was taken back to the plant. We recombusted it. That stuff was predominantly located on the southern sections of the pond. As we started to get into the northern sides of it, we started getting more into the organic sludgy material. That stuff was separated, allowed to dry, and we put that stuff on the landfill.

Q. And you said predominantly coal fines. Could you give that a percentage?

A. Oh, shoot. 60, 70 percent.

Q. And where were the coal fines located? You said on the south side?

A. The south side towards the plant.

Q. And for clarity on the record, can you please confirm what was done with those coal fine materials?

A. We brought them back to the facility, coal yard, and basically recombusted those, or combusted them.

Q. And in your experience, can CCR be burned as coal?

A. No.
Q. Based on your operational experience, are you aware of what CCR materials look like?
A. Yes.
Q. And you were present when pond 4 was cleaned; is that correct?
A. That is correct.
Q. Did the dark material collected from the top of pond 4 look like CCR?
A. No.
Q. And based on your operational experience, are you aware of what scrubber sludge looks like?
A. Yes.
Q. Did the material removed from pond 4 look like scrubber sludge?
A. No.
Q. Now I would like to address certain questions and topics brought up in question number 2 of the hearing questions followed by the -- filed by the Board. The organic material you mentioned that was located predominantly on the north side of the pond, and you also mentioned it in your declaration, what was done with those materials following the excavation of pond 4?
A. We removed them, let them dry and spread

them around the landfill.

Q. And the muddy materials -- you called them organic materials -- based on your operational experience, what was that material comprised of?

A. Dead and dying vegetation. We got a 200-acre facility. We mow every day, I mean, continually mow in the summertime, and pond 4 is our final pond. I mean, pretty much those -- everything collects there eventually.

Q. And since its cleaning in 2010, how much CCR has been disposed of in pond 4?

A. None.

Q. So moving to slide 5, are you aware that EPA has alleged that pond 4 contains a significant amount of CCR based on the appearance of deltas in the pond on the historic aerials?

A. Yes.

Q. So slide 5 shows a couple examples of those areas -- or aerials, specifically Exhibit 3, which is from March 1993, and Exhibit 4, which is from April 1998. Based on the testimony you just provided and in your experience, what material would likely make up these deltas?

A. Coal pile runoff.

Q. And why is that?

A. Because the front -- I'd say 60 percent of our coal yard flows in the direction of pond 4, and the deltas are -- I can see how they're flowing out -- is from the direction of the coal pile runoff.

Q. And it --

A. And that's from the southwest to northeast corner the way those deltas are forming.

Q. Now, you said that the coal pile runs from the southwest of pond 4.

A. Southeast to northwest. My bad.

Q. Sorry. Southeast. My apologies. In Exhibit 4, here on the left side, which would be the southwest corner, we see some light-colored material. Do you see what I'm referring to?

A. In the southwest corner?

Q. Yes.

A. Yep.

Q. And to your knowledge, what is this area or what is that material?

A. It's grass and land.

Q. And why would that be exposed in this photo?

A. Why would it be exposed? I mean, it's dry, so it's grass and land in that area. It's not -- This

pond is not perfectly square in size. In that corner they've cut it off.

Q. So moving on to former pond B-3 in slide 6, Mr. Gallenbach testified that former pond B-3 was used during his operation primarily as a secondary pond to A-1. Do you agree with that characterization?

A. Correct.

Q. And to your knowledge, what other, if any, discharges did former pond B-3 receive?

A. Coal pile runoff as well.

Q. And it was used primarily as a secondary pond to A-1. To your knowledge, did A-1 ever receive scrubber sludge?

A. No.

Q. Mr. Watson and Mr. Gallenbach further testified about the current state of former pond B-3, noting it's clean of sediment and does not contain water. Do you agree with that description?

A. Yes.

Q. When was former pond B-3 dewatered and cleaned of sediment?

A. I believe that was finalized in 2017.

Q. How was the unit dewatered?

A. We removed the water, dewatered it down

through an NPDES outfall we had at the time, and once the material was dry, we cleaned it all out and --

Q. And for the record, for clarity, does that outfall -- that NPDES outfall still exist?

A. Nope.

Q. What was the scope to which sediment was removed from former pond B-3?

A. Like I said, we dewatered and let it dry, then we scraped up the material. The majority of the material, again, is coal fines. We brought it back to the facility to be recombusted. The material that we couldn't combust that we want to get rid of we took to a sanitary landfill.

Q. And at what point did you stop removing sediment from former pond B-3?

A. We actually invited the Agency local field office to come out and look at the process we were doing. They came out twice. The first time they came out, they asked us to remove a little bit more of the sedimentation. Second time around they came out, checked it, they gave us a thumbs up, and that was it.

Q. And moving back a step, how would you characterize the material from former pond B-3? I believe you said coal fines and --

A. It was coal fines and, I mean, dying and dead vegetation, decayed algae.

Q. And the coal fines were taken where?

A. To the plant.

Q. And the organic material was taken where?

A. Well, we had I think three distinct piles. We tested on two to see if they would pass, you know, say, a CCB test or a Class 1 groundwater. The ones that didn't we took to Perry Ridge. The ones who did pass the test we kept over there and used them as land application around the pond.

Q. I would like to now address question 3 from the Board, and I believe we just touched on this a little bit, but they discuss a sludge. So that sludge, what would that have been?

A. There, it would have been dying vegetation.

Q. And based on your operational knowledge, was it CCR?

A. No.

Q. Was it scrubber sludge?

A. No. Scrubber sludge never went that direction.

Q. Following the dewatering and cleaning to clay, you briefly mentioned this, but did SIPC conduct

any sampling or testing to confirm that all CCR had been removed?

A. Yeah, we sampled the bottom of the former impoundment before.

Q. Can you give us a little bit more information on what that sampling was?

A. We tested it for Class 1 groundwater standards.

Q. And what were the results?

A. Below.

Q. Since the cleaning and dewatering in 2017, how much CCR has been disposed of in former pond B-3?

A. None.

Q. Before we move to the former landfill area, I'd like to ask a brief few questions about the south fly ash pond. Around 2007, what was done to the north side of the south fly ash pond?

A. A small section of it was -- put a road across it or a berm across it, and it was to be used for the coal from Prairie State. Not really waste coal or anything like that. It was just overburden coal that -- and they were sinking a mine shaft at Prairie State.

Q. What was done with the water in that area?

A. It was dewatered. Again, from my

understanding, they had started that process as the time I was there and I didn't see all of it.

Q. And what is the current status of that area?

A. I mean, they -- the good usable coal has been scraped off and burned. There's still some overburden rocky stuff that's still in that cavity.

Q. Since 2007 when this path was formed, has that area been managed with water?

A. There's no water in it.

Q. Moving to slide 7, are you familiar with an area called the former landfill area?

A. Yes.

Q. Mr. Watson and Mr. Gallenbach testified that during its operation, the former CCR landfill received fly ash mixed with scrubber sludge. Do you agree with that statement?

A. Yes.

Q. They also testified that the former landfill stopped receiving waste prior to October of 2015. Do you agree with that statement?

A. Correct.

Q. During your time at the facility, what interactions, if any, have you had with IEPA regarding the former landfill?

A. We've had two inspections, both from the Land Division, one around 2009, 2010 time frame, and the other, I believe she came in 2018 or '19. I don't remember the exact date.

Q. Can you provide a little bit more information about those inspections?

A. She come out to check to see if the material we were putting on the landfill is what we said we were doing, make sure we were taking care of the maintenance of it, compaction, slopes, make sure none of the material was slipping away outside the confinements that we called the former landfill, etc.

Q. And what bureau at IEPA?

A. Bureau of Land.

Q. During these inspections, to your knowledge, what type of unit did IEPA consider this area to be?

A. 815 exempt.

Q. And that's an 815 exempt what?

A. Landfill.

Q. As part of your duties with SIPC, did you participate in preparing an on-site permit exempt 815 facility annual report for this area?

A. Yes.

MS. LODE: May I approach?

Q. (By Ms. Lode) Bina's going to show you what SIPC has submitted with its response as SIPC's Exhibit 44. Do you recognize this document?

A. Yes, ma'am.

Q. What are these?

A. These are the annual 815 reports I submit to IEPA.

Q. To your knowledge, with what frequency did SIPC submit these reports?

A. Annually, February.

Q. And has SIPC continued to submit on-site permit exempt 815 facility reports for the former landfill area?

A. Yes.

Q. To your knowledge, when did IEPA indicate it was beginning to consider the former landfill area as a CCR surface impoundment?

A. I believe it was 2021.

Q. And are you aware that IEPA has asserted that historically there were long, narrow areas of water located on top of a portion of the former CCR landfill?

A. Yes.

Q. Based on your experience at the facility, what are these long, narrow strips?

A. They were strips used by the plant and -- to be of hand in emergency upsets for our scrubber.

Q. And what primarily caused those emergency upset conditions?

A. Typically cold weather.

Q. And about how often did those conditions occur?

A. Couple times a year.

Q. To your knowledge, how deep were these long, narrow strips?

A. They weren't very deep. Six, seven feet.

Q. Did the depth extend to the bottom of the landfill?

A. No.

Q. To your knowledge, did the water in them saturate the other areas of the landfill?

A. No.

Q. And to your knowledge, did they ever cover the entirety of the former landfill?

A. No.

Q. Were you -- sorry. Now, I'd like to make sure that we've addressed the issues raised in Board question number 8. How long were -- How often were these long, narrow strips on top of the landfill used?

A. Just a few times a year.
Q. And where was the water in these strips handled between use?
A. It was decanted to pond 3.
Q. And how was it decanted to pond 3?
A. We have standpipes on the north end of those strips.
Q. Were you present when Mr. Gallenbach was cross-examined yesterday afternoon?
A. Yes.
Q. Did you hear Mr. Gallenbach testify that though he wasn't sure, he believes these long, narrow strips drained into pond 6?
A. I did.
Q. What corrections, if any, would you make to that statement?
A. What I just provided, that we would drain them via standpipes, and it was fairly short order time frame.
Q. Did pond 6 ever receive the water from those long, narrow strips?
A. None to my knowledge.
Q. And did these areas contain water year-round?

A. No.
Q. Are you aware that IEPA noted in its recommendation that some areas on top of the former landfill show visible water on top of the area that was once the fly ash holding area extension?
A. Yes.
Q. So for clarity in the record, that's the west portion of the former fly ash area. What caused this ponding on top of the closed unit?
A. Precipitation.
Q. And how often would you say this ponding occurred?
A. During precipitation events.
Q. And just one more set of questions. I want to clarify the record following Mr. Gallenbach's cross examination testimony yesterday. Are you aware of the horseshoe-shaped pond IEPA referenced that is located on the southeast corner of the former CCR landfill?
A. Yes.
Q. How often was this area used?
A. We used it for pH control, so we used it quite often.
Q. And was it used for any other purpose?
A. It also had the capability to receive

scrubber sludge during emergency episodes.

Q. And when it was used for that purpose, for scrubber sludge, how was the sediment removed?

A. We would dewater the pond and remove the material.

Q. And how was the area dewatered, decanted or drained?

A. We had a standpipe on the north end of it, but I also -- for this pond I utilized a -- it was a siphon, and then I had -- the end of that siphon was six inches to a foot below water line.

Q. And for the -- for clarity, where did that water drain to?

A. Pond 3.

Q. How deep was this area?

A. Six, seven feet. Eight feet, maybe.

Q. And did the depth extend to the bottom of the landfill?

A. Nope.

Q. And you said it didn't extend to the bottom of the landfill. Did it extend into the area that was formerly the initial fly ash holding area?

A. Not to my knowledge.

MS. LODE: That's all I have.

CROSS EXAMINATION

BY MR. NEIBERGALL:

Q. Good morning, sir. How you doing?

A. Doing well.

Q. All right. I'm going to jump quickly to something you just said about the former landfill.

A. Okay.

Q. You said that with regard to the narrow strips on top that the water did not saturate --

A. Correct.

Q. -- down into the landfill? How do you know that?

A. I mean, we would remove the water fairly instantaneously, within a day or two.

Q. So in the emergency events when you would sluice out to those strips, then you would remove it within a day or two?

A. A few days, yes.

Q. And this is in the winter when you need to do it for an emergency because you can't use the other --

A. No, we would use it -- the emergency was due to pipes we had in our scrubbing process. I could drain water when it was cold.

Q. I didn't hear that. Say that one more time.

A. The emergencies was due to our scrubbing process at the plant, while it -- it was outside, and that's what predicated the emergency. Draining water from the ponds was not -- I mean, freezing did not stop me from doing that.

Q. Okay. And so did you do any testing to confirm that it didn't saturate underneath?

A. I have no test results to show that, no.

Q. Okay. I want to go back and talk about cleanouts historically. You were here yesterday and you heard Mr. Gallenbach explain the 2003 cleanouts of the allegedly de minimis units?

A. Okay.

Q. Is that correct?

A. I mean, I wasn't there in 2003, so I can't --

Q. Were you here yesterday when he was testifying to that?

A. Yes, I was here yesterday.

Q. So in 2003 we've got -- let's see -- pond 3 and 3A, pond 4, B-3, south fly ash and pond 6 that were all cleaned; is that accurate?

A. Based on his testimony, yes.

Q. Okay. So I want to go to the -- the next

chronologically would have been in 2006 for pond 3? Are you aware of that cleaning?

A. Not to my knowledge, no.

Q. When did you start again?

A. July of 2007.

Q. So are you aware that pond 3 was cleaned to remove pond sediment and debris, including vegetation, in 2006?

A. No.

Q. You're not aware of that? Okay. Who would be aware of that?

A. That one I can't answer for you right now. I mean --

Q. Okay. How about 2010? You were working then, right?

A. Correct.

Q. Okay. We talked about pond 4 a little bit and the two categories of materials, one of which was dark and dry and one of which was muddy, right?

A. Correct.

Q. You said the dark and dry material was burned; is that correct?

A. That's correct.

Q. And was it mixed with anything before it was

burned?

A. No.

Q. Okay. How much volume of that dark and dry material was burned?

A. It was almost three-quarters of the material in that pond, so 60, 70 percent.

Q. And the muddy materials, how much of that was returned to the sludge storage area?

A. It was removed -- It was returned to the scrubber sludge on the landfill, so about 20, 30 percent of it, rest -- the remaining of it.

Q. It was completely full. 60 to 70 --

A. No. Was the pond full? No. The pond was only maybe a fifth full, if that.

Q. Okay. And so I'm asking the volume of the muddy materials.

A. The volume of muddy materials? All the muddy materials we removed from that pond was put on the landfill, the muddy, not the coal fines.

Q. How much material would you estimate that was?

A. Of the material? About 20 or 30 percent of it.

Q. 20 to 30 percent of the fifth of the pond?

A. Roughly, yeah. I mean, the pond was cleaned down to clay.

Q. Got it. Thank you. 2011, pond 3, you were there.

A. Correct.

Q. Okay. How much was cleaned out of pond 3 then?

A. That's really hard to quantify a -- I mean, I'd say the pond was maybe a quarter, if -- somewhere in that range. It wasn't that really full.

Q. Was that pond 3 and 3A or just pond 3?

A. Just pond 3.

Q. So a quarter of the amount of the capacity of the pond was cleaned out?

A. Roughly, maybe.

Q. And what was done with that material?

A. It was placed on the former landfill.

Q. So was this one done by excavator because it was adjacent to the landfill?

A. Yeah. We decanted the pond and backhoe, excavator. Also got a dozer down there too.

Q. So no trucks were involved in this one.

A. We had -- We trucked material back up to the landfill.

Q. How many trucks would you estimate?
A. Oh, it's hard to say. 20, 30, maybe.
Q. What capacity of trucks?
A. 10-ton.
Q. Now, Mr. Gallenbach testified that you hired a trucking company in 2003 to do the cleanouts. Did you also hire a trucking company here?
A. Yes.
Q. Okay. Where are the records for that?
A. We don't -- I mean, we pay them by the hour for the most part and --
Q. There's no paper records of that?
A. No.
Q. No computer records?
A. No.
Q. Let's move to 2014. Pond 3A was cleaned out?
A. Okay.
Q. Does that sound accurate?
A. Sounds accurate.
Q. Okay. How much was cleaned?
A. That pond, there was only a few trucks of sedimentation removed.
Q. Three trucks?

A. Maybe five, if that. That pond only receives decant water from pond 3. There's no other inlet to it other than when we started pumping coal yard into it, so there's no direct anything from landfill into it.

Q. Same type of trucks, 10-ton?

A. Yeah.

Q. Any records of those?

A. Nope.

Q. And where was that taken?

A. Landfill.

Q. We talked on direct a little bit about the 2017 cleanout of B-3. You said -- I think I heard you say that the non-burnable material was taken to a sanitary landfill?

A. Portion of it, correct.

Q. A portion of the non-burnable?

A. Correct.

Q. And which sanitary landfill was that taken to?

A. Perry Ridge in Pinckneyville.

Q. And how much?

A. I could -- trying to recall the records. It was, I don't know, maybe 10, 15 trucks.

Q. Same 10-ton trucks?
A. No, those would have been 25-ton. It's been a long time, so --
Q. Okay. And the records for that, do you guys have them?
A. I believe we provided those to the Agency, actually.
Q. Okay. Great. And then how much of the burnable material was removed from B-3?
A. I want to say that was probably about 40, 50 trucks, and those were the 10-ton variety.
Q. Was that material burnt at the 123?
A. 123 and 4.
Q. Okay. And 4? And was it mixed before it was burned?
A. Yes, sir.
Q. Okay. And it was mixed with the coal you normally burn?
A. Yeah.
Q. Is that a yes?
A. Yes.
Q. Okay. So for all the cleanouts, just generally -- we talked about a bunch of them there -- you said that a lot of times it -- they were completely

dewatered?

A. That's correct.

Q. And so the ponds were drained completely of water, the whole area of the pond?

A. Yes.

Q. There wasn't any ponding or pools of water when you were doing the cleanout?

A. No.

Q. How long did the dewatering process take?

A. It usually took -- I mean, it'd take a handful of days. We'd always try to pick a time period during the late summer or early fall when it was dry periods to do this type of work. We needed to get as dry as we can to get the material -- get the dozer in, move the material.

Q. Was it still kind of wet when you were operating out there at all?

A. Tacky.

Q. Tacky? You talked about the south fly ash pad. That was in 2007?

A. Correct.

Q. Dewatering for that, how'd you do it?

A. I would assume they did it with an electric pump.

Q. Okay. I see. You had started after that started?

A. They had started that process by the time I came to the SIPC.

Q. So you're not familiar with the whole dewatering process?

A. Not all of it, no.

Q. For all those cleanouts, did you ever characterize the material beyond just the visual observation that you described today?

A. For the most part, it's visual.

Q. So you guys didn't send any of that material off to a lab or anything to have it tested?

A. No.

Q. Okay.

A. No.

Q. All right. I want to ask you about the pond investigation report that was completed on behalf of SIPC in 2021. Are you familiar with that report?

A. Yes.

Q. How are you familiar with it?

A. I mean, I've read through it.

Q. Just one moment. Sir, you're aware in that report that the water levels for both pond 4 and the

south fly ash pond were lowered right before the bathymetric survey was done?

A. That's correct.

Q. And that about 60 percent of pond 4 was surveyed and 73 percent of the south fly ash pond was surveyed?

A. Are we -- I mean, like, volume of water you're getting to?

Q. So I'm asking, because the volume of water was lowered, it only allowed the boat to reach 60 percent of pond 4 and 73 percent of south fly ash.

A. Okay.

Q. Does that sound fair?

A. Sounds fair.

Q. Okay. So the bathymetric surveys don't survey all of the ponds and all the materials that are in the ponds; is that correct?

A. I mean, I -- hard to assume.

Q. Well, I mean, is that your understanding of what happened because --

A. Yeah. The ponds are lowered --

MS. LODE: I'm going to object. This is outside the scope of his direct. He didn't do the bathymetric survey, didn't write the pond investigation

report. This is certainly outside the scope of his knowledge.

MR. NEIBERGALL: So the response is that none of the other witnesses have yet admitted to reading the report, and SIPC had some --

MS. LODE: Hearing Officer -- sorry. I thought you were done.

MR. NEIBERGALL: No. It had -- They made decisions about whether or not to conduct additional investigation that they failed to do, so he's the only witness left that can testify to SIPC's intent on this report.

MS. LODE: Hearing Officer Webb, the procedures used for the bathymetric survey may or may not have been within the scope of Jason's knowledge, but we certainly have the person who wrote the pond investigation report here and who may be able to answer questions about why the bathymetric survey was conducted the way it was.

HEARING OFFICER WEBB: Okay. Well, why don't we allow him to just answer what he knows --

MR. NEIBERGALL: Sure.

HEARING OFFICER WEBB: -- and -- with the understanding there may be another witness.

MR. NEIBERGALL: Thank you, Your Honor.

A. To answer your question on the pond levels, the pond levels are down because we no longer have a unit that produces 95 percent of our effluent water, so the amount of water flowing in these ponds has greatly been reduced, so, yes, the water levels are going to actually fall.

Q. (By Mr. Neibergall) So you're saying the water levels are down in 2021 as compared to when?

A. 2020. We shut unit 4 down in the fall of 2020. From that point on, our effluent water has been drastically reduced, so now the only thing it really produces is precipitation.

Q. Okay. So that makes sense for a lot of the ponds, but specifically for pond 4 and south fly ash, their water levels were lowered just before the surveys were performed. Pond 4 water level was lowered to assist the closure of the adjacent pond 1 and 2? Does that sound fair?

A. Yes.

Q. Okay. And the south fly ash pond was dropped because stormwater basin construction, which is what you were just indicating.

A. Yes.

Q. Okay. So my question is, after this was completed not to the full extent of these ponds, why didn't SIPC redo the bathymetric survey?

A. I mean, those ponds are still at the same levels they are the last five years, so -- I mean, I hope Mr. Hagen can speak on the bathymetric.

Q. So as far as SIPC's decision to not conduct another investigation of the full ponds, that wouldn't be him, though. That'd be SIPC, right?

A. Sure.

Q. And you're aware that it's SIPC's burden to prove that these ponds are not surface impoundments and that they contain de minimis amounts; is that correct?

A. Sure.

Q. Last question I have is about SIPC's Exhibit 3. It's a picture. I can show you what it is. The question is just are ponds 1 and 2 part of this adjusted standard petition?

A. No.

Q. So their inclusion in that picture as far as a highlighted color is in error probably? I'll show you the picture. Let's see here.

Unless counsel wants to stipulate that ponds 1 and 2 are not part.

MS. JOSHI: Pardon me?

MR. NEIBERGALL: Do you want to stipulate that ponds 1 and 2 are not part of the petition?

MS. JOSHI: Ponds 1 and 2 are not --

MS. LODE: Yeah, we will stipulate that ponds 1 and 2 are not part of the adjusted standard petition. The person who prepared SIPC's Exhibit 3 will testify, if you'd like to clarify.

MR. NEIBERGALL: Thank you.

Q. (By Mr. Neibergall) A couple questions. Pond B-3, it receives coal pile runoff?

A. It did.

Q. It did? It does not anymore?

A. No, ma'am. No. I'm sorry.

Q. When did that stop?

A. I believe it was around -- don't quote me to the date -- sometime in the 2010s.

Q. So I must have missed this. In the discussion on your direct testimony on pond B-3, you said there were three piles. There was the burn pile, there was the organic pile --

A. There was a couple -- I mean, I don't know three -- there was two, three, four. I don't remember exactly, but we had -- we scraped up the sides and made

distinct piles out of them. We tested those piles to see which ones would pass the Class 1 groundwater standard.

Q. And my question is about the pile that was determined to be CCB, I believe you testified.

A. I wouldn't say CCB. We just tested it for Class 1 groundwater standards.

MR. NEIBERGALL: No further questions at this time.

MS. LODE: Just a brief redirect.

REDIRECT EXAMINATION

BY MS. LODE:

Q. Mr. McLaurin, the cleanings that IEPA asked you about for the 3/3A, pond 4, why were those cleanings conducted, the ones in 2010?

A. Part of the NPDES's routine pond maintenance.

Q. And would it be common to have records for these routine pond maintenance cleanings?

A. Day-to-day activities, not necessarily.

Q. And is there a reason why not?

A. We just looked at it as being stewards and doing the part of our job from day to day and not something necessarily we had to document from day to day.

Q. And I'd like to clarify a little bit about

the cleaning in pond 4 in 2010.

A. Gotcha.

Q. What percent of the unit was sediment, roughly?

A. It was a lower quarter, lower fifth of it.

Q. And if you could, can you clarify in truckloads how much muddy material was removed from pond 4?

A. Are we talking coals fines or are we talking muddy material?

Q. The muddy material.

A. I mean, that may have been 20, 30 trucks. We didn't actually do it by trucks, but if I'm just trying to quantify in trucks, something along that route. It wasn't --

Q. And if you were quantifying in trucks, what's the type of truck?

A. 10-ton.

Q. And to clarify for the record, you said that no material was tested during the cleaning the IEPA talked to you about. Was the material tested from former pond B-3?

A. The testing -- We did two types of testing per se. We test, like, to the piles that I explained to

him, and then the coal fines, we did internal BTU content testing to ensure that it was actually coal fines.

