BEFORE THE OHIO POWER SITING BOARD

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In the Matter of the Application of Icebreaker Windpower Inc. for a Certificate to Construct a Wind-Powered Electric Generation Facility in Cuyahoga County, Ohio.	:	Case No. 16-1871-EL-BGN

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PROCEEDINGS

before Mr. Nick Walstra and Ms. Megan Addison, Administrative Law Judges, at the Public Utilities Commission of Ohio, 180 East Broad Street, Room 11-A, Columbus, Ohio, called at 9:03 a.m. on Tuesday, September 25, 2018.

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VOLUME II

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- - -

INDEX

- - -

WITNESS	PAGE
David P. Karpinski	
Recross-Examination by Mr. Stock	219
Recross-Examination by Mr. Jones	270
Examination by ALJ Addison	296
Caleb E. Gordon, Ph.D.	
Direct Examination by Mr. Secrest	304
Cross-Examination by Mr. Stock	307
Cross-Examination by Mr. Simmons	428

- - -

JOINT EXHIBIT	IDENTIFIED	ADMITTED
1 - Stipulation	I-29	301

- - -

APPLICANT EXHIBIT	IDENTIFIED	ADMITTED
1 - Application	I-28	300
1A - Application (Confidential)	I-28	300
2 - Supplement to Application	I-28	300
3 - Second Supplement to Application	I-28	300
4 - Erratum to the Second Supplement to the Application	I-28	300
5 - Third Supplement to Application	I-28	300
6 - Fourth Supplement to Application	I-28	300
7 - Response to First Set of Interrogatories	I-28	300
8 - Response to Second Set of Interrogatories