Q. And this is for former pond B-3?

A. That's correct.

Q. So when you indicated on cross examination that none of the materials were tested, were you referring to the routine maintenance cleanings?

A. That's correct.

Q. And visually, during those cleanings, in your experience, can you distinguish between coal, CCR, scrubber sludge and organic?

A. Absolutely, yes.

Q. And is that based on what?

A. Just knowledge. I mean, you can -- coal fines, they're granular, small, fine particles. They're not hard to -- It's not hard to distinguish between that and sludge.

MS. LODE: Okay. I don't have any further questions.

MR. NEIBERGALL: No recross.

HEARING OFFICER WEBB: Does the Board have any questions?

MS. BROWN: Just one.

EXAMINATION

BY MS. BROWN:

Q. You said there was sampling for the bottom of former pond B-3. Is that sampling currently in the record? If so, where?

A. I don't know if they have it here, but I know we have submitted that stuff to the Agency, and I believe that was done in 2017 in the packet, but we could --

MS. JOSHI: And I can clarify. I think our next witness is going to talk about that, and it is attached as an appendix to SIPC Exhibit 29.

MS. BROWN: Thank you.

HEARING OFFICER WEBB: Thank you.

THE WITNESS: Thank you, ma'am.

HEARING OFFICER WEBB: Okay. We're ready for your next witness. Would you like to take a break?

MS. JOSHI: Can we take a five-minute break?

HEARING OFFICER WEBB: Sure. Yes. Let's -- We'll take five.

(Brief recess taken.)

HEARING OFFICER WEBB: We are back on record, and the Petitioner may call their next witness.

MS. JOSHI: Thank you. We call Dave Hagen.

HEARING OFFICER WEBB: Would the court

reporter please swear in the witness?

(Witness sworn.)

DAVID HAGEN, produced, sworn and examined on behalf of the Petitioner, testified as follows:

DIRECT EXAMINATION

BY MS. JOSHI:

Q. Can you please state and spell your name?

A. I'm David Hagen, D-A-V-I-D, H-A-G-E-N.

Q. Mr. Hagen, please describe your educational background.

A. I have a bachelor's degree in biology from Baldwin-Wallace University and a master's degree in geology with an emphasis on hydrogeology from Oklahoma State University.

Q. Where are you currently employed?

A. Haley & Aldrich, Inc.

Q. What's your current position?

A. Well, I wear many hats, but the one that's most pertinent here is principal consultant.

Q. What are your duties as a principal consultant?

A. I assemble teams of professionals, engineers and scientists, to solve issues or matters related to our clients' needs.

Q. Do you specialize in any specific subject matter areas?

A. Yeah, and when you say specific, it's going to sound broad, but it is specific. It's really the characterization, like, preliminary assessments, all the way through remedy construction for environmental remediation, waste management, environmental permitting, all those things.

Q. What was your work experience prior to your current position?

A. Well, I started as a field hydrogeologist, so I was out in the field. This was in 1986. Started in the field collecting information that we rely upon for decision-making, water levels, soils, soil samples, all sorts of things like that, and that's where I started, and then I just progressively moved up in my career.

Q. And when you use the word decision-making, what kind of decision-making are you referring to?

A. Well, anything -- a great example -- anything related to, again, solving environmental issues related to our clients' needs. A great example would be specifying a remedy for a particular site or making decisions on how to close a waste management unit, those sorts of things.

Q. Did you prepare any materials in support of SIPC's petition in this matter?

A. I did.

Q. We're going to hand you a document that's -- was attached to SIPC's petition as Exhibit 29. Are you familiar with this document?

A. Yes, I am.

Q. What is this document?

A. It's a summary of work that was conducted at the Marion Station related to the characterization of certain ponds, primarily related to some of the work that's being discussed here, the de minimis issues that are associated with the ponds.

Q. Are you the principal author of this document?

A. I am.

Q. Did anyone assist you?

A. Yes.

Q. How so?

A. Well, it was primarily Jacob Chu. You'll see his name on the documents. Primarily data evaluation, some drafting of the reports, those sorts of things.

Q. And was any work that Mr. Chu conducted done

under your direction?

A. Yes, all of the work that he did was under my direction.

Q. And was all the work Mr. Chu did on this report done with your review?

A. Yes.

Q. We're going to hand you another document that was attached to SIPC's response in this matter, and it's marked as Exhibit 40 and was attached to the response in this proceeding. Are you familiar with this document?

A. Yes, I am.

Q. And what is it?

A. It's an early 2025 dated report that relates to evaluation of work that was done by Illinois EPA and just our thoughts and comments on their work.

Q. Are you the primary author of this document?

A. Yes.

Q. Again, did anyone assist you?

A. Yes.

Q. Was it the same person as --

A. Jacob Chu, yes.

Q. Okay. Did any work Mr. Chu did on this report or -- let me repeat that. Was any work that

Mr. Chu did on this report done under your review and direction?

A. Yes.

Q. Mr. Hagen, can you please describe your work experience related to CCR surface impoundments?

A. Well, I've probably worked on -- I haven't counted -- probably somewhere between 30 and 50 different CCR surface impoundments for various clients across the United States.

Q. And what work have you done related to CCR surface impoundments?

A. Any -- Would be anything related to closure, post-closure, post-closure care, the groundwater monitoring requirements and then groundwater -- or corrective measures associated with any exceedances of groundwater standards part of the rule.

Q. And you worked on anywhere between 30 and 50 CCR surface impoundments?

A. That's a guess, but that's probably about right.

Q. I'd like to provide you with a copy of a document that has been marked as SIPC Exhibit 51.

A. Thank you.

Q. Mr. Hagen, do you recognize this document?

A. I do.
Q. And what is it?
A. It's a copy of my resumé or CV.
Q. And is this a true and correct copy of your current CV?
A. Yes.
Q. Does the CV contain additional details regarding your professional background and experience?
A. It does.
MS. JOSHI: Hearing Officer, I move to admit Mr. Hagen as an expert in CCR surface impoundment operations, waste characterization and hydrogeology.
HEARING OFFICER WEBB: Certainly seems like an expert to me. Do you have any objection?
MR. NEIBERGALL: Yeah, no objection.
MS. JOSHI: Okay.
Q. (By Ms. Joshi) Mr. Hagen, I understand you have a Powerpoint to accompany your testimony today. Is that correct?
A. I do.
Q. We're going to hand you a copy of a Powerpoint that's been marked as SIPC Exhibit 52 --
A. Thank you.
Q. -- where the title slide reads "Testimony of

David Hagen," which is also displayed as slide 1 on the screen in the room. Do you recognize this document?

A. I do.

Q. Is this a true and correct copy of the Powerpoint prepared to accompany your testimony today?

A. Yes.

Q. Did you assist in drafting or otherwise review and approve the contents of this Powerpoint?

A. Yes.

Q. And just generally, what does the Powerpoint contain?

A. It really relates to information that's provided in far more detail in both my 2021 and 2025 reports.

Q. Mr. Hagen, let's talk a little bit more about CCR surface impoundments. What is a CCR surface impoundment?

A. Well, it has a specific definition. We heard about that yesterday, and essentially what that is -- what they are is either a natural depression or a man-made structure that's designed to hold an accumulation of CCR, coal combustion residuals, for purposes of storage, treatment or disposal.

Q. How do CCR surface impoundments typically

operate?

A. It's actually pretty simple. The -- A facility like a coal-burning power plant will have a system of delivering sluiced ash or sluiced CCR to the pond wet, so that's why they're a pond. Everything comes in -- that comes into the surface impoundment, it comes in wet.

Q. And you used the term accumulation --

A. Yes.

Q. -- when talking about what a CCR surface impoundment is. What does the term accumulation mean in your -- based on your professional experience and judgment?

A. Oh, gosh. Probably the best -- For CCR surface impoundments, probably the best way to describe that would be looking at -- I don't know which slide it is. I have a slide in my report that talks about how CCR surface impoundments operate, what they look like, the accumulation of significant amounts of ash.

Q. And we'll talk about each of the ponds you looked at in more detail, but do you consider the amount of sediment contained within these ponds to be an accumulation of CCR?

A. Well, I think the more important word here

is whether or not it's a significant accumulation, because you can accumulate even just sediment from stormwater runoff, so probably the real term to look at is significant accumulation, and these ponds in my opinion don't have a -- what I call a significant accumulation.

Q. In your experience, what volume of CCR do you typically see in a CCR surface impoundment?

A. Gosh. It can vary. However, it's not uncommon to have tens of feet of CCR in a CCR surface impoundment.

Q. Mr. Hagen, are you familiar with the concept of a reasonable degree of scientific certainty?

A. I am.

Q. What does that mean?

A. What it means for me is utilizing accepted methods, coming to conclusions that have a basis that's more likely than not or what I call a preponderance of the evidence. Those multiple things that we do are called multiple lines of evidence, so different methods we may use to make -- to arrive at conclusions are usually done through multiple lines of evidence.

Q. And are you offering your opinion today to a reasonable degree of scientific certainty?

A. I am.

Q. And you just mentioned looking at multiple lines of evidence. What is a -- and you've also used the term lines of evidence in your report. What is a lines of evidence analysis?

A. Well, essentially taking information from different things that we -- different activities that we perform, collecting data during those activities, and then putting all of that together to come up with reasonable scientific certainty, which is more likely than not.

Q. And how do you choose the lines of evidence to analyze?

A. Well, that's based on professional judgment. You know, we have processes and procedures for all sorts of different things that generate data that we utilize to come up with our decisions and conclusions.

Q. In the case of the ponds that you evaluated for your pond investigation report, SIPC 29, was there available some sort of definitive test to determine the precise amount of CCR that may be present in the units?

A. I would not call any of the testing that we did definitive, but again, it was lines of evidence that we would use.

Q. Yeah. So my question is, to your knowledge, based on your professional background, is there a definitive test that could have been done?

A. Not to my knowledge.

Q. And so did you use sort of the best available information that was available?

A. We used the best -- in my opinion, the best available information based on the testing that's accepted.

Q. So in the absence of the availability of a definitive test, is it appropriate in your opinion to rely upon lines of evidence -- or a lines of evidence approach to determine the makeup of a unit?

A. Yes, absolutely.

Q. And is that what you did in your pond investigation report?

A. Yes.

Q. So turning to that report -- and again, we'll talk about the units in more detail later -- but based on the lines of evidence that you evaluated, what is your overall opinion to a reasonable degree of scientific certainty regarding the amount of CCR located in the ponds that you investigated?

A. I would characterize that as -- that the CCR

in the ponds at the Marion Station plant are insignificant. They're not a significant amount of CCR.

Q. All right. So let's talk a little bit more about your pond investigation report and turn to slide 2 of your -- the Powerpoint that you've got here. What methodologies did you use to conduct your investigation?

A. Well, as shown on slide 2, these -- yeah, these would be the processes that we would use for our multiple lines of evidence. We looked at pond usage and design information. We conducted -- A bathymetric survey was conducted. Carbon/nitrogen/hydrogen analysis was conducted. A polarized light microscopy was also conducted. There was a characterization of major cation and anion concentrations using a shake test method, and then there were groundwater monitoring results from the facility over time.

Q. And what units specifically did you look at when conducting your investigation?

A. Well, we looked at the south fly ash pond, pond 3A/3, pond 6, pond 4, and we had information on pond B-3.

Q. And are these ponds depicted on slide 3 of your Powerpoint?

A. They are.

Q. Are they the ponds depicted in yellow font?
A. Actually, they are the ponds -- there's not a depiction of the ponds. It's not in a font. It's not -- I can just name them.
Q. Okay. Sure.
A. They're not in a font and there are other ponds that are circled in purple. I was thinking they might be circled in purple, but there are other ponds that are --
Q. I believe they might be in yellow font. I know you have a small version there. But no worries.
A. Oh, yeah, it is a yellow font. You're right. I'll correct that. Thank you.
Q. All right. Let's talk about the methodologies you looked at one by one and with the slide 4 of your presentation. Mr. Hagen, what is a bathymetric survey?
A. Well, it's a technique that we use to determine sediment thickness in rivers, lakes, whatever surface water we're studying.
Q. Is a bathymetric survey by itself indicative of the CCR volume in a unit?
A. It's not. It's really just a measure of the sediment that's in a surface water, in a structure.

Q. On what units at the Marion Station was a bathymetric survey conducted?

A. Ponds 3/3A, 4, pond 6, and the south fly ash pond.

Q. Were there any limitations to conducting a bathymetric survey of 100 percent of the areas of any of these ponds?

A. Yes. Pond 4 and the south fly ash pond were unable to be surveyed over the entire pond, because you need a boat in order to do the bathymetric survey and there were inaccessible areas of the pond because the water levels were lower in those ponds.

Q. Even though they could not reach the full extent of the pond when conducting the bathymetric survey for those two ponds, were the results for the remainder of the pond able to be extrapolated?

A. Yes, they were.

Q. So did the bathymetric survey results include estimates for the entirety of the ponds, even those portions for pond 4 and the south fly ash pond that couldn't necessarily be accessed by the boat?

A. Yes.

Q. And in your expert opinion, would there be any reason to redo the bathymetric survey for pond 4 and

the south fly ash pond?

A. I don't believe so. I think that the information that was provided by the bathymetric survey and the extrapolation was adequate for the purposes of the investigation.

Q. Was a bathymetric survey performed on former pond B-3?

A. It was not.

Q. Why not?

A. Because there was no water in pond B-3. By the time the bathymetric survey was conducted, the pond had been closed.

Q. So for the units where a bathymetric survey was conducted, what were the results of the bathymetric survey?

A. Well, probably -- I mean, we have a table that gives all of the different numbers, but probably the thing that's -- I think is most important is the mean sediment thickness, because that really tells you something about the accumulation of sediments in the ponds, and our results were that there was nothing over 2 feet of sediment thickness, and the highest value was 1.67 feet of sediment thickness.

Q. And you heard Mr. Gallenbach and

Mr. McLaurin's testimony regarding the presence of organic materials from around the station making up a portion of the pond contents; is that right?

A. Yes.

Q. Would those organic materials be included in the sediment values derived through the bathymetric survey?

A. Yes.

Q. If there were -- was coal pile runoff that entered into these ponds, would that make up -- would that be included in the sediment thickness included in the bathymetric survey?

A. Yes.

Q. If there were other types of runoff or naturally-occurring minerals from around the plant that made their way into these ponds, would those be included in the sediment thickness included in the bathymetric survey?

A. Anything that was in the sediment, so that would be inclusive of those materials also.

Q. All right. I'd like to move to slide 5 and direct you to figure 4 of your pond investigation report, which was reproduced here on the slide. What does this figure show?

A. It just shows what I call three typical CCR impoundment configurations and the sediment thickness associated with them.

Q. How does this figure compare to the sediment thickness you see at the units for which a bathymetric survey was conducted?

A. Well, if you look at the scale on these, the ash is tens of feet -- the CCR is tens of feet thick instead of the less than two feet of sediment accumulation at the Marion Station.

Q. Is there also any distinction between the volume of the pond the sediment makes up, the overall volume of the pond?

A. Well, it depends on where it is in the life of the pond. The ponds that have been around for a long time oftentimes are significant -- have significant thickness of CCR.

Q. So you also mentioned that you conducted a carbon, hydrogen and nitrogen content analysis; is that correct?

A. Yes.

Q. What is a carbon, hydrogen and nitrogen content analysis?

A. It's an ASTM test method, so there's a

standard method, and it measures the percent of carbon, nitrogen and hydrogen in a solid sample.

Q. How is this type of analysis done?

A. Well, like I said, it's -- you obtain a sample and you subject it to the requirements of the ASTM process for carbon, nitrogen and hydrogen analysis and you get your results. I'm not sure that I'm answering your question, though.

Q. Thank you.

A. Okay. Sure.

Q. All right. What can such an analysis tell you about the contents of the sediments found in ponds that were analyzed?

A. Ponds with a high organic -- or high carbon content would be indicative of a high carbon source, which would include coal and would also include organics.

Q. To your knowledge, what is the typical unburned carbon content in fly ash?

A. Well, it's pretty low. For our report we used a threshold -- a conservative threshold of 20 percent.

Q. And would you typically expect the carbon content of fly ash to be below 20 percent?

A. Yes.

Q. I'm sorry. So would you consider that 20 percent threshold to be a conservative --

A. Yes, it's a conservative estimate.

Q. And what is the typical unburned carbon content of bottom ash?

A. It's actually, I think, a little bit lower than fly ash, but it would get -- be, again, in the low percent range, certainly less than 20 percent, so a conservative estimate for -- of 20 percent would be fine for bottom ash also.

Q. In your experience, can fly ash be burned as fuel?

A. No.

Q. In your experience, can bottom ash be burned as fuel?

A. No.

Q. All right. I think you explained a little bit about what a carbon analysis can tell you about the contents of the pond sediments. You also looked at nitrogen and hydrogen content?

A. Yes.

Q. What does looking at nitrogen and hydrogen content of the materials tell one about sediment source?

A. One of the things we can do with nitrogen

and hydrogen is look at the ratio of the two compared to one another and take a look and see how that falls on a trend analysis, falls on the line, and if those results fall along the line, that oftentimes tells us that we have a single source for our sample.

Q. So starting with the carbon analysis that you did and looking at slide 6 of your presentation, what were the results of the carbon analysis that you conducted on the pond sediments?

A. So utilizing the 20 percent conservative threshold for carbon, there were two ponds that had carbon content of the sediment solid samples that were greater than 20 percent, and that was pond 3A and pond 4, and that's shown on the table on the left. There were other ponds where the carbon content fell below 20 percent by and large, with the exception of one sample on the south fly ash pond that was over 20 percent.

Q. And what does the fact that these samples from -- on 4 and 3A have a carbon content greater than 20 percent tell you about the likely source of the sediments in those ponds?

A. It's unlikely to have any significant ash source, like a CCR source. It's more likely -- high -- more -- far more likely that it would be coal or organic

materials or a little bit of both.

Q. And if the carbon content in materials is less than 20 percent, does that necessarily indicate that the materials in the sediment are CCR?

A. No.

Q. So you also mentioned the hydrogen and nitrogen content analysis that you did.

A. Yes.

Q. I believe we have a reproduction of a chart from your report on slide 7.

A. 7.

Q. What were the results of the hydrogen and nitrogen content analysis that you conducted?

A. That's shown -- Essentially what we do is plot out the ratio of hydrogen and nitrogen, and that's shown on the right-hand chart, and we look at that as a trend line to help us determine the potential source. When it all falls along a trend line, as it has in this case, it's indicative of a single source and in this case would be indicative of a -- coal or organic matter or something like that.

Q. Now, on this slide you've got a statement that says, "The carbon versus hydrogen and hydrogen versus nitrogen correlation are inconsistent with

unburned coal"; is that right?

A. That's correct.

Q. All right. And can you just provide a little more detail regarding the basis for that conclusion? Does that relate to the -- these correlation lines?

A. It does. It relates to -- actually to both correlation lines, and I'm just going to -- and that's essentially the basis for that statement. I'll also note that this is just, again, one line of evidence, so we look at other lines of evidence at the same time to help us make determinations.

Q. Oh, sorry. And I think I need to correct myself. I think I said that your statement read that it was inconsistent with unburned coal, but it actually reads "inconsistent with burned coal"; is that right?

A. That's right.

Q. Okay.

A. It's what's on the slide.

Q. Assuming that's what I said, does your previous statement still hold true?

A. Well, it's -- I'll read it. "The carbon versus hydrogen and hydrogen versus nitrogen correlation are inconsistent with burned coal."

Q. Okay. If it was consistent with burned coal, would you expect to see deviations from those lines that you have depicted on this chart?

A. Yes.

Q. And is this correlation also inconsistent with scrubber sludge?

A. Yes. Scrubber sludge just simply doesn't have a high carbon content, so I don't even know if it's necessarily applicable here, but, yes, you would not see scrubber sludge that would have -- it would fall off the line also, in my opinion.

Q. Okay. By fall off the line, meaning you would expect to see a deviation from the line?

A. From the trend, yes.

Q. And that would be if there was scrubber sludge present in these samples?

A. Yes.

Q. Okay. Thanks, Mr. Hagen. So now I want to move on to talking about PLM, polarized light microscopy.

A. Yes.

Q. So just first off, what is PLM?

A. Well, it's subjecting a sample, microscopic-level sample, of solid materials to what's called polarized light, and then what happens is when you

do that, the different materials that make up that sample will have different optical properties, and then based on those optical properties, you can determine what they are, assuming you have reference samples of those materials.

Q. What ponds were analyzed using PLM?

A. Pond 3/3A, pond 6, pond 4 and the south fly ash pond.

Q. I understand that as part of the PLM analysis, control samples were taken of unit 4 fly ash; is that correct?

A. That's correct.

Q. I'd like to address some topics related to Board questions 4 and 5.

A. Okay.

Q. What was the purpose of using a fly ash sample from unit 4 as a control sample?

A. Well, my understanding is unit 4 was a unit that actually had materials that were placed in the landfill. I think it was scrubber sludge that was placed in the landfill. I don't believe -- well, we didn't have a sample of the older furnace.

Q. And why -- And can you just explain why you didn't have a sample from the older boiler?

A. I believe that was -- yeah, in the boiler. I believe that was boiler 1, comma, 2, comma, 3. Is that correct?

Q. I think it might have been three separate boilers, 1 -- historic units 1, 2 and 3, yes, but --

A. 1, 2 and 3. Okay. Got it. Well, they were taken offline years and years ago and there were just no samples to be obtained.

Q. And why didn't you use a sample from the current unit 123 or 123 --

A. We'll get it right.

Q. -- as a control sample?

A. Well, because my understanding is -- or our understanding is that none of that material was placed out in the -- on the land, so that material was all sent off and none of that was placed on the land. Unit 4 had materials that was placed on the land.

Q. Got it. And unit 123, as the -- I think you may have heard the company witnesses testify and I think you said, it was sent off, meaning it was never disposed of at the station? Is that what you meant by that?

A. That's my understanding. That's correct.

Q. Okay. Thank you. What is the purpose of using a fly ash sample from unit 4 as a control?

A. Well, it's really the best way for us to identify the optical properties of fly ash obtained from unit 4, so it's really about getting the best sample we could of -- for optical purposes to identify in the PLM.

Q. Would the control sample be the only way for RJ Lee, who conducted the PLM analysis, to determine what portion of the sediments they were analyzing from the de minimis ponds consisted of fly ash?

A. The answer is no. They have other reference fly ash samples. RJ Lee does this kind of work routinely and they're really experts at doing it, so they have reference samples. However, it's really -- if you can get samples from the facility, that's way better, so that's why we did it.

Q. Got it. And does that assist them with further determining whether a particle may be fly ash or not?

A. Yes.

Q. But without the control sample, could they still conduct this analysis?

A. They could have, certainly.

Q. All right. On page 13 of your report that is marked as SIPC Exhibit 29, you state that the fly ash sample for unit 4, quote, "was obtained during the last

few days of operation of unit 4. At this time, the combustion efficiency of the boiler might not have been at its best." Your report also notes that the sample may not have contained, quote, "pure unit 4 fly ash." How do you believe the fly ash content of this sample would compare to the fly ash content of the sample collected during normal operation of unit 4?

A. Well, the fly ash -- actually, the optical properties of the fly ash should not be significantly different, and that's what we were really after, were the optical properties of the fly ash.

Q. So does the fact that the sample may not have contained pure unit 4 fly ash because it was collected through the end of the life of unit 4 have an impact on its usefulness for the PLM analysis?

A. No, not in my opinion. It's really about getting a reference from the facility for the optical properties of the sample.

Q. On page 8 of your Powerpoint, or slide 8, we have a copy of table 7 from your pond investigation report; is that right?

A. Yes.

Q. What does it depict?

A. Well, it depicts the results of the PLM

analysis and the identification of particles from the samples that were obtained from the different ponds and the different constituents that were found by the analyst, and that includes fly ash, bottom ash, something I call slag, coal, other, and then a column that has the total amounts.

Q. All right. And let's go through the categories just briefly. What is fly ash?

A. Well, fly ash is a coal combustion residual that is a lighter fraction that during the combustion process actually flows up and is picked up in air pollution control equipment at the facility.

Q. What is bottom ash?

A. Bottom ash is a heavier fraction that is at the bottom, that sinks to the bottom of the boiler.

Q. What's -- What is slag?

A. Slag's very similar to bottom ash. It's just that usually slag is subjected to, like, some sort of process where the molten material is cooled rapidly, and it's really glassier and -- more of a molten material that's glassy.

Q. And what about -- what does the slag plus fly ash plus bottom ash category represent here?

A. Well, that would represent the addition of

all three of those columns that preceded and would be what would be regulated as a CCR.

Q. What is the coal category?

A. Coal is coal. It's unburned coal, and it'd be things like the coal fines that have been described by some of the facility people.

Q. And what is the "other" category?

A. "Other" is just that. It's those materials that are part of the sample that would be related to potentially naturally-occurring things like quartz and carbonate and things like that. It would also include organics, maybe some clay minerals, things like that, just -- but they're really -- oftentimes they're just part of the sample and oftentimes they're naturally occurring.

Q. And referring to the "other" category, what is your opinion to a reasonable degree of scientific certainty regarding the amount of scrubber sludge that may be present in the "other" category numbers presented in your chart?

A. Well, actually, I don't think that there's -- would be a significant amount of scrubber sludge in the samples in that scrubber sludge really was only disposed in the landfill, so it wasn't disposed in

the pond systems that are under question here, and it was really disposed of in the landfill.

Q. Okay. And to your knowledge, would there be other sources for the "other" category in these units as well?

A. Yeah. I described that earlier. That could be all sorts of other materials that are naturally occurring that you would see in any sort of normal runoff at any other site; at any site, for that matter.

Q. Put another way, is there a reasonable degree of scientific certainty that the "other" category is made up of a significant amount of scrubber sludge?

A. On my view, the answer to that is no, because the scrubber sludge really wasn't -- it was only disposed of in the landfill. It wasn't part of the pond systems.

Q. Does Mr. Gallenbach and Mr. McLaurin's testimony regarding the organic matter that may have fallen -- gone into these ponds impact your opinion at all on that issue?

A. Yeah, I think it's relevant in the -- and I visited the site and there's a significant amount of phragmites that needs to be managed. I know you've heard some testimony that the facility manages their

phragmites. I think that -- I don't think it's insignificant that you have organic matter at the bottom of these ponds.

Q. So just to kind of wrap it up, are you familiar with whether there are possible sources for the "other" category outside of scrubber sludge?

A. Yeah, the organics, runoff of just normal materials, which would be quartz, clay, those sorts of things.

Q. Thank you. All right. Can you just briefly summarize what the conclusions of your PLM -- or the PLM analysis presented in your report were?

A. Yes. The PLM had I guess what I would call -- the sediment, which was what was tested, had variable amounts of PLM -- or had variable amounts of CCR, never exceeding in any one sample 70 percent, and oftentimes much lower than that, and certain ponds had very low CCR content and others had a little bit more.

Q. Are there any limitations to PLM analysis?

A. Yes.

Q. Okay. Can you please explain?

A. Yeah, the -- probably the -- we conducted PLM here to just get an idea of -- it's really a general idea of the contents of this -- the CCR content of the

sediments. It was not meant to be a definitive quantitative analysis. In order to do that, you would have -- we would have had to have taken more samples, and part of the reason why is because you have to remember these ponds are, you know, fairly large compared to the size of the sample that you obtain for PLM, so you would need to collect what I call a statistically representative sample population in order to have more confidence.

Q. And is the PLM analysis necessarily determinative of the contents of the whole pond?

A. No.

Q. So you talked about lines of evidence earlier?

A. Yes.

Q. Okay. Is this just one line of evidence that you use in your analysis?

A. Yes.

Q. Another type of analysis you discuss in a couple of places in Exhibit 29 is the shake test analysis; is that right?

A. Yes.

Q. I'd like to move on to slide 10 of your Powerpoint.

A. Thank you.

Q. All right. Mr. Hagen, what is the function and purpose of a shake test analysis?

A. Shake test analysis is just one of many tests that we have that we can use that relate to the leaching of chemical constituents from a solid to a liquid, so it's a leaching test.

Q. How is a shake test conducted?

A. It's an ASTM method. It's a sample aliquot that's measured. You put essentially neutral deionized water, you shake the sample, you take the extract, and then you analyze the liquid extract to come up with the leachability of the sample.

Q. And what does a shake test assess?

A. Leachability. It really is just how much of a chemical or a constituent, whatever it might be, would leach into -- from a solid to a liquid.

Q. What samples were analyzed using a shake test at the Marion facility?

A. Well, there were samples that were obtained from pond 3 and 3A, samples from pond 6, samples from pond 4 and samples from the south fly ash pond.

Q. Did the findings presented in your report include samples from the berms of the units?

A. Yeah, we had berm sample results in a separate table, that's correct.

Q. To your knowledge, why were the berm samples analyzed?

A. I believe they were analyzed at the request of the Illinois EPA.

Q. To your knowledge, was there discussion between SIPC and Illinois EPA regarding the scope of the -- some of the analyses presented in your pond investigation report?

A. That's my understanding.

Q. In your experience, does analyzing a berm sample tell you anything about what's been deposited in a pond?

A. The answer to that is no. What's -- The contents of the pond is what's accumulated in the pond. Berms are part of the construction.

Q. For what -- So I think you talk about what units shake tests of sediment were conducted. Why was no sediment shake test conducted for former pond B-3?

A. Because there was no sediment to sample. The pond was closed.

Q. For what units were berm shake tests conducted?

A. I'm going to refer to table -- page 11 of my Powerpoint, just so you know. It would have been pond 3, 3A, 4, 6 and the south fly ash pond, as well as berm samples from pond B-3.

Q. So in your report you discuss analysis of major cation and anion concentrations using shake tests; is that right?

A. Yes.

Q. What are cations and anions?

A. A cation is a positively charged constituent particle and an anion is a negatively charged ion particle constituent, and the major cations and anions make up the vast majority of the chemistry of a sample.

Q. What can an analysis of cation and anion concentrations tell one about the makeup of material in sediment?

A. Well, we use it -- we oftentimes use it as, again, a line of evidence to help us with the source of a material.

Q. And what do the cation and anion concentrations results reveal regarding the makeup of the sediments that were analyzed for your report?

A. Well, by and large -- and there were a few exceptions -- I'll tell you about that in a minute -- but

by and large, there were very few exceedances of any of the major cations and anions. There were two ponds, pond 3A and pond 4, where there are no exceedances of the major cations, and when I say exceedances, to Illinois groundwater quality criteria. So no exceedances of an Illinois water quality criteria in pond 3A and 4, and most of the -- the sediments in the other ponds, with the exception of sulfate, none of them were over an Illinois groundwater quality criteria.

Q. So you mentioned that 4 and -- pond 4 and the 3A portion of pond 3/3A did not have exceedances of any cations or anions analyzed for; is that right?

A. That's correct.

Q. Okay. And then you mentioned for other ponds there were some samples that included elevated sulfate?

A. That's correct.

Q. Were there exceedances of any other cations or anions in those units?

A. Well, like I said, the major cations and anions, there were no exceedances except for sulfate. We also did more along the line of what I call trace constituents or trace metals. We also did those too.

Q. Going back to the -- what you just mentioned

about the sulfate, is the presence of sulfate necessarily indicative of CCR?

A. Not necessarily. It can be naturally occurring.

Q. Okay. So putting aside their usefulness for a moment, what were the results of the cation and anion analysis conducted of the berm samples?

A. Well, by and large, with one exception, there were no exceedances of any of the Illinois water quality criteria, groundwater quality criteria, for any of the major cations and anions, with the exception of one sample from pond 3. I believe it's pond 3. Pond 3 had one sulfate exceedance.

Q. And are the results of that analysis shown here on slide 11 of your Powerpoint?

A. That's correct.

Q. All right. Did the shake tests include evaluation of any constituents other than cations and anions?

A. Yes. I mentioned that there were some what I call trace elements, trace constituents, trace metals, if you want to call it that, and that included antimony, arsenic, boron, selenium and thallium.

Q. Why did you include analysis of those

constituents?

A. Well, because those constituents can be found in CCR.

Q. I'd like to turn to slide 7 of your presentation.

A. Slide --

Q. Sorry. Slide 12.

A. 12. Thank you.

Q. 12. What did the results -- or what were the results of the shake tests for those other constituents -- or actually, strike that. Let me take a step back. What did the results of the shake tests for those other constituents that you just mentioned lead you to conclude regarding pond 4?

A. Well, again, in pond 4 we did not see an exceedance of any of the Illinois groundwater quality criteria, including those trace metals.

Q. And what does that tell you about the makeup of pond 4?

A. Well, it can -- the sediments contain materials that would be highly unlikely to impact groundwater quality.

Q. All right. Thank you. And what -- all right. And what did the result of the shake test for

these other constituents lead you to conclude regarding the 3A portion of pond 3/3A?

A. It's the same as pond 4 and it's consistent with the other shake test results, which is that we didn't find the trace metals above Illinois groundwater quality criteria.

Q. And what does that tell you about the makeup of 3A?

A. That it's unlikely that sediments in pond 3A would adversely impact groundwater quality above Illinois groundwater quality criteria.

Q. And again, you said that these constituents you were analyzing for -- are they associated with CCR?

A. Yes.

Q. And so if there was a significant amount of CCR in these units, would you expect to see some of these constituents at elevated levels?

A. It depends. There's one constituent in particular that we see over and over and over, almost all ash ponds, actually, CCR ponds, and that's boron, and we don't see an elevated boron above water quality -- Illinois groundwater quality criteria.

Q. All right. And what did the results of the shake tests for these other constituents lead you to

conclude regarding the other units that were analyzed?

A. Well, the other units had some -- as I mentioned before, they had some sulfate concentrations that were above Illinois groundwater quality criteria, and then they also had some TDS that were above Illinois groundwater quality criteria. The TDS in our opinion is less reliable because we had some TDS results that didn't make much sense. There -- TDS is made up of all of those major cations and anions, and if you look at some of the test results, several of the test results, the numbers just don't add up.

Q. So for those units that were found to have higher sulfate and TDS concentrations, do you believe that they are causing or contributing to groundwater contamination?

A. Well, from the information that we had for this work, the answer for that is no, and that's based on groundwater wells that had been installed at the facility and had been monitored for years and years and years.

Q. And can you just explain how you reached a conclusion using those groundwater wells and that data regarding whether or not those ponds where there was some elevated sulfate and TDS were not causing or contributing to the groundwater contamination?

A. Well, the couple things that we did, we wanted to see the relationship of sulfate to sulfates on solids. We looked at that through a bivariate analysis. That was a pretty simple conclusion that high solid and sulfate produced high liquid sulfate in water results -- that's not terribly surprising, but we did it anyway -- and that there was a correlation between sulfate and TDS. So when you had high sulfate, oftentimes you had high TDS, except those five samples that I mentioned before where we have very low sulfate and very high TDS values. It just didn't make any sense. So it's called a bivariate analysis and it's included in my report.

Q. For former pond B-3, though no sediment sample could be taken at the time of this investigation, were there historic sediment samples you could analyze?

A. Yes.

Q. Are a summary of those results presented on slide 14 of your presentation?

A. Getting there. Yes.

Q. Okay. Thanks. And I apologize. Before moving on to slide 14, if we could go back to slide 13, and again, just sort of putting the usefulness of such results aside, did you also analyze the berm samples for these additional constituents you just mentioned?

A. We did.

Q. Okay. And what were the results of the shake test for these constituents in the berm samples?

A. The constituents that we analyzed included some of those trace metals that I mentioned before and also major cations and anions. We did not see -- With the exception of a couple of outliers, we did not see exceedances of Illinois groundwater quality criteria from berm samples.

Q. Would you expect based on the analysis of this berm sample for these berms to be causing or contributing to groundwater exceedances?

A. I would not expect that.

Q. All right. Now moving on to slide 14, what does slide 14 depict?

A. These are the samples of shake tests that were conducted on soil samples from pond B-3.

Q. And what did those results lead you to conclude regarding CCR content in former B-3?

A. Well, first of all, I look at the chart, look at the table, and there's really -- with the exception of a couple of parameters, one of which is pH, but the fact is that there's really no -- with one exception, there's no exceedances to Illinois groundwater

quality criteria. For me, that indicates that this pond or former pond would not be contributing to groundwater contamination.

Q. And based on these results, would you expect there to be a significant amount of CCR content in pond B-3 at the time these results were taken?

A. The answer to that is no, I don't believe that -- those results are not indicative of significant CCR.

Q. Again, would you expect, for example, to potentially see elevated boron if there was CCR?

A. You would.

Q. I want to focus on pond 4 specifically because SIPC is asking for something a little different with this unit in terms of the adjusted standard that's being requested. Okay. So to confirm, what did your lines of evidence analysis conclude regarding the content of CCR in pond 4?

A. If you look at all of the lines of evidence, my conclusion is that CCR present in -- if present, would not be present in significant amounts and would not be contributing to groundwater contamination.

Q. All right. Thank you, Mr. Hagen. So now I'd like to turn to the other report that you prepared

for this matter that's been marked as SIPC Exhibit 40. It is attached to SIPC's response. Again, I know we talked about this at the beginning of your testimony, but just to refresh everyone's recollection, what was the purpose of this report?

A. We reviewed work that had been conducted by Illinois EPA and commented on that work.

Q. Let's start by talking about a few general topics discussed in this report and move on to the next slide in your presentation, which I believe is slide 15.

A. Okay.

Q. We've been using the term de minimis during this hearing, yes?

A. Yes.

Q. Do you agree with that? Okay.

A. Yes.

Q. Are you familiar with this term as it's used in the context of CCR surface impoundments?

A. I am.

Q. What is your understanding of what this term means in connection with CCR surface impoundments?

A. Well, it really comes from USEPA and some of the words they've used in their preamble to the CCR rule, and it's really on this slide, and what the EPA said is

that the threshold for de minimis has not been set -- so they haven't set a threshold -- recognizes that the de minimis exemption is necessary and has clarified that secondary or tertiary ponds that do not receive significant amounts of CCR from a preceding impoundment would not fall within the definition of a regulated CCR surface impoundment.

Q. To your knowledge, would a de minimis CCR surface impoundment contain some amount of CCR?

A. I would expect pretty much any sample that would be obtained from a coal-burning power plant that's been in operation for decades, that you would find some level of CCR in almost anything, actually in any sample.

Q. And when you say any sample, you mean any sample, like, from the station?

A. Yes.

Q. Okay.

A. Soil, ponds, you know, you would see -- I think you would see CCR after decades of operations.

Q. To your knowledge, has USEPA provided a definition of the amount of CCR -- a regulatory definition of the amount of CCR at which a pond would be considered de minimis?

A. I'm not aware of a surface impoundment

de minimis that has been provided by USEPA.

Q. Has USEPA provided any regulatory definition for the term de minimis as used for CCR surface impoundments, to your knowledge?

A. Not that I'm aware of.

Q. Okay. In your professional experience, what are the characteristics you would look for to determine whether the amount of CCR in a surface impoundment is de minimis?

A. I think the important term there is accumulation, and I would expect that you would see what I call significant accumulation of CCR in a CCR regulated surface impoundment. Those are really characterized by primary ponds that are used to sluice ash and to settle ash.

Q. And could it occasionally include a secondary pond as well?

A. It can. Just depends on the -- how the ponds are utilized and essentially their function, so that was one of the reasons why we looked at the function of the ponds, those sorts of things.

Q. So what are some of the things you would look for to determine whether a secondary pond was de minimis or not?

A. Well, I would say we want to look for things that we looked at here in this -- you know, that's summarized in our report.

Q. And by your report, do you mean your pond investigation report?

A. Yes.

Q. All right. So again, you just mentioned and as noted on slide 15 you note that USEPA has noted that Part 257 is not meant to regulate secondary or tertiary ponds that do not receive significant amounts of CCR from a preceding impoundment; that is right?

A. Yes.

Q. Okay. So again, in your experience, what does a pond look like when it receives significant amount of CCR from a previous impoundment?

A. Significant accumulation and the pond's been in service for some time. You would see tens of feet of CCR accumulation.

Q. Have you reviewed the Agency's January 2023 recommendation document?

A. I believe I have.

Q. In that document, the Agency described the number of truckloads it may take to remove sediment from several of the units in that case. Are you familiar with

those numbers from the Agency's recommendation?

A. Generally. I couldn't give you the exact numbers, but the general numbers, I am aware.

Q. Okay. You said you worked on 30 to 50 CCR surface impoundments during your career; is that correct?

A. Yes.

Q. In your experience, how many truckloads of CCR would you expect to see removed from a typical CCR surface impoundment?

A. Depends on the size of the impoundment, but if you think about what I just said, which is tens of feet of accumulation over tens of acres, if you do that math -- to hundreds of acres -- I mean, I've worked on ash ponds that are 250 acres -- if you think about that quantity of ash that's in those ponds, we're talking about tens of thousands of truckloads or more and can take years to implement. Now, of course that depends on the size of the truck, which I think some people have pointed out here if they were 10-ton trucks, you'd need quite a bit more. If they were -- You know, we can put tandem trucks together and get 20 tons at a time, and that's really what my reference is.

Q. And so based on your experience, I think you said that the surface impoundments that you've seen have

been tens to hundreds of acres; is that right?

A. Oh, yeah, absolutely.

Q. Okay. And the CCR surface impoundments that you've seen -- again, just making sure I heard you correctly -- they generally contain tens of feet or more?

A. Yes.

Q. Okay.

A. And depending how long they've been in service, but oftentimes they've been in service for quite some time and you'll see tens of feet of ash accumulation.

Q. And how does the truckloads that you just talked about compare to the truckloads the Agency referenced in its January 2023 recommendation?

A. It's orders of magnitude greater.

Q. IEPA's January 2023 recommendation in this matter also includes some calculations regarding the amount of CCR in each of the ponds, and actually, if we could just move to slide 16 of your presentation. So are you familiar with the calculations -- or generally familiar, right? I'm not asking you to remember the specific numbers here --

A. Thank you.

Q. -- but just generally familiar --

A. Yes.

Q. -- with the fact that the Agency included some calculations regarding the amount of CCR in each of the ponds that SIPC refers to as the de minimis units?

A. Yes.

Q. So first, based on your review, do you agree that the calculations in IEPA's recommendation are in fact reflective of the amount of CCR in these ponds?

A. No.

Q. Why not?

A. Well, there's a few reasons why. One is that their calculations incorrectly assume that all sediment in a pond is CCR, and I think that the work we've done would indicate that that's just not the case, and that would be actually expected here because these ponds are used for a different purpose, which is water management, stormwater management. They also incorrectly included the sediments in the berms, and I would not include the sediments in the berms. They included -- well, their recommendation included the existence of sediment buildup based on deltas that they noted in aerial photos, and if you really look at the aerial photos, it's quite possible, if not likely, that there weren't real deltas, it was just a lower water level in

the pond, and that you were actually just seeing the pond bottom instead of the existence of deltas.

Q. And does -- do assumptions related to water levels have an impact on sediment calculations?

A. Absolutely. Your reference elevation is a -- is the pond level, so all of your calculations are going to be referenced off of your pond level.

Q. And did that in any way impact the -- based on your review impact IEPA's calculations of the amount of sediment in these units?

A. It did. In my opinion, it caused an overcalculation of the amount of sediment in the units.

Q. And again, do you believe that it's appropriate to include the berm areas as part of the calculations?

A. No.

Q. And why not?

A. Well, if you really look at the definition of a CCR surface impoundment, it really doesn't include the berms.

Q. Are the berm areas of the unit typically managed under any sort of hydraulic head?

A. No, usually not.

Q. Are you familiar with the aerial photographs

that were included with IEPA's recommendation and marked as IEPA Exhibits 1 through 18?

A. I am.

Q. Did you see areas in these photographs that IEPA appears to be referring to as deltas in its recommendation?

A. I did.

Q. Do you agree that these were in fact deltas?

A. Well, they made inferences on aerial photos several different areas, and one of the ways -- and I've already made this statement on the deltas -- that you would infer that there were deltas is that the sediment that's being deposited in the ponds are actually above the water level. Well, if you lower the water level, then it would be a false positive for a delta. It would just be the bottom of the pond. So that was one item that I noted. The other was where a delta was called out, and it appeared to me that that area was probably not a delta but it was probably some other phenomena that caused the appearance of the delta in that area, like a land or slope movement into a pond.

Q. And do you believe that it's appropriate to use visuals from an aerial photograph in order to determine what sediment is made up of?

A. I actually prefer not to use color at all in my assessments because the color can be different, and just depends on the reflection of the materials, all sorts of things, so I try and use -- I try and stay away from using color if I can.

Q. In your experience -- Just moving on to sort of permits, in your experience, is a permit always indicative of the actual conditions of the unit?

A. It is not.

Q. Why not?

A. Well, a lot of times facilities will seek a permit based on some future need because they don't want to get caught short, so they'll seek a permit for some future need, and then when the time comes for that future need and it is not there, then they would never use the unit for that permitted condition.

Q. So for example, in an NPDES permit, in your experience, are all the listed discharges always necessarily present?

A. Not necessarily, and another comment that I'll make on NPDES is oftentimes we -- when we prepare permits like that, we actually prepare them for higher flows because we don't want to have an upset or a permit -- you know, blow a permit because of too high of

flows.

Q. Got it. So you've seen -- at least in your experience, you've seen the conservative use of higher flows?

A. We do, that's correct.

Q. Okay. Is a permitted use always -- a permitted use, you know, a use that's permitted in a permit, always indicative of actual use?

A. No. It's for the reasons that I gave you in the foregoing, which is the plant needs may change, so therefore they wouldn't need to use it for the full -- the permit -- the reason for the permit they sought.

Q. So in your opinion, is it appropriate to assume that a permitted use is the actual use of a unit?

A. The answer to that is no.

Q. And do you believe it's appropriate to assume that a permitted volume is necessarily indicative of actual volume?

A. Again, the answer to that's no.

Q. Do you believe that it was correct for IEPA to assume that all sediment contained within ponds 4, 3/3A, the south fly ash pond and pond 6 is attributable to CCR?

A. No.

Q. And why not?

A. Well, again, if you look at the work that we did, the sediments are not 100 percent CCR, so they're made of -- they are composed of other materials, like coal, for instance, so to assume that it's all CCR would be a false assumption.

Q. Let's talk a little bit more about pond 4 again. On page 4 of your Exhibit 40 you say -- and I'll let you get there if you'd like.

A. Thank you. Go ahead.

Q. You state, quote, "The role of the pond 4 to receive treated water makes it fit the definition of a secondary finishing pond." Do you see that?

A. I don't, but I am familiar with that statement, so I --

Q. Okay.

A. I believe that that's how it was written.

Q. Okay. Mr. Hagen, I just want to ask you, what is a finishing pond?

A. A finishing pond is used across several industries, all sorts of industries. Basically it's a pond that's in a series of ponds that are used to finish some sort of treatment.

Q. Okay. And in this case, what would make

pond 4 a finishing pond?

A. Well, it was not a primary pond. It was not the first pond in the series, A, and B, it's part of a process the facility uses to meet their NPDES permit, so that's why it's a finishing pond. It's to help with the water quality before there's a discharge to their NPDES permitted outfall.

Q. Got it. And so when you say it's finishing, is it finishing with respect to the water that's moving into the unit?

A. That was my interpretation in looking at the definition, that's correct.

Q. All right. So now I'd like to switch focus a little bit, turn to slide 17 and talk about the former landfill area a bit more. Based on the evidence you have seen, was the landfill initially built upon a wet or dry area?

A. Based on the aerials, 1971 and 1980 aerials that are shown in -- on the slide 17, the area appears to be dry, so it's a dry area.

Q. Are you familiar with the fact that a dike was built around this area historically?

A. Yes.

Q. And what is your understanding of the

purpose of this diked area?

A. My understanding, it was to -- it was for the purpose of having runoff control, particularly stormwater runoff control from the landfill.

Q. Is it common for a landfill to have an area for management of stormwater runoff?

A. Yes.

Q. And what is the purpose of having an area to help with landfill stormwater runoff?

A. Well, and I'm going to take it beyond landfills. You know, we build structures that will retain water in order to minimize significant flows during precipitation events, so you build these structures to hold water and then you can -- once a precipitation event is over, then you can bleed that water off. Any -- If -- Any retention basin -- If you live in a housing development, you probably have a retention basin that functions the same way.

Q. If there's a pond or a ditch located next to a landfill, does that mean that the pond or ditch will saturate the neighboring landfill?

A. Not necessarily.

Q. Have you seen any evidence that would indicate that the former landfill area at issue in this

proceeding would have become saturated with water from neighboring pond 6?

A. I haven't seen that information.

Q. And would you expect the water to flow from pond 6 to the former landfill?

A. The answer to that is -- my expectation is it would actually flow downhill and it would flow more towards Saline Creek instead of backwards into the landfill.

Q. And can you just explain that so that it's clear when you say it would flow towards Saline Creek? What direction would you expect the flow of water to be?

A. I'm directionally challenged. It's upwards in the page, and if someone can help me, is that north? Is north up?

Q. I believe it's up, yes.

A. Okay. So it would flow north.

Q. Okay.

A. That would be my expectation. A lot of it has to do with hydraulic head and things like that, but --

Q. Yeah. And based on your understanding, does -- So based on your understanding of the site, though, this water -- would water flow in the direction

from the landfill towards pond 6?

A. I don't believe that's the more likely route. The more likely route would -- go ahead.

Q. Sorry. I -- Landfill towards the north.

A. Could you repeat the question? Thank you.

Q. Yeah, sure, or maybe let me rephrase the question.

A. Thank you.

Q. Can you just explain again, what is your understanding of sort of the elevation at the property and how that would impact the likely direction of any water flow?

A. Yeah, the ground slopes from south to north, from the landfill north to Saline Creek, so I hope I'm explaining what it is you're looking for, but I would expect water flow would be towards the Saline Creek on the outside of the berm. Of course the bermed area would catch the water. That's the stormwater runoff control.

Q. All right. Are you familiar with IEPA's statement in its recommendation that at least four feet of saturated CCR -- that there are at least four feet of saturated CCR below the rest of the dry CCR placed in the landfill area?

A. Yes, I'm familiar with that statement.

Q. Do you agree with that statement?

A. No, not necessarily, and I'll tell you, the reason why is because the relationship of the water in the retention basin, pond 6, and the landfill is dependent upon many factors, so just -- you'd have to account for many, many factors to understand flow. The other is what I just said, which is the likely flow is to the north because that's the general slope of the ground surface.

Q. Are you familiar with the long, narrow strips that Mr. McLaurin just testified about?

A. I am.

Q. Did you hear Mr. McLaurin's testimony regarding the characteristics of these areas?

A. I did.

Q. Do you believe that the existence of these strips would have saturated the dry CCR placed in the landfill area?

A. No.

Q. Why not?

A. Because of the temporal nature of those, and if you listen to his testimony, those features were only present for a short period of time, then they were managed, and it was only during a period where they

couldn't manage water in a different way, so the temporal nature is what really gives me the clue that the likelihood that it saturated the entire landfill mass is very, very low.

Q. Finally, I would like to address question 7 raised by the Board in its filing from Friday. In your report that's identified as SIPC Exhibit 40, you note that IEPA appears to have included sediment volume from the Prairie State coal pile as part of its calculation of the sediment volume in the south fly ash pond; is that right?

A. That's my understanding, yes.

Q. Okay. Do you have a calculation or estimation of the amount of sediment as calculated by IEPA that's attributed to the Prairie State coal pile area?

A. Yes.

Q. Okay. And what is that estimate?

A. It's approximately 50,000 cubic yards.

Q. And lastly, Mr. Hagen, again, you've done a lot of work at coal-fired power plants; is that right?

A. Yes.

Q. Okay. And I think we talked about this a -- or you talked about this a little bit earlier, but based

on your experience and knowledge, do you believe it's possible for a pond to exist at a coal-fired power plant without some amount of CCR entering that pond?

A. I think I answered something similar to that earlier. I can't imagine that there would be zero CCR found in ponds associated with coal-fired power plants. I just can't imagine that you would have zero CCR in those ponds, particularly if the plant's existed for some period of time.

MS. JOSHI: All right. Thank you. No more questions.

HEARING OFFICER WEBB: Let's take a ten-minute break.

(Brief recess taken.)

HEARING OFFICER WEBB: All right. We'll go back on the record and we will pick up with cross examination.

MR. NEIBERGALL: Thank you.

CROSS EXAMINATION

BY MR. NEIBERGALL:

Q. Mr. Hagen, thank you for your time.

A. Thank you.

Q. First I just want to -- at the very end of your testimony you were talking about the long, narrow

strips on top of what's called the former landfill, and I think your testimony was that because of the short-time use of those, the water wouldn't be allowed to saturate into the landfill? Was that your testimony?

A. Yes.

Q. Okay. So those three strips, though, have been there for quite some time? Is that your understanding?

A. Actually, listening to the testimony earlier today, my understanding is that they're more temporal in nature.

Q. The use of them is temporal or the existence of them?

A. The use and the existence, because they're drained -- my understanding is they were drained after they were used.

Q. Okay. So, you know, what I'm showing is from April 1998 to May of 2015 at least, we have aerial photos of those strips on top of the landfill. Does that sound right?

A. I know that you have aerial photos. I don't know if you have aerial -- I mean, it's -- I know you have aerial photos through time. I just don't know what years they are.

Q. Okay. Would it refresh your recollection? You want to take a look?

A. Sure.

Q. So I just handed you Agency Exhibits 4 through 14, and that's from 1998 to 2015, and once you're done looking at those, if you could confirm that those strips are present during that time period.

A. I've looked at them. Based on the aerial photos that you've handed me, the strips are present in some of the aerial photos but not all of the aerial photos.

Q. Are they present in 1998 and 2015?

A. I see them in the 1998 aerial photo and I see them in the 2015 aerial photo.

Q. So whether or not they were used, you know, repeatedly during that time period, you're not aware, other than the testimony of others?

A. I just have the testimony of others to go on.

Q. And then as far as them not being covered sufficiently to stop rainwater or precipitation from getting in, you know, there's no cover on them, right?

A. I don't have any knowledge of that.

Q. Thank you. I want to go back to the start

of your testimony now and just kind of work through chronologically.

A. Sure.

Q. First question I have is regarding the Exhibit 29 bathymetric survey and sample collection. You didn't personally do any of that; is that correct?

A. That's correct.

Q. So others were contracted by SIPC to do those two components?

A. That's correct.

Q. And you wouldn't have had any say in whether or not certain samples were collected or were not collected?

A. Yeah. We did not advise on the frequency of samples.

Q. So for instance, if the EPA and SIPC agreed on where sample locations would occur and yet some of those samples weren't taken, that's not your fault.

A. That's -- That is correct.

Q. Okay. I want to talk about the definition of CCR surface impoundment. I believe that your testimony was the best way to think about it is significant accumulation; is that correct?

A. Yes.

Q. Okay. Is the word "significant" preceding the word "accumulation" in the definition?

A. It is not.

Q. Is the word "typical" in the definition of CCR surface impoundment?

A. I don't recall that being.

Q. Would it refresh your recollection to see it?

A. Yeah, sure.

Q. This is Part 845, Section 120, Definitions, for the state regulations on surface impoundments. Do you guys need a copy? Okay.

A. The word "typical" is not in the definition.

Q. Thank you. While we're on that same page for CCR, the definition --

A. Yes.

Q. -- does the definition of CCR include flue gas desulfurization materials?

A. Yes, it does.

Q. Okay. And is that a different category than fly ash, bottom ash, boiler slag?

A. Yes.

Q. Okay. I want to move on to your lines of evidence testimony.

A. Sure.

Q. The first one was, I believe, that in response to Miss Joshi's questions, there was no definitive test to determine CCR is present; is that correct?

A. That's correct.

Q. Bathymetric survey was one piece of the lines of evidence that you used to make a determination.

A. One piece of the -- of lines of evidence related to accumulation.

Q. Would a full bathymetric survey be better than a partial?

A. I don't understand your question. The answer, you know, any complete survey is better than an incomplete survey.

Q. Okay. So for -- specifically here we're talking about south fly ash and pond 4, which were surveyed by someone other than you, correct?

A. Yes.

Q. And they were not surveyed completely as noted in your report. I believe it's 60 percent and 73 percent?

A. Yeah, that sounds about right. You can look it up, though.

Q. So 60 percent of pond 4 was surveyed; 73 percent of south fly ash pond was surveyed; is that correct?

A. The answer is correct. We'll clarify that that doesn't make it invalid, the results invalid.

Q. Would it be more definitive? I think the word you used was definitive.

A. I believe that if a bathymetric survey could have been completed across, then we -- they would have done that, and it would have been preferred, although not prohibitive.

Q. And the water levels being lowered right before those bathymetric surveys were conducted, you didn't have anything to do with that, right?

A. I did not.

Q. Okay. And when those water levels were subsequently raised, redoing those surveys to do the full pond would probably be more definitive.

A. I don't know if it was necessary. So when you use the word definitive, I am -- I would tell you I don't believe that it would be necessary.

Q. I think you said the input you had was adequate?

A. That's correct.

Q. Okay. Is it SIPC's burden in this proceeding to show that the amounts were de minimis in these ponds?

MS. JOSHI: Objection. Calls for a legal conclusion. He's asking a witness about a legal conclusion.

HEARING OFFICER WEBB: That one does kind of call for a legal conclusion.

A. That was going to be my answer anyway, so --

Q. (By Mr. Neibergall) Thank you. Okay. So it would be more definitive, but you felt what you had was adequate.

A. That's correct.

Q. Correct? I want to talk about the mean sediment thickness, I believe was the most important factor in your table regarding the bathymetric survey?

A. Yes.

Q. Would this mean sediment thickness -- that occurred in 2021; is that correct --

A. Yes.

Q. -- be affected in the years of operation of these surface impoundments by the various cleanouts you've heard about throughout the other testimony?

A. I'd have to think about that. It is

possible that the cleanouts would affect the hydraulics and therefore the settling properties, etc.

Q. Well, I mean, you heard testimony probably yesterday that in 2003 all of these units that were the subject of your report were cleaned out; is that correct?

A. I heard that there were cleanout activities, correct.

Q. And so if they're cleaning out sediment material in 2003 that would have been accumulating to when you've done your report in 2021, you don't have that sediment to compare to these volumes.

A. The sediment before 2003?

Q. The sediment in 2003 that was taken out is not in this report in 2021.

A. Yeah, the sediment accumulated before 2003 came out in 2003, at least some portion of it --

Q. Sure.

A. -- and would not be reflected, but, you know, that's really common, because facilities need to maintain their water systems and their ponds to be able to function appropriately, so that's not uncommon, to see people who have cleaned out their ponds for maintenance purposes.

Q. Is it uncommon for -- well, let me strike

that. In 2006, we heard about another cleanout in pond 3 of a certain amount? Would that have affected the amounts in the sediment thickness?

A. Again, it's -- it is possible, but I don't believe -- I actually don't believe it would have been significant, and I'll tell you the reason why, is because there's not a lot of sediment accumulation over time. We're just not seeing a lot of sediment come through this system.

Q. So do you know how much sediment was removed in 2003? Do you have records of that?

A. I -- All I have are the testimony that you and I both heard.

Q. Okay. And what I heard was in 2006 pond 3 was cleaned out, and there's no records for how much, okay? Is that correct? Is that what you heard?

A. That's my understanding.

Q. In 2010 pond 4 was cleaned out; is that correct?

A. I think that sounds right.

Q. In 2011 pond 3 was cleaned out again?

A. Again, that sounds correct.

Q. 2014, pond 3A was cleaned out?

A. 3A? Is that what you said?

Q. Yes, sir.

A. I'd have to go back and look at the records. It doesn't sound unreasonable.

Q. Okay. 2017, B-3 was cleaned out.

A. Yes.

Q. So all these instances of cleanouts and any that preceded them were amounts of sediment that are no longer shown in a 2021 table; is that correct?

A. Well, the amount that's shown in the table could include sediments from before those cleanouts. It depends on the thoroughness of the cleanouts. Depends on the -- in other words, how much sediment did they get, how much did they leave behind.

Q. I see. Well, if they said they dewatered it and cleaned it to the clay, would you expect that they left a lot of sediment behind?

A. Likely -- Not likely that they left a lot of sediment behind. I'll also note, though, that they didn't take that many truckloads, you know, that -- you know, on the order of tens of trucks, which is what they mentioned, and cleaning to the clay, if you do the math, that's not a lot of sediment that's built up in those ponds.

Q. But again, you don't have any records of how

many cleanouts occurred?

A. I don't.

Q. And before 2003 there could have been -- I mean, not -- one of these ponds operated in the '60s, right?

A. I know the plant started operations in 19 -- I'm pretty sure it was 1963, is what I read.

Q. I want to talk about your various tests that you went through. There was the carbon/hydrogen/nitrogen type testing, correct?

A. Yes.

Q. There was the shake testing?

A. Yes.

Q. There was the PLM testing?

A. Yes.

Q. Okay. None of those tests in your report would have analyzed the materials that were cleaned out prior to 2021 when the bathymetric survey and these samples were collected.

A. Well, again, it may have tested some of the materials. Depends on the thoroughness of the cleanouts that occurred.

Q. You testified that fly ash and bottom ash cannot be burned as fuel.

A. Yes. The carbon content is low. It doesn't have a lot of fuel value.

Q. What if they're mixed with coal? Can they be burned?

A. The coal would be burned, and I'm not sure why a facility would mix fly ash with coal.

Q. Okay. Let's talk about table 7. I think it's your -- page 7 of your report, which is depicted at one of the slides. I'm not sure which.

A. You said table 7?

Q. Well, it's table 7 -- I'm sorry. That's my bad. It's table 1.

A. On page 7?

Q. Table 1 on page 7. That's what it is.

A. Found it.

Q. Thank you. Sediment volume for pond 3 was 83,987 cubic feet?

A. Yes.

Q. Pond 3A was 95,666 cubic feet?

A. Yes.

Q. Pond 4 was 91,076 cubic feet roughly?

A. Yes.

Q. 6 was 103,452 cubic feet?

A. Yes.

Q. South fly ash was 563,054 cubic feet.
A. Yes.
Q. And then the PLM results, which is table 7, which is on your page 14 of your report -- and I'm not sure what page I'm on of Exhibit 52 -- but it looks like it's in there, in your Powerpoint?
A. Yes.
Q. Oh, yeah, you have page numbers. Look at you.
A. I do.
Q. 8. Thank you. So you've got a category for slag plus fly ash plus bottom ash.
A. Yes.
Q. And then the category for "other."
A. Yes.
Q. Okay. And I think I heard your testimony for the "other" category was that you didn't believe the sludge was the "other" category?
A. I don't believe the sludge was a significant component in the sediments, and therefore, the "others" in these samples would more likely be indicative of other materials.
Q. And I think that your basis for that was the nature of the process at this facility by your

understanding.

A. That is correct.

Q. Okay. So because you think that the sludge was disposed of on the landfill, you don't think it falls into this "other" category.

A. I just don't believe it's a significant portion.

Q. If you could go back to your page 3 of the Powerpoint, which is the flow design of the facility.

A. Yes. I'll get there. Got it.

Q. So the flow goes from south fly ash, across the street to 3A, to pond 3; is that correct?

A. Yes.

Q. To pond 6?

A. Yes.

Q. And then back around that former landfill area to pond 4?

A. Correct.

Q. Your understanding generally is the sludge is disposed of at the former landfill area?

A. My understanding is scrubber sludge was disposed at the landfill area, that's correct.

Q. So looking at this water circuit and the proximity to the landfill of pond 3, 6 and 4 --

A. Yes.
Q. -- is it possible that sludge got into ponds 3/3A, pond 6 and pond 4 from the landfill area?
A. Possible?
Q. Yes, sir.
A. I would characterize that as not likely in any significant amounts, and I think that my testimony is consistent with that.
Q. And this is based on your understanding of the site and your report; is that right?
A. That's correct.
Q. You haven't been working at SIPC for a number of years and know the actual process for how that sludge is handled every day?
A. I am only relying on information that's provided to me.
Q. I want to talk about that shake test, the berm samples. You said it wasn't really relevant because the berms are structural and they're on the outside of the impoundment?
A. Yes.
Q. What about an internal berm inside the surface impoundment?
A. Well, that depends. It depends on how the

ponds are defined. So, like, an internal berm can separate two ponds, which would make it structural in nature.

Q. What if it's built out of CCR? Would it be relevant to sample it and see if it is?

A. Only if the ponds are somehow potentially connected, but if they're two separate ponds, then my answer is no.

Q. And again, you didn't collect any of the samples or make any decisions about which samples were or were not taken.

A. I did not.

Q. Okay. There's a lot of tables in here. Just one moment. All right. I want to go to your page 15 of the slides. It's the USEPA de minimis exception language from Federal Register.

A. Yes.

Q. This one talks about significant amounts of CCR; is that correct?

A. Yes.

Q. But we've already established "significant" does not precede "accumulation" in the definition of either the federal rule or the state rule; is that right?

A. Not that I'm aware of.

Q. Okay. And have you reviewed Exhibit 34 for SIPC? It's the USEPA -- let's see what it is -- FAQ on the implementation of disposal of CCR. Looks like it's from April of 2024.

A. I'm aware of the document.

Q. I'm going to hand you page 9 of that document. So this is, again, SIPC Exhibit 34, page 9.

A. Thank you.

Q. Very top paragraph is the one I'm interested in.

MS. JOSHI: Is that the one that's cut off on page --

MR. NEIBERGALL: Yes. Yeah, it is, and we can go to the full exhibit if you want.

Q. (By Mr. Neibergall) So I'm looking at the line at the top, "EPA provided examples in the preamble to the final rule of units that in EPA's experience typically would be expected to fall outside of that definition." Do you see that there?

A. Yes.

Q. Okay. If you go down to the bottom three lines, it says, "Ultimately, the critical determinant of whether a unit is subject to the rule is whether it meets the criteria and the regulatory definition, rather than

whether it was included as an example in the final rule preamble." Is that what that says?

A. Yes, you read that correctly.

Q. So my understanding of that is regardless of what type of pond it is, whether you call it a polishing pond, a finishing pond or something else, if it meets the definition, it's a CCR surface impoundment.

A. Okay. That's your view of that sentence.

Q. Do you disagree with that sentence?

A. I haven't had a chance to look at it and I haven't really thought about it, so --

Q. You talked about the typical amounts for typical surface impoundments of the truckloads and the size of the pond, that stuff, right?

A. Yes.

Q. And obviously, different surface impoundments are different sizes; is that correct?

A. Yes.

Q. Some are much bigger and some are much smaller?

A. Yes.

Q. And obviously, the size of the truck matters as well in the calculations, right?

A. Yes.

Q. Okay. You took issue with the Illinois Environmental Protection Agency's assumption that the sediment was CCR; is that correct?

A. Yes.

Q. But it's SIPC's burden to show that it is or isn't CCR.

MS. JOSHI: Again, this is calling for a legal conclusion. Asking about what burden applies in the matter of this case, that's a legal question.

HEARING OFFICER WEBB: Can you rephrase that?

Q. (By Mr. Neibergall) SIPC hired you to conduct an investigation that would show that its ponds were de minimis, correct?

A. They hired me to evaluate and characterize the sediments in those ponds and provide information and data associated with that.

Q. Thank you. Last question is about permits. They are indicative of the construction and design of the impoundments. Whether or not they use it is something different.

A. Yeah, there's usually -- at least on -- there's usually some level of design that's required to obtain a permit, so there are design details that would

need -- would be required for many permits.

Q. So whether something is man-made or diked or natural topographic depression, that could be in the permit, the construction permit?

A. That would be -- Yes, it could be in the permit. Its use is different than that, but it could be in a permit.

Q. And then the design of the facility and the volume and stuff, that would be in the permit as well, correct?

A. That's -- In order to get a permit, you have to have that sort of information.

Q. Just one more. So regarding your shake test and the trace metals analysis --

A. Yes.

Q. -- did that testing include all of the metals relevant for Part 845's groundwater protection standards?

A. I'm not certain. I'd have to go back and compare the two lists. I don't believe it was inclusive of all the metals, though.

MR. NEIBERGALL: No further questions at this time.

HEARING OFFICER WEBB: Would you like to

redirect now or did -- I don't know how much you have. Did you want to -- If you don't have much, we can do it now. If you have a lot, we can break for lunch. Whatever you would prefer to do.

MS. JOSHI: I don't think we'll be longer than 10 or 15 minutes.

HEARING OFFICER WEBB: Oh. Well, then let's do it now.

MS. JOSHI: If I could just have 30 seconds.

HEARING OFFICER WEBB: Sure.

REDIRECT EXAMINATION

BY MS. JOSHI:

Q. All right. Thanks, Mr. Hagen. Just a few questions on redirect. All right. To confirm, when you were looking at those aerials that IEPA handed to you earlier and you were asked to look for the long, narrow strips, were they present on all the aerials that --

A. They were not.

Q. You were asked regarding whether there were sample locations from which samples were not taken for analysis, I believe for purposes of the shake test and perhaps the PLM analysis that was conducted; is that right?

A. Sounds correct.

Q. Okay. I mean, you reviewed all this information to put it together in your pond investigation report; is that right?

A. Yes.

Q. Okay. To your knowledge, were there reasons for why certain samples may not have been included as part of the analysis that was provided?

A. Yes, and I believe that information is provided in my report.

Q. Okay.

A. So steep slopes is an example. The sample location would have been unsafe to get to is an example of one of the sample locations.

Q. All right.

A. Another one might have been unstable ground or, you know, something like that that couldn't support a drill rig, whatever it might be.

Q. And just from a practical perspective, are you familiar with, like, sampling of ponds and areas around ponds?

A. Sure.

Q. And would it be -- is it common for a sample to not be collected if there are unsafe conditions for collecting that sample?

A. Yeah. We would never collect a sample that would be in an area that would be unsafe.

Q. Okay. And is it common for a sample to not be collected if it's inaccessible for a particular reason, for any reason?

A. Again, we would -- we do our best, but if it was inaccessible, we would not be able to take a sample.

Q. And again, are those -- is there safety concerns with that?

A. There can be, that's correct.

Q. Okay. And I think we covered this a little bit, but I just want to follow up, because you were asked about, you know, sort of the benefit of conducting a bathymetric survey on 100 percent of a pond. Now, going back to pond 4 and the south fly ash pond, again, was a bathymetric survey conducted for, like, large portions of those ponds?

A. Yeah, all accessible areas by boat were surveyed for bathymetry, that's correct.

Q. And you have percentages that were actually able to be surveyed in your report, right?

A. Yeah. I think -- Yes, and I think those were noted in my cross examination.

Q. Okay. And again, do you believe that the

extrapolation that was conducted for purposes of determining the values for the entire area of those ponds is reliable?

A. We would not have used that information if we didn't believe that it was reliable.

Q. And do you believe that extrapolation was conducted conservatively in terms of determining sediment volume in those areas?

A. We do, and appropriately, so the methods they used, etc., were appropriate. We reviewed all of that.

Q. You were asked a little bit about sediment accumulation over time, including accumulation that might have occurred before some of these ponds were cleaned out. Do you recall that?

A. I do.

Q. Okay. So some of these units haven't been cleaned since 2003; is that right?

A. Yes.

Q. Okay. And others maybe since 2006; is that right?

A. Yes. Yeah.

Q. Okay. And then I believe in the instance of pond 4, Mr. McLaurin -- were you here when he testified

about cleaning it in 2010?

A. Sounds right.

Q. Okay. So starting with the 2010 cleaning of pond 4, I mean, seeing the amount of sediment you see in pond 4, assuming the last cleaning was around 2010, do you consider the accumulation of CCR in that pond to be, like, a significant -- or putting aside CCR, but do you believe the accumulation of sediment in the pond to be a significant amount?

A. The answer to that is no. So if you think about it in terms of time, it was -- 2010 was the last time it was cleaned, then 2021 was when the bathymetric survey was conducted, I believe, was in 2021, somewhere in that range, and using pond 4 as an example, that's 1.67 feet of sediment accumulation that happened over about a -- what, a little over a 10-year period, and that's essentially inches -- less than 5 -- certainly less than 5 inches per year, probably a couple of inches -- not even a couple of inches per year. You do the math. That's not a lot of sediment accumulation.

Q. Is that less than a sediment accumulation you see in CCR surface impoundments?

A. Oh, absolutely, far less.

Q. And then moving to all the other ponds, the

ones that haven't been cleaned since -- that were last cleaned in 2006 or 2003 or the other ponds that are listed there, I mean, how would you characterize the accumulation of sediment that's occurred since that time?

A. Again, on the order of inches per year, low inches per year, which is really, you know, more of what you might expect from things like erosion control and retention of stormwater.

Q. And again, like, how did those -- the numbers over the time that has passed since those cleanings to now, how does that compare to the accumulation of -- you would expect to see in a CCR surface impoundment?

A. That I think is certainly in my report. It's indexed in figure 4 in my report, which is tens of feet of accumulation.

Q. And so we talked about the fact that some sediment has been removed, you know, as part of the sort of routine maintenance that's occurred historically as Mr. McLaurin testified, which, you know, I don't know if you heard Mr. Gallenbach's testimony. He said that the cleaning occurred during an outage in 2003 over the course of a couple of weeks. Do you believe that a significant amount of sediment could have been removed

from these ponds within a matter of a couple of weeks?

A. Probably not, and the number of truckloads that he described is -- are -- is not a significant volume compared to the volume that we -- the sediment volume that we see -- that we have seen in the more recent bathymetric survey. I don't believe that all the sediment came out.

Q. And again, how do those volumes that you describe compare to what you would expect to see from a CCR surface impoundment?

A. Far, far less. Orders of magnitude less. I mean, these are low levels of accumulation.

Q. Okay. And I think you also touched on sort of your basis for determining that the "other" category likely does not include significant scrubber sludge amounts.

A. Yes.

Q. Other than the fact that material was deposited upon -- scrubber sludge material was historically deposited upon a landfill and then later sent off site, are there any other elements that impact or inform the basis of that conclusion that you've made?

A. If you look at the RJ Lee clarification on the word "other," they included several different

particles, and there are certain particles in the inclusion of their description of the "other" category that I would not expect to see in scrubber sludge, and really, probably most importantly, are the organics, and in light of the testimony that we had yesterday and today related to the maintenance of the ponds and the phragmites, I think that organics could be a significant portion of the sediments.

Q. Could some of the "other" category also come from runoff from other areas?

A. Absolutely. Quartz is an example. I mean, that's a common constituent. Carbonate's another example. That's a common constituent that you can see in -- just in runoff.

Q. And then just going to the metals that you analyzed for the shake test results, are there any particular metals that tend to be more indicative of the presence of CCR?

A. Well, given my experience at a lot of ash ponds, which I've talked about earlier today, I think probably the one constituent that I would look at and I see over and over and over at ponds is boron.

Q. And was boron part of your analysis?

A. Yes.

MS. JOSHI: No further questions.

RECROSS EXAMINATION

BY MR. NEIBERGALL:

Q. One question regarding your testimony about the RJ Lee follow-up letter from April 4th, 2025. Is carbonate used to capture flue gas sulfur?

A. Yes, carbonate can be used for that purpose, yes.

MR. NEIBERGALL: No further questions.

MS. JOSHI: Well, one follow-up.

HEARING OFFICER WEBB: Okay.

FURTHER REDIRECT EXAMINATION

BY MS. JOSHI:

Q. Can the source of carbonate at a plant pond also come from other sources?

A. Absolutely, and I should have added that. Thank you.

Q. Okay. And what kind of sources might that be, if you can just --

A. Limestone bedrock is a great example, but it can also be part of landscaping. All sorts of different uses for carbonate.

MS. JOSHI: Thank you.

MR. NEIBERGALL: That's it. Thank you.

HEARING OFFICER WEBB: Okay. Does the Board have any questions?

MS. BROWN: No.

HEARING OFFICER WEBB: No questions. Okay. You're done. Thank you.

THE WITNESS: Thank you.

HEARING OFFICER WEBB: All right. It's 11:56. I would suggest we take lunch, if that sounds good to people, go on a break, take about an hour. Be back around 1.

(A recess was taken from 11:56 a.m. to 1:02 p.m.)

HEARING OFFICER WEBB: We are back on the record. It is one o'clock and we are ready for Petitioner's next witness.

MS. JOSHI: Thank you. Petitioner calls Kenneth Liss.

HEARING OFFICER WEBB: And would the court reporter please swear in the witness?

(Witness sworn.)

KENNETH LISS, produced, sworn and examined on behalf of the Petitioner, testified as follows:

DIRECT EXAMINATION

BY MS. JOSHI:

Q. Can you please state and spell your name for

the record?

A. Okay. Kenneth Liss, K-E-N-N-E-T-H, L-I-S-S, two S's.

Q. Thank you, Mr. Liss. Would you please describe your educational background?

A. I have a bachelor's degree in geology from Illinois State.

Q. Where are you currently employed?

A. Andrews Engineering.

Q. And what is your current position?

A. Current position is I'm president of the company.

Q. And do you also work as a principal consultant at the company?

A. As principal.

Q. Talking a little bit more about that -- your duties as a principal, can you describe, like, what your duties are in that role?

A. The principals of our firm are working principals, so they do project -- major project management for the contracts and mentoring staff. We review -- Including myself, we review most of the reports that go out that are of major significance, permitting and things.

Q. And can you describe the type of work you both currently and previously have done as part of your work at Andrews Engineering?

A. Okay. Before I came to Andrews?

Q. No, while at Andrews.

A. While at Andrews?

Q. Just describe in detail the type of work that you've done.

A. Okay. I do a lot of landfill work, which would be landfill permitting, focusing on new landfills, operating landfills, leaking landfills, focusing more on groundwater, groundwater work, and work under various regulations, site remediation programs, RCRA Part B facilities, RCRA closure facilities.

Q. Thank you. Would you say you specialize in any specific subject matter areas?

A. Regulatory. The regulations. Some of them I testified or was developed, actually, and then hydrogeology.

Q. And where did you work prior to starting at -- well, first of all, how long have you been at Andrews Engineering?

A. Since 1999.

Q. And where did you work prior to starting at

Andrews Engineering?

A. The Illinois EPA.

Q. And what did you do at the Illinois EPA?

A. I started out in I think it was 1984 as a -- no -- yeah, '83 or '84 as a permit reviewer.

Q. And can you just describe your duties while you were at IEPA?

A. Since I was right out of college, I -- my focus as a geologist was on the groundwater portions of permits, which is developing hydrogeo systems, monitoring, groundwater monitoring, waste characterization, things like that.

Q. And throughout your time at IEPA, did you have any other types of duties or matters that you worked on?

A. Yeah. A few years later I was working in enforcement matters, testifying for the State and the House, senate, and promulgated rulemakings in Illinois.

Q. Were there any subject matters that you focused on while you were at the Illinois EPA?

A. Implementation of regulations, groundwater cleanup, landfill issues related to groundwater, just anything related to groundwater.

Q. Mr. Liss, did you prepare any materials in

support of SIPC's petition in this case?

A. Yes, I did.

Q. So we're going to hand you two documents that were provided with SIPC's petition and that have been identified as SIPC Exhibits 9 and 30. Mr. Liss, are you familiar with these documents?

A. Yes, ma'am.

Q. Okay. What are they?

A. Exhibit 9 is a declaration that I provided, some of the work I did specific to closure, closure of the land -- SIPC facility.

Q. Was that declaration provided in support of SIPC's petition in this matter?

A. Yes.

Q. Okay. And what is Exhibit 30?

A. Exhibit 30 is another declaration I prepared in support of this matter here, and it refers to closure of the estimated cost that I prepared.

Q. Does Exhibit 30 include some updates or changes to your Exhibit 9?

A. Yes, I see that in the end of that. Yes, it is, revisions.

Q. And do the statements you make in SIPC Exhibit 9 as amended in SIPC Exhibit 30 -- do they remain

true and correct?

A. Yes.

Q. All right. So now we're going to hand you a document that's been identified as SIPC Exhibit 47 in this proceeding and that was attached to SIPC's response in this matter. Are you familiar with this document?

A. Yes. It's another declaration that I prepared in support of this hearing as far as SIPC.

Q. Do the statements that you make in this declaration, Exhibit 47, remain true and correct?

A. Yes.

Q. Mr. Liss, can you please describe your work experience related to CCR surface impoundments?

A. Under my current position or at the EPA?

Q. Both.

A. Both? Under the EPA, we were -- we felt that the surface impoundments were being operated some as landfills, and when they ceased operating as a surface impoundment, they should be regulated under the Bureau of Land under the landfill rules, and I was working on that under docket R 88-7. We tried to include them as regulatory entities. That didn't go through, and they became regulated later under 815. That's 35 Illinois Administrative Code Part 815. So I worked on that. That

went over water pollution at the time except for the reporting of landfills under 815. Later, when I left and went to Andrews Engineering, I worked on various CCR type facilities, a little bit in our local one, CWL&P, but my -- one of my partners is the primary for that one. I worked for Midwest Generation, and now I continue to work on a few others, including this one.

Q. And what is the nature of the consulting work you've done related to CCR surface impoundments?

A. For mine, it's regulatory work and groundwater and closure.

Q. And when you say groundwater, do you mean the establishment of groundwater monitoring systems, groundwater evaluations?

A. Yeah, some of them require potential modeling to evaluate -- and it's upfront -- for closure purposes, developing a groundwater monitoring program. I call the monitoring system the network of wells. The program includes the frequency of the types of monitoring.

Q. Okay. Thank you. Can you please just generally describe your work experience related to landfills?

A. It was my primary job whenever I became the

manager of the groundwater unit largely for landfills at the Bureau of Land, and that's -- I continue to do that kind of work.

Q. What work have you done -- So what kind of consulting work do you -- have you done related to landfills?

A. For landfills? When you say consulting, that would be implied at Andrews Engineering. I attend hearings, prepare applications for expansions to landfills, closures, defend now for my clients under a VN the responsive actions that we feel are necessary or appropriate and the regulations, including whether cleanup needs to be done.

Q. How many landfills -- About how many landfills would you say you've worked on as part of your consulting career?

A. Quite a few. When you say landfill, they expand, so you might have landfills under three or four different sets of regulations now, so one large 300-acre landfill may have four distinct areas of regulation.

Q. Sure.

A. I would call those as four different landfills, so well over fifty easy.

Q. And to confirm, have you worked on closing

landfills?

A. Oh, yes.

Q. Have you worked on monitoring landfills as part of your career?

A. Yes. I continue to do that.

Q. Does your work experience include work with CCR landfills?

A. Yes.

Q. And did you do any work related to landfills when you were at the Illinois EPA?

A. Yes.

Q. Okay. Can you just at a high level describe the kind of work you did related to landfills while at the Illinois EPA?

A. As I said earlier in my testimony here, enforcement, reviewing groundwater monitoring results, making sure groundwater monitoring programs were appropriate and fit the various regulations that some of these landfills fell under.

Q. And what experience do you have with groundwater monitoring systems?

A. Like I just said, basically going through the hydrogeo investigations down to determining the appropriate spacing and placement of wells for the

monitoring and statistical evaluation of data.

Q. And so we'd like to provide you with a copy of a document. It's been labeled as SIPC's Exhibit No. 53. All right. Mr. Liss, do you recognize this document?

A. Yes, I do.

Q. What is it?

A. It's information I provided of my basically qualifications for this proceeding.

Q. Okay. Would you describe it as, like, a copy of your resumé or CV?

A. It's kind of a combination of both.

Q. Okay. Does this document provide further information regarding your professional background and experience?

A. Yes, largely the narrative at the top.

MS. JOSHI: Okay. Hearing Officer, I move to admit Mr. Liss as an expert in landfill, surface impoundment closure, management, operation and groundwater characterization.

HEARING OFFICER WEBB: Is there any objection?

MR. NEIBERGALL: No objection.

HEARING OFFICER WEBB: You're certified as

an expert.

Q. (By Ms. Joshi) Mr. Liss, I understand you have a Powerpoint to accompany your testimony here today; is that correct?

A. Yes, it is.

Q. All right. So we're going to hand you a copy of a Powerpoint that's been marked as SIPC Exhibit 54 where the title slide reads "Testimony of Kenneth Liss," which is also displayed in slide 1 on the screen in the room. Do you recognize this document?

A. Yes. This one here? Yes, I recognize it.

Q. All right. Is this a true and correct copy of the Powerpoint prepared to accompany your testimony today?

A. Yes.

Q. Did you assist in drafting or otherwise review and approve the contents of this Powerpoint?

A. Yes, I did.

Q. And what does the Powerpoint contain?

A. This particular drawing is part of a closure plan of where we feel the closure plan -- we did a closure plan to close the area that's encircled with the heavy black line.

Q. Okay. So there's a figure located within

the Powerpoint? Is that what you're referring to?

A. Yeah, the figure.

Q. Okay. And that's on page 2 of the Powerpoint?

A. Yeah, it's up there, yeah.

Q. Okay. Great. Thank you. Mr. Liss, are you familiar with the area at Marion Station that SIPC has identified in its petition as the former landfill area?

A. Yes.

Q. Okay. What is your familiarity with this area?

A. I was familiar with it probably around 1988 through 1990 initially through the review of several of these type of power stations around the state of Illinois in the Bureau of Land, and then since I came into consulting in 2020, I was contacted to help respond to a VN, and that's specifically for the Southern Illinois Power facility.

Q. Mr. Liss, have you visited the former landfill area?

A. Yes, I have, several times.

Q. Have you inspected the area?

A. Yes. I've been on the -- around the perimeter and I've been on top of it.

Q. Have you prepared a closure plan for this area?

A. Yes.

Q. I'm going to go to slide 2 of your Powerpoint, which includes a copy of that map or figure that you were just talking about, and this diagram was taken from Exhibit 3 of SIPC's petition. Mr. Liss, did you prepare this figure or diagram?

A. It was prepared under my supervision. We have quite a few staff that do various parts that fall into the preparation of this.

Q. Okay. So is this -- was this figure prepared under your review and direction?

A. Review and direction, yes.

Q. How was this figure prepared?

A. We used information provided from Southern Illinois Power, we used information by various FOIA requests from the Illinois EPA, historical review of a number of aerial photographs, and we visited the site and we did some site surveying.

Q. Okay. How does this figure depict or identify the area of the former CCR landfill?

A. How does it depict -- to me, the former landfill is the green area and the white area, all

inscribed with a heavy black line.

Q. How did you determine the area of the former CCR landfill?

A. At first we were there, it was treated as a landfill at least since 1990 formally by the EPA, and it's filled with ash, quite a thickness, elevation.

Q. And in order to determine the boundaries of the landfill, did you also consult the information that you just discussed a while ago, or I guess can you provide what information you looked at to determine the boundaries of the landfill?

A. Yeah, we used the historical information that I had mentioned and we did the physical walk, the engineer and myself, Doug Mauntel, and you can tell by the type of material there, you can identify. In some areas you could still see berms or dikes.

Q. Mr. Liss, what does the area in green reflect on this figure?

A. We put this area in green because it's some of the area that I think we're talking about here disputed as to whether they were previously operated as surface impoundments.

Q. How do you determine the area of the portion of the figure that's in green?

A. By the old drawings.
Q. And by old drawings, what are you referring to?
A. The ones that we got through FOIA from the Illinois EPA and some from the plant, which were basically the same things.
Q. I'd like to address issues raised in question 9 from the Board from their filing last Friday. Referring to the green areas on this map that you just said were at one point surface impoundments, to your knowledge, would there have been any closure requirements under the landfill regulations for these surface impoundments at the time they stopped operating?
A. No. They are permit exempt.
Q. Okay. And what is your basis for saying that?
A. Because it is an on-site disposal facility that didn't fall under any other regulations, 21(d) in the Environmental Protection Act exempts them from the permit requirements, which was -- included landfill permit requirement.
Q. And to your knowledge, were there any landfill regulations in effect that would have governed -- just any landfill regulations in effect in

Illinois generally prior to the early '90s?

A. Yes, but nothing applied to this facility.

Q. Okay. To your knowledge, when those -- the green areas stopped operating, would there have been any regulatory requirements in place regarding how those units be dewatered?

A. Not that I'm aware.

Q. Do you consider the green area, which SIPC has referred to as the former fly ash holding unit, to be part of the landfill area?

A. Correct. What I describe as the landfill area depicted on this exhibit, that's part of a landfill.

Q. Based on your regulatory experience and years of experience consulting on landfills, at what point do these areas which were formerly surface impoundments become landfill?

A. When they quit operating as a surface impoundment.

Q. Okay. And what circumstances would result in them quitting operating as a surface impoundment?

A. Early, when we were trying to get them regulated under the new landfill rules, it was our position, the Bureau of Land, that if you terminated your NPDES permit and you quit using them as a surface

impoundment and the area was not cleaned out -- because this was a storage area. That's what -- Surface impoundments are detention. It's for settling. It's for storage and pass water through, polish your water. That became at best a waste pile. If it wasn't managed as a waste pile, like a waste pile, it became a regulated landfill.

Q. Okay. As previous witnesses have testified, the former CCR landfill began operating in the late 1970s. Again, based on your regulatory and other professional knowledge and experience, what regulatory regime, if any, would this landfill have been regulated under when it first started operating in the late 1970s?

A. None. None.

Q. Would the former landfill area eventually have been regulated under Illinois landfill regulations?

A. I don't -- Can you clarify that?

Q. Yeah. So would the landfill area eventually have become subject to Illinois landfill regulations?

A. The first is -- the contention that we had going forth in that rulemaking was that doesn't matter how it got there; if it was left, it could be a landfill, and we wanted something done with it, we meaning Illinois EPA, Bureau of Land. After that, it was a -- it wasn't

that simple because it was 21(d) permit exempt. The 815 rules came out, said now you must -- it is regulated as a landfill and you must report by I think it was September or October 1992 what you're going to do with it, volumes, and under 815 there was some things about groundwater monitoring programs and things that were in place. So it was the first regulations of landfill applied to this facility.

Q. All right. And so when did those Part 815 regulations -- when were those promulgated, to your knowledge?

A. I think it was -- I think they became effective 1990, two-year compliance.

Q. Okay. So again, if you could clarify, then, you know, starting in 1990, under what regulations would the landfill area have been regulated or subject to or regulated under?

A. 815.

Q. Okay.

A. This specific one, Part 815.

Q. This specific -- okay. Thank you. And what characteristics of the unit make it subject to Part 815?

A. It wasn't operated and no longer is a surface impoundment, and even if there's a claim that it

was, the waste in there had accumulated well above whatever the structure was, the berms or dikes, for a surface impoundment, and it wasn't used to hold water or, you know, liquid waste or anything.

Q. And to your knowledge, do the green areas that make up a portion -- that make up the former surface impoundments, are -- do those underlie just a portion of the landfill or the entirety of the landfill?

A. Did you mean the surface impoundments?

Q. Yes.

A. A portion of the landfill, largely depicted in the green.

Q. And would the area of the landfill both contained outside of and -- I guess let me rephrase that. Would the -- Would you consider the entirety of the landfill area within that dark black line that you talked about earlier to be a Part 815 landfill?

A. Yes.

Q. Mr. Liss, earlier you stated that you prepared a closure plan for the landfill area; is that correct?

A. Correct.

Q. I'm going to hand you a document that was attached to SIPC's petition in this matter as SIPC

Exhibit 10. Is this a copy of the closure plan you prepared for the former landfill area?

A. Yes, it is, but it had to be signed by an engineer, so it would have been signed by Doug Mauntel.

Q. Can you briefly describe how this plan proposed to close the former landfill area?

A. Based on the VN notice, the VN notice cited Part 811 standards for closure of landfills, and some of that's cross-referenced, certain parts of it, in 815, so we tried to cover both.

Q. Okay. So taking a step back, you just mentioned a VN notice. What VN notice are you talking about?

A. March of 2020, the field office, a violation -- VN, violation notice.

Q. Okay. And was that a violation notice to SIPC?

A. Correct.

Q. Okay. And what is your familiarity with the contents of that violation notice or what it was alleging a violation of?

A. They alleged that the groundwater monitoring maybe wasn't complete -- the monitoring program, the tests were not appropriate for determining the

concentrations in groundwater. The information provided in the 815 was either incomplete or not acceptable. That was what was filed in 1992, though, so now in 2020 there's allegations that even the closure information wasn't meeting the regs, but it was all 811 violations.

Q. Okay. You said -- So violations of 811 to mean of 35 Illinois --

A. 35 Illinois Administrative Code Part 811.

Q. Okay. And what type of units do the Part 811 regulations --

A. Landfill. Primarily landfill.

Q. Okay. And when you say on -- so the Part 811s regulate landfill?

A. Correct.

Q. So is -- the closure plan that you helped prepare that you've got in front of you here as Exhibit -- SIPC Exhibit 10, is it meant to close the former landfill area in accordance with any Illinois regulatory requirements?

A. Yes, specifically the ones we've been discussing, 35 Illinois AC Part 811.

Q. And just again, why did the closure plan you prepared propose to close this area in accordance with the Illinois -- with Illinois landfill regulations?

A. Because the VN issued by the Illinois EPA said that it needs to be closed as a landfill. But read that. Actually didn't say it.

Q. So further discussing the closure plan, did the cover system proposed for that closure plan include covering the area of the landfill that includes the green areas that are depicted here on this figure --

A. Yes, that --

Q. -- on page 2 of your presentation?

A. Yeah, this plan was not implemented, but it includes applying a regulatory cover system to the entire area inscribed by that black line.

Q. Did the closure plan or does the closure plan reference a groundwater monitoring plan?

A. Yeah. I think it's in the second page or early third page, fourth page. It -- Under closure or post-closure care, it mentions here number 5, monitoring devices on page 5.

Q. And what was the purpose of the groundwater monitoring plan?

A. It's to, let's say, hit the appropriate parts of the closure requirements, so it's just that there's an existing one there, and if we determined that additional groundwater monitoring wells are required,

they will be installed in the closure process.

Q. And would the groundwater monitoring that occurred under this groundwater monitoring plan capture impacts from the entirety of the former landfill area, including the underlying green portions?

A. I don't -- Not the current one, but there was additional work that needed to be done.

Q. Sorry. Can you clarify?

A. Yeah. Under the landfill rules under 811, it's more stringent, really, for -- than what the 815 had.

Q. Okay. So would the closure plan -- would the groundwater monitoring system installed as part of the 811 closure -- would there be a requirement, like, for it to capture any impacts --

A. Yes.

Q. -- that may be occurring from the green areas that are located --

A. From the entire facility that I call landfill, yes.

Q. And that includes the underlying -- any material that might be in the former underlying surface impoundments; is that right?

A. Yes.

Q. And it would include any material that would be on top of those areas as well.

A. Sure, yes.

Q. Was this closure plan, SIPC Exhibit 10, ever submitted to IEPA?

A. Yes.

Q. Did you ever discuss this closure plan with IEPA?

A. Yes. I discussed it with the field people and Lynn Dunaway briefly.

Q. Okay. And can you just briefly describe, you know, the subject of the discussion you had with IEPA regarding the closure plan, starting with did -- during your conversations, did IEPA indicate whether it was or wasn't compliant with Part 811 requirements?

A. They had some questions about whether it fully met -- in their interpretation fully met all of the 811 requirements, but that's not uncommon in a permit type review, and this was the field office.

Q. Okay. So did you have discussions then with the field office about the -- making sure the closure plan complied with Part 811 --

A. Yes.

Q. -- closure requirements?

A. Yes.

Q. And during those discussions, what was your impression regarding whether IEPA considered this area to be a landfill or a surface impoundment at that time?

A. It was 100 percent a landfill.

Q. And what is your basis for that understanding?

A. First of all, I agreed with them based on my experience and the knowledge of the regulations. In the VN, that's the position they took, that it is a landfill.

Q. And based on your professional experience, or so what I'm hearing -- and please let me know -- so based on your professional experience, did you consider the area that was subject to this closure plan to be a landfill?

A. Correct.

Q. Why did you consider it to be a landfill?

A. Because it was operated as a landfill.

Q. And what are the characteristics that you saw that made it appear that it was operated as a landfill?

A. Had a containment, which is the berms around it. It was filled with waste, in this case CCR waste, and they kept filling it up.

Q. And to your knowledge, was the CCR waste just conveyed over there dry?

A. It's my understanding most of it was conveyed dry.

Q. What information did you look at to prepare the closure plan?

A. Again, the historical information. Some of the information that was provided by the -- in the VN, got some clarification from the people who wrote it to make sure that we addressed it.

Q. Okay. So did it include a review of documents?

A. Yeah, quite a few.

Q. And did it include physical inspection?

A. Yes.

Q. When did you first become aware of the presence of the former fly ash holding areas underneath a portion of the landfill?

A. Truthfully, I may have been aware that they existed in 1988 when I reviewed these facilities, but then again, our position was that if it's filled up and it's acting like a landfill, Bureau of Land's going to regulate it as a landfill. So when I did -- when I came back -- when I came into the picture here as a consultant

in 2020, was looking through the documents, but it wasn't an issue, talked about that with the field, and at one point when the attorneys were replying -- I provide technical information -- to respond to the VN, everything was kind of stopped, put on hold, and that was by Bureau of Water.

Q. So going back to the presence of these former fly ash holding areas underneath -- you know, underneath the landfill, does the fact that these former fly ash holding areas exist underneath the landfill area change your view as to whether the entirety of this area is a landfill --

A. No.

Q. -- in this exhibit?

A. No.

Q. And why not?

A. Because the -- well, it was called the surface impoundments area, the storage area. They were used for a purpose. They had a certain -- I'll tell you a certain configuration, includes certain height, and they were there for purposes of treating water before their NPDES discharge, and when that stopped, the material remained in there. Now it's a landfill.

Q. Does the presence of pond 6 or S-6 to the

north of the landfill -- does the presence of that pond or did the presence of that pond give you any reason to believe that the landfill area was in fact a surface impoundment?

A. No, not at all.

Q. Based on your knowledge and experience, is it common for ditches or ponds to be located adjacent to a landfill for stormwater management purposes?

A. It's generally necessary.

Q. Based on your experience, would it make sense to close the former fly ash holding unit separately from the remainder of the landfill?

A. No.

Q. And why not?

A. You're talking about the green areas, correct?

Q. Yes, the green areas.

A. Okay. No.

Q. Okay. And why not?

A. Initially you're going to have to monitor them separately, under a different set of regulations potentially, and you're going to have to put in different caps, and when you put in -- I'm assuming if this was closed as a surface impoundment and the other area's

closed as a landfill, you're going to have -- your cap construction isn't going to be one continuous cap. It's going to have valleys in it. It's going to make it a lot more expensive. Now you're going to have areas where water diverts and runs in between these valleys of the landfill, and that kind of defeats the purpose of an impermeable cap, you know, a largely impermeable cap, to have possibly standing water, and then it causes maintenance issues too.

Q. Do you think there would be any benefits to closing them separately versus closing the whole area as one unit?

A. No. It's actually silly because of what I just said. If the goal is to close them and to prevent infiltration and then to monitor them, looking at it as a whole is a far better way of doing it.

Q. All right. Mr. Liss, are you familiar with the fact that the adjusted standard that SIPC is proposing in this matter as an alternative relief includes agreeing to close the former landfill area in accordance with Part 845 standards?

A. I think so, yeah, some of -- yeah.

Q. Okay. So based on your knowledge and experience, how would the cost to close under Part 845

compare to the cost to close under Part 811?

A. So if we're going to do the entire area and you want to compare the closure of this area -- I'm calling it a landfill -- under 845 and 811, it's -- the cap -- the standards for the cap are very similar, and that's a good thing, but as for -- I think under 845, the other cost in there with -- there's a lot of administrative, potentially extended monitoring. There's uncertainty. Now it's going back to the Bureau of Land to do 845, and the program is not approved by the USEPA, so now you still have maybe potentially 257 issues that might be applied to the future in this case.

Q. And then just -- can you just high level describe any key distinctions between closing this area under Part 845 versus Part 811?

A. In my experience, when you have regulations that are a little more detailed and there's some history to meet especially performance standards versus a technical standard, it's more efficient, because if you have different reviewers applying different opinions because there's no guidance on how to close things under 845, you can be constantly getting permit denials and reworking things, maybe changing your groundwater program because you get a second reviewer.

Q. And is closure under one program more onerous than the other, 845 versus --

A. Yeah, 845 is more onerous.

Q. And is that for the reasons you just mentioned, just the additional administrative steps?

A. Yes, part of it is what I just said, but also the administrative parts of -- you get caught in these loops of -- one area is a lot of public notification and participation, which that's always good, but not the way it's written in 845.

Q. Okay. And then are there some slightly different groundwater monitoring requirements under both programs?

A. I think they allow you under -- yeah, they're not completely different. I wouldn't use the word completely, I wouldn't say, but they can be different.

Q. Is the sort of ultimate intention of groundwater monitoring somewhat similar between the programs?

A. Yes.

Q. All right. Mr. Liss, I want to point your direction to an exhibit IEPA actually brought up yesterday. It's IEPA's Exhibit CC. To your knowledge,

or to the best of your knowledge, what does this document appear to be? Feel free to take your time to look at the document.

A. Okay. When you get past the first two pages, which is some microfilm and filing information -- and I'll refer to the rest of them first and second page after that, all right, because they're not numbered. The first one looks like a profile, profile meaning it's a vertical cut through -- depicting slopes and some of the area landfill. There's an aerial view -- not an aerial view -- a map view and then some more details with similar information.

Q. Okay. Can I direct your attention to the last page of the document?

A. Yes.

Q. All right. Do you see a diagram towards the bottom of the last page?

A. Yes. Is that Section A, paren, dash, A, paren, paren?

Q. Yes, right. And the diagram right above there, do you see that diagram with the language that says, quote, "Strip topsoil, open paren, approx 0.50 feet, closed paren"?

A. Yes, I see that.

Q. To your knowledge, what is this language referring to?

A. Well, it looks like they were stripping the topsoil to grade -- if you'll look at the far left, right when you get past the vertical number, 3.0 feet, there's a line there. You see how that kind of dips down in the middle? It looks like it was just being graded, probably for purposes of drainage.

Q. Okay. Is it typical to grade a landfill area?

A. Oh, yes.

Q. And again, like, what would be the purpose for grading a landfill area?

A. Managing any liquids that get into the landfill.

Q. Do you mean, like, liquids from stormwater?

A. Stormwater. Precipitation.

Q. Okay.

A. Could be snow melt water.

Q. So when you're referring to liquids there, what are you referring to? When you use the word liquids there, were you referring to precipitation?

A. Yeah. Also, you know, when you're a regular landfill, it's -- there's a liquids ban, but things get

in there from household waste being thrown in there. It makes its way to the bottom and you remove the liquid.

Q. But are you aware of any household waste going into this landfill?

A. No.

Q. Okay.

A. That was a general --

Q. General talk --

A. We were talking about landfills in general.

Q. So for purposes of this landfill, do you believe the grading was related to precipitation?

A. Likely.

Q. Okay. Do you believe the activity described on this page is consistent with activities that would be conducted at a surface impoundment?

A. Yes.

Q. No, do you believe that the activities described on this page --

A. On this page.

Q. -- yeah, stripping of the topsoil for --

A. Oh, I thought you meant activities of their surface impoundment permit, because they did it for that. Sorry. Let me correct myself.

Q. Okay.

A. No, no, if you have a landfill, you construct the liner -- you don't overexcavate it -- in order to have things like depicted here, going different grades to move fluid and liquids and collect it in case there's any that gets in there.

Q. Okay. And is it consistent to do things like grading to help with the runoff from landfill areas?

A. Sure, yes.

Q. Okay. And again, talking about the activity that we just talked about, the stripping of topsoil for grading, do you believe that that activity would be consistent with the construction of a surface impoundment?

A. It can be. It doesn't have to be. Generally you strip off soil for grading to get the proper grade as an elevation change. We understand that, grading, and so --

Q. Right. So can you -- So again, would you -- would that be the equivalent of, say, excavating for a surface impoundment?

A. I don't -- We don't call that excavating.

Q. No?

A. No.

Q. Okay.

A. Grading is different.

Q. Okay. Is grading done for the purpose to, like, build a hole so that materials --

A. No, grading is done to make things either dip one way or become level, that's all.

Q. Okay. Moving on, in your declaration in support of SIPC's response in this matter, SIPC Exhibit 47, I'd like to ask you a few questions about that, if you don't mind.

A. Okay. I have it.

Q. Okay. So this is SIPC Exhibit 47. In this exhibit you discuss the Part 845 groundwater monitoring program's requirement for a minimum of eight independent groundwater samples from background and downgradient wells; is that right?

A. Yes.

Q. To your knowledge, is an owner or operator supposed to include a proposed groundwater monitoring program with their operating permit application to IEPA under Part 845?

A. Yes.

Q. And what is your understanding of the purpose of the requirement to collect a minimum of eight independent samples from each of these types of

groundwater monitoring wells?

A. Let's assume first that the groundwater monitoring system is installed correctly. Once that's done, then you collect samples to characterize and get a good, let's say, fingerprint of the groundwater quality around the site for statistical purposes.

Q. And that statistical analysis is then included with the groundwater monitoring program submitted with an operating permit application?

A. Correct.

Q. For the units at issue in this matter, do you believe that 180 days is an appropriate time frame in which to characterize groundwater or conduct a hydrogeological assessment for purposes of an 845 operating permit application?

A. No, it's not enough to complete those tasks.

Q. And why not?

A. I would say first of all, for the -- within 180 days, that's half a year. You're missing the other half of the year, let's say temporal variations in what could affect groundwater quality, so your statistical database for the purposes of conducting a groundwater monitoring program to evaluate whether the landfill is changing groundwater quality is no good.

Q. To your knowledge, do these units currently have groundwater monitoring systems installed under the federal CCR rule, Part 257?

A. No.

Q. How does that impact the amount of time that may be needed to characterize groundwater and conduct a hydrogeologic assessment for an operating permit application?

A. This goes back a few. You need to do the groundwater site investigation to determine where to put wells, not only horizontally spacing, but vertically. Some facilities have two sets of wells, deep and shallow.

Q. So I guess what I'm asking is, if there were a Part 257 groundwater monitoring system here, would it be possible that perhaps less time would be needed for the --

A. Yeah, that's correct.

Q. Okay. And does the lack of a Part 257 system indicate that additional time might be needed?

A. Necessary. It's necessary to get additional time.

Q. And why is that?

A. Because you don't have the information that you would have collected under 257.

Q. Okay. Are there any other site-specific conditions that you've seen here at the Marion Station that support the collection of these eight rounds of samples that we just talked about over a longer period of time for the units that are at issue in this proceeding?

A. If you look at the area -- if this map is still up on the -- is it?

Q. Yes, it is.

A. So once you look at the north of the storage area -- that's the large white area -- then you have pond 6 going around there and then there's a creek, then also, if you look at the contours, the heavy lines, there's areas of drainage up there that exceed, like, 570 feet. They all drain down to that area. That has nothing to do with the landfill. If you have wells in that area, or even for background, it might have nothing to do with the groundwater that's around the south side of the creek in the landfill, so it would be very confusing if you try and make any comparisons.

Q. Okay. So going back to the issue of the amount of time that might be needed to collect samples, are there any other site-specific conditions that you're aware of that might indicate this particular site requiring a bit more time to collect --

A. Yes, just with the -- oh, sorry.
Q. -- to collect groundwater samples?
A. Okay. Yeah.
Q. To collect representative groundwater samples.
A. Representative. Yeah, just the rate of movement of the groundwater.
Q. And --
A. If the sediments in certain areas, you know, have a low hydraulic conductivity, that means water doesn't pass through them quickly, and what are you actually measuring in six months?
Q. And --
A. The same water?
Q. And to your knowledge -- and I think you may have mentioned this in your report -- is there an indication that the rate of groundwater flow at this particular site may be a bit slow?
A. Yeah, I would say so, from the limited hydrogeo information that's available.
Q. Yeah. Okay. So then, Mr. Liss, what do you believe is the correct time frame over which to allow the collection of these groundwater monitoring samples that we've just discussed and preparation of a groundwater

monitoring plan for the units at issue in this proceeding?

A. A minimum of a year, 12 months, to gather that information. When your groundwater system is accepted by the regulating entity, EPA, then start doing the monitoring and get one full year, four seasons, of monitoring.

Q. And ideally, would it be good to have more than a year of data?

A. Yes, it would.

Q. Okay. And are there certain steps that need to be taken before that monitoring can occur?

A. Yeah. Like I said, you have to make sure your groundwater system is installed correctly.

Q. And about how long do you believe it would be required to get the groundwater monitoring system installed?

A. My familiarity of the site and my experience, 90 days would be very tough, but we can get it done.

Q. All right. So a minimum of 90 days?

A. Yes, but that's without any EPA review, because if you turn it in, it might take them 6 months, 180 days, to give you a review back, and I wouldn't

recommend starting monitoring until the EPA approved the monitoring system.

Q. And to your knowledge, can there be delays on installation of monitoring systems due to equipment availability --

A. Oh, sure.

Q. -- contractor availability, things like that?

A. Exactly.

Q. Okay.

A. Weather. I mean, it gets -- if it rains too much off and on, it's very hard to go into that type of soil, drilling.

MS. JOSHI: Okay. That's all I have. Thank you, Mr. Liss.

THE WITNESS: Okay.

HEARING OFFICER WEBB: You want to take a quick five minutes or you want to --

MR. NEIBERGALL: We actually have no cross, so --

HEARING OFFICER WEBB: No cross.

MR. NEIBERGALL: So we would like a break before the next witness, but we have no cross.

HEARING OFFICER WEBB: Okay. Let's do that,

take a short break. Thank you.

MS. BROWN: I don't have anything.

HEARING OFFICER WEBB: Thank you.

(Brief recess taken.)

HEARING OFFICER WEBB: We'll go back on record, and Petitioner may call their next witness.

MS. JOSHI: Petitioner calls Ari Lewis.

(Witness sworn.)

ARI LEWIS, produced, sworn and examined on behalf of the Petitioner, testified as follows:

DIRECT EXAMINATION

BY MS. JOSHI:

Q. Will you please state and spell your name?

A. Ari Lewis, A-R-I, L-E-W-I-S.

Q. Miss Lewis, will you please describe your educational background?

A. Sure. I got my bachelor's degree at the University of Pennsylvania in biology and environmental studies and then went on to get my master's degree in environmental toxicology at Cornell University.

Q. Where are you currently employed?

A. At Gradient, an environmental consulting company.

Q. What is your current position?

A. I'm a principal there.

Q. Describe your duties as a principal at Gradient.

A. As a principal I oversee evaluations, principally related to toxicology and risk assessment. That can cover a whole range of different applications, from product risk assessment to environmental risk assessment, anything sort of risk or toxicology related.

Q. So do you specialize in specific subject matter areas?

A. Yeah. So it would be toxicology and risk assessment.

Q. Okay. And does your experience include serving on any advisory committees or boards?

A. I've served on a number of different boards over the years. I've been on the Society for Chemical Hazard Communication board, I've served on a Product Stewardship Society board and I've -- actually, that's just a committee -- but then also recently I served on a few EPA boards related to environmental justice as well, the science advisory boards.

Q. Did you prepare any materials in support of SIPC's petition in this case?

A. I did. I prepared two reports.

Q. Okay. We're going to hand you first a document that's been identified as SIPC's corrected Exhibit 37. Are you familiar with this document?

A. Yes. This is --

Q. What is it?

A. This is an evaluation I worked on to provide support for the petition of an adjusted standard, and it's generally related to the status of the -- some of the ponds at the Marion Generating Station and if they qualified as being de minimis.

Q. Sorry, and I should correct. You're looking at Exhibit 36.

A. I am. Sorry. Corrected Exhibit 36.

Q. No worries. Thank you for that. And so now we're going to hand you a document that's been identified as SIPC -- so that's identified as SIPC corrected Exhibit 36.

A. Yes.

Q. And now we're going to hand you a document that's been identified as SIPC corrected Exhibit 37.

A. Yes.

Q. Are you familiar with this document?

A. I am familiar with this document as well.

Q. Okay. And what is this document?

A. This is a human health and ecological risk assessment that I did at the Marion Generating Station.

Q. Okay. And did you -- were you the primary author of both corrected Exhibits 36 and 37?

A. I am.

Q. Did anyone assist you in preparing these reports?

A. I did have a team of other scientists that worked with me on the report, but I oversaw the work done there.

Q. Okay. So was any work that they did on the reports under your direction?

A. It was under my direction and I reviewed all of the work.

Q. Okay. Thank you. Miss Lewis, can you please describe your work experience related to CCR surface impoundments, including evaluating impacts or risks from CCR surface impoundments?

A. Sure. I've worked on this issue for a while now, really started early on in my career. My first experience was evaluating the 2007 version of the CCR human health and ecological risk assessment that supported -- that would eventually be in support of the 2015 CCR rule. I provided evaluation and regulatory

comment on that. I reviewed subsequent drafts, and over the years I continued to evaluate risk assessments that would be in support of regulatory actions. That's sort of one bucket. I've also conducted site-specific risk assessments, much like we did on -- did in this case. And then another kind of bucket of work I've done is related to more general risk issues at -- related to CCR and how that may impact surface impoundments as well.

Q. Thank you. So I would like to turn to your corrected Exhibit 36 --

A. Yes.

Q. -- and attachment B to that exhibit.

A. I think it's -- is it at the other end, my CV?

Q. Towards the end there --

A. Sure.

Q. -- of Exhibit 36.

A. Exhibit 36, yep.

Q. Attachment B.

A. Attachment B, yes.

Q. Okay.

A. Got it.

Q. Great. Thank you. Is attachment B to SIPC corrected Exhibit 36 a true and correct copy of your CV?

A. Yes, it is.
Q. Okay. Does your CV further describe your experience and qualifications?
A. Yes.
MS. JOSHI: Hearing Officer, I'd like to admit Miss Lewis as an expert in the areas of risk assessment and analysis, including the risk evaluation and characterization of CCR surface impoundments.
MR. NEIBERGALL: No objection.
HEARING OFFICER WEBB: Okay. You're an expert.
Q. (By Ms. Joshi) I understand that you have a Powerpoint to accompany your testimony today. Is that correct?
A. I do.
Q. All right. I'm going to hand you a document that's been marked as SIPC Exhibit 55.
A. Great. Thanks.
Q. That Powerpoint on the title slide reads "Testimony of Ari S. Lewis" and is also displayed on slide 1 on the screen in the room. Do you recognize this document?
A. Yes.
Q. Okay. Is this a true and correct copy of

the Powerpoint you prepared to accompany your testimony today?

A. It is, yes.

Q. Did you assist in drafting or otherwise review and approve the contents of this Powerpoint?

A. Yes.

Q. And just generally, what does the Powerpoint contain?

A. It contains a lot of the key points that I made in the individual reports that I prepared in support of this matter.

Q. Okay. So now I'd like to talk about your reports actually out of order, so starting with Exhibit 37.

A. Okay. Yeah.

Q. Or actually corrected Exhibit 37.

A. Sure.

Q. You noted that this is a human health and ecological risk assessment; is that right?

A. That's right.

Q. For shorthand, I might refer to that as an HHERA, all right?

A. Okay. Yes.

Q. So what is a human health and ecological

risk assessment?

A. Okay. Well, I'll -- I kind of walk through all this with slides, but I -- so I can -- we can go to slide 2, but I can -- I'll briefly describe it on a high level. So a risk assessment is basically the procedure that's used to quantify risks, put a number to them, and what that generally involves at a very high level is sort of quantifying exposure to chemicals and how much of that exposure to chemicals could occur to a population of interest -- that could be human or ecological receptors -- and then we compare those exposures -- we often call them exposure point concentrations -- to a health benchmark that's developed, and again, in sort of simplistic terms, if the exposure is under the health benchmark, we don't have a risk, and if it exceeds it, we have a potential risk that we need to examine.

Q. Are there standards by which a human health and ecological risk assessment is typically conducted?

A. Yes, they are, and developed by regulatory agencies. USEPA is probably the premier agency that has put forth risk assessment guidance. They've done that as early as the -- their -- kind of the risk assessment bible came out in the late '80s -- that's the Risk Assessment Guidance for Superfund -- but since then the

EPA has released subsequent guidance, and we keep abreast of all those developments. States may also release guidance. IEPA also provides some information on the type of exposures you want to look at, how you might calculate health benchmarks, etc., so we would look at those too if we were going to conduct a risk assessment. You would look at the competent agencies, basically, and what risk assessment guidance they provide to go through a risk assessment.

Q. Okay. And so I see on slide 3 here of your Powerpoint you have some documents listed. Are these some of the guidance documents you used to help with your -- help guide your risk assessment?

A. Yes, these are some of the guidance documents, and also, because there is no specific guidance for CCR sites or CCP sites, we also look to the risk assessment EPA conducted in support of the rule to get some sort of guidance and ideas for approach on how to properly characterize sites.

Q. All right. So let's talk specifically about the HHERA conducted for this case and move to slide 4 of your presentation.

A. All right.

Q. What units did you evaluate for the HHERA

you conducted for this case?

A. Okay. As it's on the slide, it was pond 4, former pond B-3, pond 3 and 3A, pond 6 and the south fly ash pond.

Q. And can you just provide at a high level, what was the conclusion of your HHERA analysis?

A. We concluded that there was no risk to human health or the environment from these ponds, and actually we evaluated the whole site in general, so it included sort of all exposures that could occur at the site, but the risk assessment was meant to just address -- make -- draw conclusions about these specific ponds.

Q. All right. Let's walk through this in a little bit more detail, turning to slide 5. What generally are the steps that you took to complete the HHERA?

A. Yeah. Steps are listed here on slide 5, and I'll go through them generally, because I know in subsequent spots you'll go through these steps in a little bit more detail, but the first step is to develop a conceptual exposure model and identify the complete exposure pathways, so that's to understand, you know, who and what could be exposed at the site given the site conditions and the site configurement. And the next step

would be to identify the constituents of interest, and these are basically the chemicals -- or the constituents that we want to evaluate further. They would sort of nominate them for further review. Once we get those in place, we perform a sort of a screening-level analysis. This is where we use really conservative assumptions to compare health-based benchmarks to these exposure point concentrations that I discussed. We use really conservative assumptions there, so if there's no risk, we can kind of be reasonably assured there's no risk and move on and conclude that there's no risk. If there are some issues there, we would go on to perform a more refined risk assessment where we better consider, you know, specific receptors at the site, specific exposure pathways, and refine concentrations and other elements that could be at issue. And then finally, if a -- based on the screening assessment or a refined risk assessment, we formulate risk conclusions and identify any uncertainties.

Q. Okay. So let's start with sort of the first step that you just discussed, and I think you've got a little bit more related to it on slide 6 of your Powerpoint.

A. Yes.

Q. You noted that the first step is to identify complete exposure pathways and develop a conceptual exposure matter; is that right?

A. Exposure model, yes.

Q. Or model, yeah.

A. Yeah.

Q. Did you do that for this matter?

A. Yes. Yes, we did.

Q. Can you briefly describe how that model was developed?

A. Sure. Well, we focused on the groundwater pathway. That is the key pathway in this -- at the site, and that involves, you know, potential direct exposure to groundwater or groundwater that migrates to surface water and any exposures that could occur there.

Q. And so again, now, you looked at both human health and ecological risk as part of your assessment; is that right?

A. We did, yes.

Q. Okay. So what pathways did you evaluate for human health?

A. Well, the pathways that we determined that were complete was a drinking water pathway that could occur via the consumption of the surface water from Lake

Egypt, swimming -- recreation exposures, which would be included -- would be swimming and boating in Lake Egypt, and then also fish ingestion, so from anglers catching fish, and we -- the complete pathways there we considered to both be surface water exposure in Lake Egypt and surface water in Little Saline Creek. We -- I can --

Q. Sorry. For the human health pathways, was groundwater, drinking water a complete pathway?

A. We looked at that and determined it was not a complete ground -- a complete exposure pathway.

Q. Okay. And what was your basis for concluding that that was not a complete pathway?

A. There were several lines of evidence that we used. Mainly we had done an analysis of possible private wells in the area and determined that they -- all they -- that none of them were directly downgradient. Some were upgradient and some were side-gradient. Another reason was -- and probably more important -- is that they were -- the wells where we had measured constituents above groundwater protection standards near the site, they were in a much shallower aquifer than the private wells we identified. They were also at a sufficient distance. So based on the groundwater flow and the depth of the wells, we determined that that was not a complete

ground -- a complete drinking water pathway.

Q. And what pathways did you evaluate for ecological risk?

A. Sure. Those are on the next page.

Q. Are you looking at slide 7 now?

A. Slide 7. Sorry. Slide -- We looked at, again, the discharge of groundwater to surface water and we looked at the exposures that could occur to aquatic receptors via exposure to that surface water and exposure that could occur via the aquatic receptor exposure to sediment.

Q. And so for the ecological pathways, what were the pathways you found were complete?

A. We focused on the Little -- the exposures that could occur to Little Saline Creek, because that was the more -- we'd expect the groundwater flow was in that direction and the dilution that would occur from groundwater to surface water was -- would be much more significant than would occur with Lake Egypt, so that -- we determined that was a complete exposure pathway. We did not get into looking at the ecological effects in Little Lake Egypt. It could have been -- It's questionable if that was a complete exposure pathway, but we just reasoned that we'd look at Little Saline Creek

because it would be more conservative.

Q. Okay. And can you just explain again why looking at Little Saline Creek for any ecological risks is the sort of more conservative body of water to look at?

A. Because the groundwater flow is more directly in that direction and because of the dilution that would occur from groundwater to surface water would be much more significant than would occur to Lake Egypt, so by that reasoning, the resulting concentrations would be expected to be much higher -- exposure point concentrations would expect to be higher in Little Saline Creek compared to Lake Egypt.

Q. And that's because there'd be greater dilution or lesser dilution?

A. There'd be less dilution.

Q. Okay.

A. Yeah. Sorry.

Q. All right. And to compare, less dilution going into Little Saline Creek?

A. Yes.

Q. Okay.

A. Resulting in higher exposure point concentrations.

Q. Okay. Thank you. So you know the next step is to identify site-related constituents of interest; is that right?

A. Yes.

Q. Okay. Which I may refer to shorthand as COIs.

A. Uh-huh.

Q. So moving on to slide 8 of your Powerpoint, first, can you just explain, what are COIs or constituents of interest?

A. Yeah, I explained this briefly earlier, but essentially it's any -- the set of constituents that we want to carry forward in the risk assessment and take a second look at, or first look at, really.

Q. How do -- How did you determine whether a constituent is a COI?

A. So in this case we looked at two different -- or actually three different sets of COIs. Let me start with the human health. So what we did is we looked at all of the groundwater monitoring wells in the area, and for any constituent that exceeded groundwater protection standards, the maximum, whatever the maximum was, regardless if it was a background well, a monitoring well, we included that, so if there was a maximum

concentration greater than the groundwater protection standards that were established in 845, we included that. We did separate -- We did identify two sets of COIs for human health. One was related to the S-wells, which were located in the -- which were more closely adjacent to pond 4, pond 3, 3A, 6 and B-3, and the -- I can read them off for the record. The COIs that we identified related to those wells, the S-wells, were arsenic, beryllium, boron, cadmium, cobalt, lead and thallium. We then also identified a second COIs, and these more related to potential contaminants that could occur near the south fly ash pond, and those were boron, cobalt, cadmium and thallium. Do you want me to --

Q. Yeah.

A. I can go on to the ecological --

Q. So then were there -- how did you determine -- were there also ecological COIs that you determined existed?

A. We did.

Q. Okay. And how did you determine the presence of -- or how did you determine whether a constituent was an ecological COI?

A. So we were looking at the S-wells for that, again because we were interested in the impacts to Little

Saline Creek and those were the more relevant wells, and we compared the -- again, the maximum concentration of any constituent measured and we compared that to benchmarks -- not the groundwater protection standards, which are meant to protect human health, but we compared them to groundwater -- or surface water quality standards protective of ecological receptors, so if there's any exceedance there, we included those as a COI.

Q. So moving on to your slide 9, then, you mentioned that the next step to -- as part of an HHERA is performing a screening-level risk analysis; is that right?

A. Yes.

Q. Okay. What is a screening-level risk analysis?

A. It can mean different things in different applications, but in this case it's where we use very conservative assumptions and develop health-based benchmarks for the specific receptors or activities that were relevant to the site, and we again in this case compared maximum concentrations to the specific health benchmarks that we developed, and those benchmarks were, you know, consistent with guidance provided by IEPA to the extent that they -- that that was relevant.

Q. You said that this step involved using conservative assumptions. Can you expand upon what you mean by that?

A. For example, in this screening case we again used all of the data at the -- in the -- measured in the groundwater regardless of whether we really think it was a CCR contaminant or if it would actually be, you know, really -- you know, migrate into the surface water body. We -- Again, we used the maximum and assumed sort of default exposure assumptions without really considering exactly what was going on at the site. Those are investigations that you could sort of dig into later if you did -- if something didn't pass the screening assessment.

Q. And how did you determine the benchmarks that were used for comparison as part of this step?

A. Right. So those were developed in accordance with IEPA guidance. These are called human threshold concentrations, and we used that guidance to develop those for the recreators, which were one of the relevant receptors that we looked at.

Q. And what exposures did you evaluate for your screening-level risk analysis?

A. Right. So we evaluated the pathways that we

considered complete, so that was recreators using Lake Egypt, drinking water consumption from Lake Egypt and fish consumption from Lake Egypt and Little Saline Creek.

Q. And what did your screening-level risk analysis conclude regarding risks posed via the complete human health pathways you evaluated?

A. Yes, so we did not identify any risks, so in the other language that we use here, so none of these constituents were sort of further elevated to be a potential constituent of concern and needed a more refined assessment.

Q. And what did your screening-level risk analysis conclude regarding risks posed via complete ecological pathways, which I think you might have further information on --

A. Yeah, I think it's on slide 11.

Q. 11? Okay.

A. Yeah. There was -- That none of them -- and we didn't have measured concentration, but none of the modeled surface water concentrations that we modeled for Little Saline Creek exceeded relevant ecological benchmarks for both exposure to surface water and sediment.

Q. And given the results derived for Little

Saline Creek, would you expect any risk in Lake of Egypt, ecological risk in Lake of Egypt?

A. I would not. The concentration would be expected to be much lower, the exposure point concentration.

Q. Okay. And can you just briefly explain the basis for that statement?

A. Because the -- Because of the size of Lake Egypt and the amount of water, the concentrations would become -- any constituents migrating there would become even further diluted than they would in Little Saline Creek, plus again, also again, the groundwater direction was more towards Little Saline Creek too, so it's not even clear to the extent that water -- that groundwater would migrate into Lake Egypt.

Q. You state the next step is to perform a refined risk analysis; is that right?

A. Yes.

Q. Did you have to do a refined risk analysis for this case?

A. We did not.

Q. Why not?

A. Because the screening assessment indicated that there were no risks to human health or ecological

receptors.

Q. And did that make performing this step unnecessary?

A. It made it performing unnecessary. Had there been risks, we would have done more research to determine -- done more specific research into complete -- the pathways that were complete, refined exposure concentrations and determined if there was -- if more of that research better informed the risk, but it wasn't necessary using the high-level, high-conservative assumptions that we did in the screening assessment.

Q. And again, you just mentioned high-level and high-conservative assumptions. Can you just explain what you mean by that?

A. Sure. The -- Again, it's sort of using the maximum concentration, assuming that any concentration present at the site was due to CCR, which is an assumption, and that we even -- for this purpose of this risk assessment, we assumed that it was due to the specific, you know, ponds that we were evaluating here, when they could have been from a number of other sources or even background sources.

Q. So moving on to your next slide here, slide 12, what conclusion did you reach as a result of

the HHERA that you conducted at the Marion Station?

A. Yeah, that the ponds of interest that we were evaluating, pond 4, former pond B-3, 3 and 3A, pond 6 and the south fly ash pond, did not pose a risk to human health or the environment, and the environment meaning ecological receptors.

Q. Okay. As you -- In your report and based on your scientific understanding, is sort of the term ecological equivalent to the term environmental receptors?

A. They're often used interchangeably.

Q. And then can you walk us through sort of some of the more specific results of your risk analysis?

A. Sure. I'll walk you through the conclusions, which are highlighted on slide 12. We -- Looking at the groundwater pathway, we concluded that there was no complete drinking water pathway via groundwater, so consequently there were no risks from drinking water via groundwater or from the use of other -- the groundwater from other household purposes. There were no unacceptable risks identified for the users of Lake Egypt used -- using Lake Egypt for drinking water, no unacceptable risk from using Lake Egypt for swimming or boating or fishing, no unacceptable risk from

Little Saline Creek for fishing, and also no ecological risk to ecological receptors in Little Saline Creek from exposure to surface water or sediment, and by virtue also, there was no bioaccumulative risk as well. We had looked at that as well.

Q. And can you just briefly explain what a bioaccumulative risk is?

A. If there was a chemical that maybe didn't have an impact on an ecological receptor directly, by virtue of it, you know, being a bioaccumulative chemical, it could accumulate in an organism and then affect another organism that may prey on that organism and move up the -- biomagnify and move up the chain and eventually cause an effect in that -- in the -- sort of the higher-level receptor.

Q. All right. Thank you. So let's talk a little bit more about your other report, SIPC corrected Exhibit 36. Can you please start by just providing a summary of the purpose of this report?

A. Sure. The purpose of this report was to examine the units at the site that weren't used as -- to directly dispose CCR materials and they were used for ancillary purposes and to determine if the amount of CCR qualified them as de minimis units.

Q. Miss Lewis, are you familiar with the federal CCR rules?

A. Yes.

Q. Can you please just generally describe your familiarity?

A. My familiarity with them would be related -- its intersection would be evaluating risks related to CCR units and how that affected the CCR rule, so again, I evaluated the risk assessments as a part of the rule along the way, and finally, you know, how they ended up being implemented and informed the 2015 CCR rule.

Q. So relatedly, are you familiar with the 2014 risk assessment that was conducted in support of the 2015 federal CCR rule?

A. Yes, and the drafts that preceded it as well.

Q. And are you familiar with the term de minimis CCR surface impoundment?

A. Yes, from the CCR rule.

Q. To the best of your knowledge, is there a regulatory definition for the term de minimis as it refers to CCR surface impoundments?

A. I am not aware of any quantitative definition of de minimis.

Q. To the best of your knowledge, where does the term de minimis come from when -- in reference to CCR surface impoundments?

A. The place that I've seen it is in the preamble to the 2015 CCR rule.

Q. And what do you understand this term to mean?

A. It's a term that EPA was using to make a distinction between a surface impoundment that's subject to the regulation and one that wasn't, and it comes to me as a unit on a site that does not contain significant levels of CCR.

Q. And then what is your basis for that understanding?

A. From the definitions, or explanation, I should say, that USEPA provides in the CCR rule.

Q. So moving to your slide 13, do you have some of that language that you're referring to here on this slide?

A. Yes. So EPA, I guess again by not providing a specific definition, they kind of provide examples, and they describe that de minimis impoundment would be something that didn't contain significant amounts of ash and importantly wouldn't have the amounts of ash that

would give rise to the risk that they were trying to regulate, and then they contrast that with something that -- you know, the units that they would consider to be surface impoundments, and those are -- the criteria that -- where they would consider it a surface impoundment, I have some of those listed on the slide here, and they include primary settling ponds that receive sluiced CCR, as well as, you know, secondary ponds that, you know, importantly receive what they call wet CCR or significant amounts of CCR from other impoundments.

Q. In your opinion, do any of the units subject to this petition qualify as a de minimis CCR surface impoundment?

A. Yes. I concluded based on several lines of evidence that pond 4, former pond B-3, pond 3/3A, pond 6 and the south fly ash could qualify as de minimis ponds.

Q. And are those the ponds you have listed on slide 14 of your presentation?

A. Sorry. Yes. That's on slide 14, yes.

Q. Can you briefly describe the process you went through to determine whether the CCR or potential CCR present in what you call the ponds of interest is de minimis?

A. Sure. I kind of reviewed how the ponds were reviewed, looked at materials on how much, you know, CCR had potentially accumulated in these ponds and looked at the potential risks posed by these ponds.

Q. All right. So walking through each of the units in turn, let's start with the south fly ash pond.

A. Sure.

Q. I guess before we get there, I see you have a chart here on slide 15 of your presentation.

A. Uh-huh.

Q. Can you just briefly describe what this chart is?

A. Sure. This is information that I relied on from the Haley Aldrich report that was -- we provided testimony on earlier, and it provides estimates of the amount of CCR that was present in each of the ponds of interest.

Q. All right. So starting with the south fly ash pond and moving on to slide 16 of your Powerpoint here, what's your basis for determining that the south fly ash pond is a de minimis CCR surface impoundment?

A. Sure. We're going to walk through these and there's all going to be a similar theme throughout, but we'll go through each one by itself. But the south fly

ash pond never directly received sluiced ash from plant operations, and as a result, it would be just from other plant activities and as a result did not receive significant amounts of ash, and this was confirmed by the estimate of the amount of fly ash that was present in the -- measured in the pond. This -- Which we'll get into later, this small amount of ash made it sort of unlike the profile of surface impoundments that were evaluated in the EPA risk assessment that did give rise to risk and became the subject of the necessitate to regulate coal ash ponds. And the final piece of information I used was just the risk -- the site-specific risk assessment we did that concluded that there was no risk to human health or the environment.

Q. Okay. Moving on to pond 3/3A, what were the -- what was the basis for your conclusion that pond 3/3A was a de minimis CCR surface impoundment or contained a de minimis amount of CCR?

A. Sure. So following the same lines of evidence, it never directly received sluiced ash from plant operations. As a consequence, there was not a significant amount of ash estimated to be in the ponds. I didn't give the inches before, but I had that on the slide, but in this cases of ponds 3 and 3A was estimated

around 4.7 inches, like -- this made it unlike a lot of -- the vast majority of CCR impoundments that were the subject of the CCR rule, and again, there were no site-specific human health or ecological risks identified.

Q. On slide 3A, I see you have, like, mentioning of dredging or cleaning that may have been done to 3/3A. Does that materially impact your assessment of whether or not these are de minimis -- or this is a de minimis surface impoundment?

A. I don't think it -- it doesn't change my conclusion. Clearly, if there were -- we -- as testified earlier, if there were subsequent -- or preceding cleanings that may have altered the total amount that would have been measured, but these cleanings occurred a long time ago, and so we've had, you know, over a decade still to accumulate CCR, and, you know, the 4.7 inches over that long period of time would still make me call -- consider these to qualify as de minimis.

Q. And just to confirm, that 4.7 inches is kind of based on the -- an assumption based on the PLM results of the portion of --

A. The bathymetric survey and the PLM report that --

Q. Okay. And suppose we were to consider all of the sediment to be CCR? Would that change your conclusion?

A. No. It would still be a rather small part in comparison to most of the impoundments that were sort of envisioned in the CCR risk assessment and envisioned to be regulated under the rule.

Q. Let's move on to pond 6 or S-6. What are the characteristics of pond 6 that resulted you in determining that pond 6 is a de minimis unit or de minimis CCR surface impoundment?

A. Sure. It never directly received sluiced ash, so it wasn't a primary impoundment. The amount of ash that was estimated to be in the pond was, again, a very negligible amount, 4.2 inches. It's -- And again, this made it different than the profile of most of the surface impoundments that were evaluated in EPA's RA, and there were no human health and ecological risks up on the site-specific risk assessment.

Q. Okay. And again, the EPA RA, are you talking about EPA's risk assessment for CCR surface impoundments?

A. In support of the CCR rule, yes.

Q. All right. Let's move on to pond 4, then.

What are the characteristics or -- of unit 4 that led you to determine that pond 4 was a de minimis CCR surface impoundment?

A. Once again, it never directly received sluiced ash directly from plant operations, therefore not operating as a primary impoundment. The amount of estimated ash in that pond was 10.8 inches, still less than a foot, unlike -- it was -- that made it, again, unlike other surface impoundments that were modeled in that risk assessment, and the site-specific human health and ecological risk assessment showed no risk.

Q. Okay. And again, does the fact that some of these units were cleaned historically impact your assessment of whether they were de minimis?

A. I mean, I considered it, but even considering that, the amount of time that has elapsed since that occurred and the small amount still, you know, leads me to believe that they're considered de minimis ponds.

Q. And finally, let's talk about former pond B-3. What is your basis for determining that former pond B-3 is a de minimis or was a de minimis CCR surface impoundment?

A. It's a little bit different than the other

ponds, this one. There was -- actually was some periods of time where these -- this unit did receive direct ash, but it was very short time frames and not expected to be routine, and I would have expected very small amount of ash to have entered in that -- I think there was -- it was just maybe during three to four outages that were two weeks, and I -- from what I understand from other reports that I've read, that was during a time where the plant wasn't sort of operating at full steam, so the amount of ash generated would have been small, and of course it -- because it wasn't -- you know, the times that it did receive ash were extremely small windows of time, that would make it different than the types of ponds that were envisioned in EPA's risk assessment in support of the rule. And then finally, again, the site-specific risk assessments confirmed that there was no human health or ecological risk assessments at the site, including from pond B-3.

Q. Miss Lewis, how did these units that you just discussed compare to those units you would consider to be non-de minimis CCR surface impoundments?

A. Certainly any pond that would have been a primary pond that would have received sluiced ash on a routine basis would definitely be considered a surface

impoundment, you know, fall into the regular tradition of surface impoundment. We would have -- If that were the case, we would have expected much larger amounts of ash to be present there than were now. Even if they had been periodically cleaned out, they would have accumulated much higher levels and much more significant amounts.

Q. And what about secondary ponds with significant amounts of CCR? How do these compare to those types of units that may be non-de minimis, according to USEPA?

A. For any -- I mean, those ponds were -- again, sort of the example given was that they received wet CCR or water with significant amounts of CCR, and again, I think over the periods of time we were looking at, we would have expected more than inches of CCR to have accumulated over that time.

Q. Let's discuss USEPA's 2014 risk assessment -- I think we've referenced it before -- and move on to slide 21 from your Powerpoint. What is the goal of USEPA's 2014 risk assessment?

A. EPA set out to characterize nationwide risks from surface impoundments and landfills, characterize the risk, and based on that risk analysis to determine if, you know, regulations were warranted.

Q. What did USEPA evaluate as part of this risk assessment?

A. So they -- the risk assessment was extremely comprehensive, looked at a large number of human health and ecological pathways or ways that human health and ecological receptors could be exposed. I've listed them all here on slide 2. They, like we did, did sort of a screening assessment followed by a more rigorous assessment. Do you want me to --

Q. No, I just want -- you said slide 2. I just want to --

A. Slide 21.

Q. Okay.

A. Slide 21.

Q. Please continue. Do you have something to add to your response there?

A. I just -- I could -- Again, based on the slide, I could go through all the pathways just for the record. Would you like me to go through them?

Q. Yeah, could you just briefly describe what the different pathways were that the USEPA looked at?

A. Sure. They looked at the ingestion of drinking water from impacted groundwater; they looked at the ingestion of surface water affected by groundwater

and actually drinking water as well; they looked at direct contact with surface water; they looked at contact that could occur during showering from groundwater; and then they looked at a whole bunch of pathways that could have related -- more relevant to landfills that related to wind-blown dust and the potential for that wind-blown dust to impact soil and then for that soil to impact plants and other animals that could be affected by the affected soil. They look at a whole number of pathways. All of them were eventually screened out for human health except for the ingestion of drinking water via groundwater and the ingestion of fish from surface water impacted by groundwater.

Q. Okay. And what were the ecological pathways that it looked at?

A. Also looked like -- at a number, did a screening assessment. The assessment that was carried forward was aquatic receptors exposed to surface water impacted by groundwater, aquatic receptors directly exposed to surface impoundment wastewater, and aquatic -- I think that's aquatic receptors exposed to soil impacted by runoff, and then terrestrial receptors exposed to soil were also examined, but they were screened out. Very comprehensive assessment.

Q. And what types of CCR surface impoundments did the 2014 risk assessment conclude posed a risk?

A. So EPA, they performed what's called a probabilistic risk assessment and they build the profile. They evaluated risks that were indicative of 90th percentile risk surface impoundment or landfill and a 50th percent, so in sort of layman's terms, that would mean -- a 90th percentile is sort of had a lot of -- a surface impoundment that would be associated with a profile with a lot of high-end assumptions. This could be size or distance or receptors or the types of surface water bodies that were nearby, but it would be more of a -- I want to -- I don't want to call it worst case, but high-end exposure scenario. That was the 90th percentile. And then they also sort of -- they quantify the 50th percentile, which would be more of -- characteristic of more typical conditions or kind of, you know, mid-level exposure scenarios.

Q. Okay. And then turning to slide 22 of your deck, does that contain a summary of the conclusions from the USEPA's risk assessment for surface impoundments?

A. Yeah, this is for the human health risk for surface impoundments. At the 90th percentile -- again, the sort of high-end exposure -- set of exposure

scenarios -- they identified cancer risks from inorganic arsenic and non-cancer risks also from inorganic arsenic, lithium and molybdenum, again, only at the 90th percentile. The 50th percentile, the more, you know, I guess typical sort of scenario, had no risk.

Q. Can you just explain, what does it mean -- what does the fact that risk was only found at the 90th percentile mean?

A. That would indicate that the conditions were such that there had to be a lot of factors that fell into place that would, you know, result in higher exposures coming together, and so there had to be a lot of combination of high-end exposure situations to lead to these high-end risks.

Q. Okay.

A. It's difficult -- It's a difficult process to explain, but they had this whole distribution of possible exposure scenarios, and so when they selected from this distribution, it would have been selecting from a profile of things that created a new distribution that incorporated more of the high-end scenarios that led to these sort of higher-end risks.

Q. Okay. And so, like, what is the difference between the 50th percentile and the 90th percentile?

A. I mean, in more -- it's easier to explain it more in layman's terms, but --

Q. Yeah, in layman's terms.

A. Yeah, it would -- the 50th would be more of a typical average type of situation, whereas 90th percentile would be a more -- I don't want to say extreme, but high-end, higher-exposure factors.

Q. Based on your understanding of the risk USEPA identified for CCR surface impoundments, are bermed areas of the CCR surface impoundment relevant to the analysis of risk?

A. They were not -- EPA did not evaluate that scenario in the 2014 risk assessment.

Q. Are the CCR surface impoundments you analyzed as part of your report different than those found to have a modeled risk as part of the 2014 risk assessment?

A. I'd say in a number of different ways, yes, and this both relates to, like, the specific data that was put into the assessment as well as just the conceptual site -- the conceptual model that EPA was going after or trying to characterize in the risk assessment. So EPA was -- you know, the model -- the conceptual model they developed to evaluate the surface

impoundments, it relied on sluiced ash being continually sent to a facility and that that ash was allowed to accumulate over a long period of time until the capacity was actually reached, and then it could be periodically dredged as well, but it was -- the assumption was that it would keep being -- CCR would continue to accumulate over the life of the impoundment. And a lot of these factors, I should mention they're on slide 23, summarized there. And the other part was just sort of, again, the larger or what we call sort of significant amounts of coal ash that were evaluated in the risk assessment. I have the statistics here, but, you know, the range that they were evaluated, the depth of the impoundments would range from, you know, half a foot to up to 190 feet, with the 50th percentile was estimated about 3.6 feet and the 90th at 36 feet of ash.

Q. Sorry. What was the 50th percentile estimated at?

A. 13.6 feet.

Q. Okay. And why is the volume of that important?

A. Larger volumes of ash and the way it's situated would be expected to result in higher risks.

Q. So is the configuration of the volume

important?

A. Yes, the configuration, the depth and the area, yes.

Q. So putting aside for a moment whether or not these units are de minimis, based on your knowledge and experience, are they different from other typical CCR surface impoundments?

A. Yes. By nature of sort of the volume of the ash and the depth of the ash that was present in these impoundments, they would be on the very, very low end, not typical of the normal type of surface impoundment that, you know, is meant to really store and accumulate CCR impoundments on site.

Q. So let's just walk through that a little bit. You said they're different in the volume; is that right?

A. Yes.

Q. Okay.

A. The depth.

Q. The depth? Okay.

A. Uh-huh.

Q. Are they different in the way that they receive CCR?

A. Yes. Again, I -- they're certainly very

different from a primary unit that was directly receiving sluiced ash from plant activities, and, you know, I do understand that secondary and tertiary ponds can also be used to manage the CCR, but, you know, I think the ponds at this site were more for water management and there may have been some incidental CCR in them, but they weren't actually used to manage the CCR storage.

Q. How would you summarize the conclusions of your analysis regarding the units SIPC refers to in its petition as the de minimis units, Miss Lewis?

A. Sure. I do have them listed out on slide 24. You know, I've concluded that they are de minimis in nature, they didn't directly receive ash from plant operations and therefore contained, you know, especially in context really small, negligible amounts of ash, and this was vital to their operations but was confirmed or -- and further informed by the analysis -- the bathymetric analysis that was done and the PLM analysis that confirmed that there was, you know, smaller amounts of -- you know, very insignificant amounts of ash present in the impoundment. This made them also sort of differ significantly in concepts and in practice from the surface impoundments that were evaluated by EPA and were concluded to pose a risk. And then finally that, you

know, we did our own site-specific risk assessment which is really more direct and a lot more proximate to the actual risk posed by these units and confirmed that those units as well as, you know, the site in general did not pose a risk to human health or the environment, and, you know, for those reasons, you know, those lines of evidence built the conclusion that they qualified as de minimis ponds.

MS. JOSHI: All right. Thank you, Miss Lewis. No more questions on direct.

HEARING OFFICER WEBB: Would you like to take five or --

MR. NEIBERGALL: I think we can do a very brief cross.

HEARING OFFICER WEBB: Okay. Terrific.

MR. NEIBERGALL: Can you return to page 13 of the slides, please?

MS. LODE: Yes.

CROSS EXAMINATION

BY MR. NEIBERGALL:

Q. I wanted to ask you, Miss Lewis, about the top portion, the first bullet. It says "USEPA definition of surface impoundment"?

A. Yep.

Q. And underneath that it appears to have the definition in the first bullet?

A. Yes.

Q. And then it appears to have two other bullets that are not part of the definition; is that correct?

A. That's right.

Q. So the primary settling ponds that receive sluiced CCR is not part of the definition?

A. Those -- That was a part -- Those were not the definition, but they were examples that EPA gave to clarify what they meant.

Q. In the preamble?

A. In the preamble, yes.

Q. And the second one there, secondary or tertiary impoundments that receive wet CCR or liquid with significant amounts of CCR from a preceding impoundment, that's also not part of the definition, correct?

A. Not in the definition, but provided as clarification in the preamble, yeah.

Q. Thank you. And then your -- I believe your testimony was, to me, a unit that does not contain a significant amount of CCR is what you determined to be a de minimis unit? Do you see the word "significant" in

the actual definition up there?

A. No, it's not in the definition.

Q. Okay. So before "accumulation," you don't see the word "significant"?

A. No.

Q. I'm going to hand you SIPC's Exhibit 34, page 9, which we talked about earlier with another witness. It's the very top paragraph. Just let me know when you're ready.

MS. JOSHI: Again, I believe this is just a portion of the exhibit that you handed the witness; is that right?

MR. NEIBERGALL: That's correct. Do you want to --

A. Yes, that's kind of midway through --

Q. (By Mr. Neibergall) Sure. I can pull the whole thing.

A. Midway through an answer.

Q. This is the whole thing.

A. Okay.

Q. Take your time to read that number 4, I believe, that starts on page 8, goes into page 9.

A. Yep. I'm still not -- Is that the right -- This is page 19 and this is page 9. Is that --

Q. Say that one more time. I'm sorry.
A. Sorry. Was this supposed to precede this page? This is page 19 and this is page 9.
Q. Let me see what I gave you. Sorry.
A. That's all right. Did you want to -- me to go --
Q. Well, you --
A. This right here?
Q. Yes, that's it.
A. Okay. What's the question?
Q. So this is from April 25th, 2024; is that correct?
A. Uh-huh.
Q. From the USEPA?
A. Yes.
Q. And it's a frequently asked questions, like, answer document?
A. Uh-huh.
Q. The last sentence says, "Ultimately, the critical determinant of whether a unit is subject to the rule is whether it meets the criteria in the regulatory definition, rather than whether it was included as an example in the final rule preamble"; is that correct?
A. That's correct.

Q. Just one moment. We're going to go to your Exhibit 37, table 2.3b, which I believe was probably one of the slides.

A. You want me to go to my --

Q. I'm going to find it, but I think it's -- I think it was one of your slide tables.

A. Okay.

Q. Just not sure which one. So I think it's on page 9 of your Exhibit 37, 2.3b as in boy. Does that sound right?

A. Sorry. On my slides, slide --

Q. Oh, let's see. Got it.

MS. LODE: Counsel, I don't believe that's on the slides.

Q. Okay. Well, we'll go to the actual document.

A. Okay. So which report? Sorry. I'm going --

Q. So we're on Exhibit 37.

A. Exhibit 37, yeah.

Q. And we're on page 9 of your report.

A. Yes. The groundwater data summary table for the C-wells and the -- okay. Got it, yes.

Q. Molybdeum, lithium and radium are not in

that table; is that correct?
A. Which -- you're -- 2.3a?
Q. B as in boy.
A. Oh, boy. That's true, yes.
Q. Okay. Were those assessed in your risk assessment for the S-wells?
A. We assessed all the data that we had, so I don't believe they were.
MR. NEIBERGALL: No further questions.
MS. JOSHI: No redirect.
HEARING OFFICER WEBB: Does the Board have any questions?
MS. BROWN: No.
THE WITNESS: Okay. Thank you very much.
MR. NEIBERGALL: Thank you.
THE WITNESS: Thank you.
HEARING OFFICER WEBB: Should we take five before the next witness or --
MR. NEIBERGALL: Sounds good.
(Brief recess taken.)
HEARING OFFICER WEBB: Okay. We're going back on the record. Before we start with our next witness, I just want to mention that the Board did not have any questions for witness Kenneth Liss. I don't

think I mentioned that on record. So with that, we are ready to call our next witness.

MS. JOSHI: Thank you. Petitioner calls Andrew Bittner.

HEARING OFFICER WEBB: And would the court reporter please swear in the witness?

(Witness sworn.)

ANDREW BITTNER, produced, sworn and examined on behalf of the Petitioner, testified as follows:

DIRECT EXAMINATION

BY MS. JOSHI:

Q. Could you please state and spell your name?

A. Sure. It's Andrew Bittner. That's B-I-T-T-N-E-R.

Q. Mr. Bittner, can you describe your educational background?

A. Sure. I have a master's degree in environmental engineering from the Massachusetts Institute of Technology, I have undergraduate degrees both in physics and in environmental engineering from the University of Michigan, and I'm a licensed professional engineer.

Q. Where are you currently employed?

A. I'm a principal at Gradient.

Q. Can you generally describe your duties as a principal at Gradient?

A. Sure. So I'm a principal on what's -- what we call the environmental sciences team, and so what I do primarily is I manage environmental projects located around the world. In particular, I focus on the fate and transport of constituents in the environment, primarily in groundwater and in surface water. I design and review and optimize environmental remediation systems. I've provided regulatory comments on a number of occasions and I've served as an expert witness for environmental litigation projects on a number of times as well.

Q. Thank you. Do your duties involve any work related to CCR surface impoundments?

A. Sure, they do. Over the last probably 15 to 20 years, work with CCR has been a very significant portion of my practice area. I've probably -- I haven't counted, but I've probably been involved in work at probably 75 CCR surface impoundments, and that includes, you know, hydrogeological evaluations and investigations, assessing fate and transport of CCR-related constituents in groundwater and surface water, evaluating closure options and evaluating corrective action options at CCR surface impoundments, and I've also provided comments

both at the state and at the federal level related to coal ash regulations.

Q. So do you have expertise in the area of the migration of CCR and groundwater and surface water?

A. I do.

Q. Can you just please briefly describe that experience?

A. Yeah. So I've worked on a number of projects evaluating the migration of CCR constituents in groundwater and subsequently in surface water after groundwater discharges into surface water, so that is -- different constituents, they migrate at different rates. The rate at which constituents go from a surface impoundment down through the soils into groundwater, I have produced white paper -- white papers on that topic, looking at the migration through liner systems in CCRs, so that's a very kind of integral area of my practice.

Q. And do you also have expertise in the area of groundwater and surface water modeling?

A. Yes, I do, and that's similar to what I described. For a lot of CCR sites, in addition to analyzing the data and doing calculations to assess the migration of CCR constituents, we also have to model in various ways, either in spreadsheet models or in more

commercial software, the migration of CCR constituents in the environment.

Q. Did you prepare any materials in support of SIPC's petition in this case?

A. I did.

Q. All right. We're going to hand you a document that's been identified as SIPC corrected Exhibit 38.

A. Thank you.

Q. Are you familiar with that document?

A. Put on my glasses so I can read. I am familiar.

Q. And what is this document?

A. This is a document that I prepared. It's called the closure impact assessment for pond 4 at the Marion Generating Station.

Q. Are you the primary author of this document?

A. I am the primary author, although I did work with a team under my direction to prepare this report.

Q. And did you review the work of the team that worked under your direction?

A. I did.

Q. This document is titled a "Closure Alternative Assessment for pond 4"; is that right?

A. It's called a closure impact assessment.

Q. Or closure impact assessment. Pardon me. Can you describe your experience conducting closure impact assessments?

A. Sure. Let me first describe what a closure impact assessment is, and then I'll describe my experience with them. So a closure impact assessment is essentially a holistic evaluation of, you know, different alternatives. In this case it's either closure or continued operation alternatives at pond 4, so essentially it's looking at the net benefits and the net adverse impacts that may result from -- you know, from each of these alternatives. I have conducted similar assessments at probably 20 to 25 other sites, both for closure alternatives and for corrective action alternatives analyses. It's a similar type of process. I was one of the primary authors on an EPRI -- an Electric Power Research Institute white paper that actually created some of the guidance in how these closure impact assessments should be conducted.

Q. Thank you. So I'd like to just turn to attachment A of your Exhibit 38, your report.

A. Okay.

Q. Is attachment A a true and correct copy of

your CV?

A. It is.

Q. And does that CV further detail your experience and professional background?

A. It does.

MS. JOSHI: Hearing Officer, at this time I move to qualify Mr. Bittner as an expert in the areas of contaminant fate and transport, migration of CCR in groundwater and surface water, groundwater and surface water modeling and the preparation and evaluation of closure impact assessments.

MR. NEIBERGALL: No objection.

HEARING OFFICER WEBB: All right. You are an expert witness.

Q. (By Ms. Joshi) Mr. Bittner, I understand you have a Powerpoint to accompany your testimony today; is that right?

A. It is.

Q. Okay. We're going to hand you a document that's been marked as SIPC Exhibit 56 --

A. Thank you.

Q. -- which is the copy of the Powerpoint where the title slide reads "Testimony of Andy Bittner." Do you recognize this document?

A. Yes. These are the slides that I produced.
Q. And did you assist in drafting or otherwise review and approve the contents of this Powerpoint?
A. Yes. I prepared these slides.
Q. Okay. And what does the Powerpoint contain?
A. This presents a summary of the process that I used to perform my analysis as well as the conclusions of my assessment.
Q. All right. So moving to slide 1 of your Powerpoint -- or -- sorry -- slide 2 of your Powerpoint, we just discussed that you -- your report is titled a "Closure Impact Assessment of pond 4." Can you describe where pond 4 is located at Marion Station?
A. Sure. So on the slide, pond 4 is highlighted in blue. It's, you know, north of the actual operating area of the plant, kind of in the north central area of the site.
Q. And I think you described a little bit earlier what a closure impact assessment is. So for the closure impact assessment that you conducted for this matter, I guess can you just provide a little bit more detail regarding what you were evaluating for?
A. Sure. And as I said before, a closure impact assessment is something of a holistic evaluation

of all of the benefits associated with a certain scenario and the adverse effects of each scenario. So the scenarios that I specifically looked at for pond 4 were if the pond were to be closed by closure by removal -- I may sometimes refer to that as CBR -- or if the pond were to remain operational as it currently is, so those were the two scenarios that I evaluated for this assessment.

Q. And you said the closure scenario that you considered for the assessment was closure by removal; is that right?

A. That's correct.

Q. And why did you focus on closure by removal as the closure scenario?

A. Sure. I first -- Firstly, that was the closure scenario that I was asked to evaluate, but based on the characteristics of pond 4 -- you know, it's relatively small, there's a relatively small amount of sediment that's there -- closure by removal is probably what I would consider to be the most appropriate closure scenario for this pond.

Q. And can you just walk us through, when you're talking about closure by removal, what are the elements to closure by removal?

A. Sure. And I list these elements out on

slide 4. I realize it's hard to see the page numbers there. But for closure by removal, there are a couple of different elements that we would expect to be involved. The first is the removal of the liquids. That water needs to be managed and essentially, you know, removed, and so it would be managed in -- you know, in accordance with a National Pollutant Discharge Elimination System permit -- that's a NPDES permit -- then once the water is removed, any of the sediments that are there would have to be excavated, and then those sediments would have to be disposed either at an on-site area or an off-site landfill, and then finally, there may be some post-excavation activities, so this may include something like a retrofit of pond 4 with an impermeable bottom liner if the intent was to continue using the pond, or it may include site restoration, which would include possibly some -- bringing in some topsoil and revegetating the area.

Q. So let's talk a little bit more about the steps you took to complete the closure impact assessment you conducted for pond 4. Moving on to your next slide, 5, what are the factors you took into consideration for the closure impact assessment?

A. Sure. So in evaluating the net benefits and

adverse impacts associated with closure by removal of pond 4 in comparison to continued operation of pond 4, there are ten factors that I used to evaluate the two scenarios. One was risks to human health and the environment and would the closure of pond 4 result in any reduction of risk relative to the current risk at the site. I evaluated the risks of potential future CCR releases that may occur. I evaluated the impacts to groundwater quality, surface water quality and air quality that may result from the closure of pond 4. I analyzed the -- or I assessed the impacts to climate change and sustainability that may be incurred as a result of closure. I evaluated the risks to worker safety and to the community, of those that are actually implementing the closure, and any effects that may be incurred on the nearby community associated with the closure. I evaluated impacts to potential environmental justice communities that may be incurred as -- associated with the closure. And finally, I evaluated whether there are any impacts to scenic, recreational or historical value sites that, you know, may result from the closure.

Q. And what characteristics of pond 4 did you consider to complete your closure impact assessment?

A. Sure. There are a couple of unique

characteristics associated with pond 4. First of all, it's pretty small. It's about 3.7 acres, which based on my experience is very small for, you know, a CCR unit. It has a very limited amount of sediment in it. It has about 3300 cubic yards of sediment. I should clarify that that's sediment and not CCR. Only a fraction of that is CCR. The -- Some of the other key factors are either leachate tests that were done, shake tests. I think Mr. Hagen talked about these earlier. So this is where the sediment was actually analyzed to determine what the leachate quality was in the bottom of pond 4. All of the analytes that were tested as part of this work were -- had concentrations that were below the Illinois Class 1 groundwater protection standards.

Some of the other key factors, like, during operation, pond 4 never received a direct discharge of CCR. It -- I think Mr. Hagen referred to it as a finishing pond. I would potentially call it a secondary pond in that there were -- bottom ash was sent to pond 1 and pond 2. That ash settles out, and then the clarified water decants into pond 4. That was up until ponds 1 and ponds 2 were closed. Currently, pond 4 only receives overflow from pond S-6, I believe, which is just used to manage stormwater. So there are some unique -- you know,

unique circumstances associated with pond 4.

Q. Thank you. Were there any characteristics of site hydrogeology that you considered as part of your assessment?

A. Yes. So I reviewed the groundwater elevation data at the site. That's important in order to understand the groundwater flow direction. Groundwater generally flows to the north-northeast at this site. I think there's a slide. Oh, it's up.

Q. Is that your slide 6?

A. That is slide 6, that's correct. Even with my glasses I can barely see the page numbers. So understanding the groundwater flow direction is important, and then I reviewed certain hydrogeological parameters, such as the hydraulic conductivity and the hydraulic gradient, which is important to understand the rate at which that groundwater may discharge into Little Saline Creek. So I think those -- oh, and then I guess the final, you know, data set that I reviewed was just the chemistry data from the wells that are surrounding, you know, this northern half of the site.

Q. And can you explain why it's important to understand the groundwater flow and direction?

A. Sure. The groundwater flow direction is

really an integral piece of what we call a conceptual site model, and a conceptual site model is a description of how -- you know, how a constituent may get into the environment and then how it may migrate and whether there are any receptors, either human receptors or ecological receptors, that may be exposed to that constituent, so you need to understand the groundwater flow direction in order to determine if there's any potential exposure to a receptor resulting from a certain source.

Q. Let's talk through -- so let's talk specifically, rather, about the closure impact assessment that you conducted for pond 4. Now, can you provide just in summary what the conclusion of your closure impact assessment for pond 4 was?

A. Sure. In summary, I concluded that there are no -- that closure by removal of pond 4 will not result in greater environmental benefits compared to the current operation of pond 4.

Q. And does slide 7 of your presentation include a summary of your conclusions?

A. It does.

Q. Let's talk through each of the impacts you considered as part of the closure impact assessment for pond 4 in a little bit more detail and move on to slide 8

of your presentation. What did your assessment conclude about risk to human health and the environment with the closure of pond 4?

A. My evaluation concluded that closure by removal of pond 4 will not result in any reduction in risk compared to the current scenario.

Q. And what is the basis of this conclusion?

A. So the basis of that confusion -- or conclusion -- excuse me -- is largely based on the human health and ecological risk assessment that my colleague, Miss Ari Lewis, just discussed. In that report she concluded that there are no current risks to human health or the environment associated with any of those northern ponds at the site, and so if there's no current risk, you can't actually have a risk reduction, you know, by closing the pond, so I don't envision that the risks would be any different under a closed scenario.

Q. What did your assessment conclude about environmental risk of future CCR releases from pond 4?

A. Sure. So I concluded that there is -- under the current operation there's really a minimal risk of future CCR releases at the site. Obviously, if pond 4 were closed by removal, all the sediment and any portion of that which is CCR would be removed, so there's no risk

of future CCR releases under that scenario.

Q. What did your assessment conclude about whether closure of pond 4 would have impact on groundwater quality?

A. I concluded that closure by removal I would not expect would have any -- would result in any improvements or any effect on groundwater quality.

Q. And what's -- what leads you to conclude that closure of pond 4 will not result in improvements to groundwater quality?

A. Sure. The primary reason is based on the shake test data, the leachate data that has been done on the sediments in pond 4. That's -- That data has demonstrated that all of the constituents that were analyzed were below the Illinois Class 1 groundwater protection standards. It's implausible to me to understand how if the sediment as the source area were below the groundwater protection standards that that could cause any sort of exceedance of a groundwater protection standard to the underlying groundwater, so I think that's the primary basis for my conclusion, combined with just the operational history of pond 4.

Q. Are there groundwater impacts at the Marion Station generally?

A. There are. There are several wells where groundwater protection standard exceedances have been noted. I actually have a table identifying those in my report. So, yeah, those are -- there have been groundwater protection standard exceedances.

Q. Okay. Looking at the next page of your Powerpoint, slide 9, what does that page titled "Groundwater Monitoring Well Locations" depict?

A. So this depicts the location of groundwater monitoring wells at the site, and these are the locations where samples of groundwater monitoring -- or samples of groundwater have been collected and analyzed over time at the site.

Q. Were any of the areas in this map located -- or any of the wells in this map located potentially downgradient of pond 4?

A. The closest well to pond 4 is well S-6, and that's potentially -- I mean, it's more side-gradient of pond 4 than downgradient. There were several groundwater protection standard exceedances that were noted at well S-6. I believe lead, cadmium and cobalt were noted in excess of the groundwater protection standard there. Lead is generally not a constituent in my history of working at CCR sites that is associated with CCR, and

cadmium was a constituent that was detected really throughout the site, even at wells that were upgradient of the pond, so I don't think either of those could possibly be related to pond 4.

The other thing which I think is worth pointing out is that in the leachate tests that were done, in the shake tests, constituents that are typically associated with coal ash -- so Mr. Hagen discussed boron earlier. Boron is a very common sentinel constituent for coal ash, probably the most common, but other constituents that are commonly associated with coal ash include sulfate and arsenic, and so arsenic, sulfate and boron were all below the Class 1 groundwater protection standard exceedances in the leachate samples, so that tells me that pond 4 really cannot be a source of the impacts that have been observed at well S-6, so I think it's much more likely that what has been detected at S-6 is probably a result of the coal pile which is immediately upgradient of S-6 and not related to pond 4.

Q. Thank you. And do you believe that pond 4 may be contributing to the exceedances of groundwater protection standards found at any other wells?

A. I don't.

Q. And again, can you just summarize the basis

for why you believe -- why you don't?

A. Sure, and again, it's the same rationale for what I outlined, that, you know, the leachate quality from pond 4 is already compliant with Class 1 groundwater protection standards, so it's really implausible that if the sediment itself is not above a groundwater protection standard how the underlying groundwater could be above.

Q. Thank you. So going back to page 8 of your Powerpoint and the results of your closure impact assessment, what did your closure impact assessment conclude regarding impact on surface water quality?

A. Sure. So my assessment concluded that closure by removal of pond 4 is unlikely to have any effect on surface water quality, particularly in Little Saline Creek.

Q. And what is the basis of that conclusion?

A. Sure. So I modeled the discharge of groundwater throughout that whole northern portion of the site into Little Saline Creek, and this was a very conservative analysis, so I used the maximum concentration that has been detected in groundwater, even though I am not implying at all that that's related to pond 4, but I used the maximum detected concentrations that have been detected in groundwater and modeled that

groundwater discharge into surface water and calculated the surface water quality that would be resulting from that groundwater discharge, so this -- it's a very conservative approach. It's actually the same modeling approach that USEPA used in the 2014 risk assessment that was used to support the 2015 federal rule, but the conclusions were that the surface water quality as a result of the groundwater discharge would be below all ecological and human health screening benchmarks.

Q. What did your assessment conclude about the impact of closure of pond 4 on air quality?

A. Sure. So during closure by removal of pond 4, I would expect that there would be some short-term impacts to air quality that would result from the closure. This could be from the construction equipment located at pond 4 during the excavation work and potentially along haul routes where sediment needs to be -- you know, needs to be hauled to -- you know, to an off-site landfill, so that would include both fugitive dust coming off the trucks as well as diesel emissions.

Q. And what did your assessment conclude about the impacts of closure of pond 4 on climate change and sustainability?

A. Sure. So I analyzed the impacts to climate

change and sustainability using a couple of different metrics. One was potential for greenhouse gas emissions and one was the potential for energy consumption, and so both of these, there is a -- the closure by removal is likely to have a greater impact -- result in greater greenhouse gas emissions and greater energy consumption than continued operation of the pond, and the primary reason for this is the hauling of sediments that would be required to take it from the pond to -- you know, to an off-site landfill. We estimated that that would be about 14,000 miles that would be required to -- you know, to take the -- that material, you know, trucks going back and forth from the site to the nearest landfill facility.

Q. And what did your assessment conclude about the impact of closure of pond 4 to worker safety?

A. Sure. So during any construction event there are always going to be risks to workers, those who are implementing the work. The US Department of Transportation publishes accident rates for large construction equipment, for dump trucks, you know, and they publish statistics on the rate at which injuries occur to those drivers and the rate at which fatalities occur, so the -- there would be increased risks associated with closure by removal relative to continued

operation because of the -- you know, the 14,000 miles that, you know, would have to be driven by those truck drivers to transport the sediment.

Q. And what did your assessment conclude about the impact of closure of pond 4 on the community surrounding Marion Station?

A. Sure. The -- Again, during the construction activity there would likely be some short-term impacts on the community, and those impacts could include air pollution, could include haul truck accidents, nuisance impacts from traffic and noise, and these would be, you know, as a result of the construction, as a result of the hauling that would be done, so there would be some short-term impacts on the community during the construction process.

Q. And -- sorry. And what was your conclusion about the impacts to the community?

A. Oh, I'm sorry. I may have skipped that. That there would -- That closure by removal would result in more short-term impacts to the community than continued operation of the pond would.

Q. Great. Thank you. And then moving on, what did your assessment conclude about the impact of closure of pond 4 on environmental justice issues?

A. Yeah, so I -- my assessment concluded that there would be no impacts to environmental justice communities under either scenario, either under the closure by removal scenario or under the continued operation scenario.

Q. And what's the basis of your conclusion for that?

A. Sure. So the State of Illinois defines environmental justice communities as those that have a minority population either above twice the state average or are less than twice the state poverty rate, and studies have shown that these communities are more susceptible to environmental pollution and at a greater risk associated with environmental pollution, so I evaluated the -- whether there are any -- and the State defines where these environmental justice communities are located, so I reviewed that information and found that there were not any environmental justice communities that were either close enough to the site or along the expected haul routes that would be used such that they would be impacted by -- you know, by construction activity.

Q. And what did your assessment conclude about the impact of closure upon scenic, recreational and

historic value?

A. Sure. So during closure by removal there may be some negative impacts on the scenic and recreational value for users of Lake of Egypt. You know, they may be able to see and potentially hear the construction activity as it's going on. My assessment concluded that there would be no impacts to historical sites. For that I reviewed the State's DNR archeological databases, and there are no historical archeological sites that are located within 1,000 meters of the facility, so I determined there'd be no historical impacts that would be expected under either -- or no impacts to historical sites that would be expected under either scenario.

Q. And again, the various impacts that you looked at, did they include both human health and environmental impact?

A. That's right, and again, the very first impact is is there a reduction in risk to human health or the environment.

Q. And based on your experience, what impact, if any, would it have on the closure impact assessment that you conducted if pond 4 was closed in place?

A. Sure. I didn't analyze specifically the

closure in place scenario for pond 4. I -- Based on my experience for performing closure impact assessments and evaluating closure alternatives, I don't expect that the conclusions would be any different in that I would expect that closure in place would not result in any environmental benefits compared to continued operation, and the reason for that is I wouldn't expect the first couple of factors to change, the risk to human health and the environment, the CCR releases, groundwater quality, impacts to groundwater quality, surface water quality or air quality. One might think that for a closure in place scenario the air quality impacts would be less and the -- you know, the impacts to climate change and sustainability would be less because no hauling would be involved of sediments, you know, from the ponds to an off-site location, but in fact there's an inverse that happens in that to close in place, you need to bring in 18 to 24 inches of earthen material to construct a cap, and so you need to identify a borrow site and then that borrow site would involve trucking that material to the facility, so there still could be fugitive dust that's generated, diesel emissions that are generated and a similar amount of worker hours that would be required to do that, so I don't expect the closure in place would

change the results of this analysis at all.

Q. And during some of the elements that you discussed that you looked at as part of your assessment, you were talking about impacts of potentially hauling the removed materials off for off-site disposal. You also looked at closure by removal of on-site disposal as part of your analysis; is that right?

A. Yes, that is an option, that there might be -- instead of sediment being taken to an off-site location, that it may be disposed at an on-site location. There would still be, you know, dust and workers that would be involved and climate change and sustainability issues that would be incurred. It may be less than what's required in order to haul the material off-site. My experience -- and I don't know this -- I'm speculating here -- my experience at many sites is that finding on-site disposal locations at these types of facilities is limited and not always available to -- you know, that they can find an on-site disposal area.

Q. And so does the -- do the conclusions of your report hold true -- or the ultimate -- let me rephrase that. Does the ultimate conclusion of your report hold true for both closure by removal with on-site or off-site disposal?

A. It does.

MS. JOSHI: Okay. I have no further questions.

MR. NEIBERGALL: Can we have two minutes to confer?

HEARING OFFICER WEBB: Sure.

MR. NEIBERGALL: Thank you.

(Brief recess taken.)

HEARING OFFICER WEBB: We'll go back on the record. EPA has no cross. Does the Board have any questions for this witness?

MS. BROWN: No.

HEARING OFFICER WEBB: Thank you. You're done.

THE WITNESS: Thank you.

MR. NEIBERGALL: Thank you, sir.

THE WITNESS: Thank you.

HEARING OFFICER WEBB: Well, it's 3:45. Would you like to -- well, what would you like -- do you want to proceed -- do you have anything else to present?

MS. JOSHI: Give me one moment.

HEARING OFFICER WEBB: Okay.

(Off the record.)

MS. JOSHI: No, we have no more witnesses to

present.

HEARING OFFICER WEBB: Okay.

MS. JOSHI: I defer to the Hearing Officer as to when and how you would like to handle the exhibits.

HEARING OFFICER WEBB: Well, let's do that now since I have become aware that you have an index in numerical order that we can look at, and I hope you have one for EPA as well. Okay. Would you like a minute to look at this, Gabe?

MR. NEIBERGALL: I don't think I need it. It's all just the Powerpoints that have been added. From 48 to 56 are just the Powerpoints; is that correct?

MS. JOSHI: That's correct, and given that Lisa Bradley has not been -- has not testified -- she has in fact retired -- SIPC is not proposing to introduce SIPC Exhibit 28 into the record, which was the report of Dr. Lisa Bradley.

HEARING OFFICER WEBB: I see.

MR. NEIBERGALL: We have no objection. No objection to that removal.

HEARING OFFICER WEBB: So are some of these already in the record or no? Okay. Let's go off the record for a minute and try to sort this out.

(Discussion held off the record.)

HEARING OFFICER WEBB: We're going to go back on the record, and Petitioner will move to admit some exhibits.

MS. JOSHI: Thank you. Petitioner moves to admit SIPC Exhibits 48 through 56 offered during the hearing.

HEARING OFFICER WEBB: And I understand there's no objection --

MR. NEIBERGALL: No objection.

HEARING OFFICER WEBB: -- so Exhibits 48 through 56 are admitted, and I will just mention that the other exhibits have already been previously filed. They are attached to the second amended petition, did you say, or what are they -- or various --

MS. JOSHI: Yes, they're all -- they've all been --

HEARING OFFICER WEBB: Filed with the Board.

MS. JOSHI: -- filed with the Board, and both the second amended petition and Petitioner's response have full listings of the exhibits to those documents.

HEARING OFFICER WEBB: Okay. Thank you. So today we are admitting -- Exhibits 48 through 56 are admitted into the record. Okay. So you have nothing

further to present.

MS. JOSHI: No.

HEARING OFFICER WEBB: Okay.

MR. NEIBERGALL: Can we go off the record for a minute?

HEARING OFFICER WEBB: Yes, we'll go off the record for a minute.

(Discussion held off the record.)

HEARING OFFICER WEBB: We're back on the record. We only have one more witness for this proceeding. This is the IEPA's witness. We have decided that we are going to hold off and start tomorrow morning at 9 a.m. Does that sound good to everybody? Anybody else have anything to add?

MR. NEIBERGALL: That sounds correct. Thank you.

HEARING OFFICER WEBB: Okay. So we are recessed until 9 a.m. tomorrow. Thank you all.

(Hearing recessed at 3:52 p.m.)

STATE OF ILLINOIS)
) SS
COUNTY OF BOND)

I, KAREN WAUGH, a Certified Shorthand Reporter in and for the State of Illinois, DO HEREBY CERTIFY that I was present at the Market Street Hall, Marion, Illinois, on June 11, 2025, and did record the aforesaid proceedings; that same was taken down in shorthand by me and afterwards transcribed, and that the above and foregoing is a true and correct transcript of said proceedings.

IN WITNESS WHEREOF I have hereunto set my hand this 27th day of June, 2025.

Karen E. Waugh

/s/Karen E. Waugh, CSR, RPR, CRR, RMR
Illinois CSR #084--003688

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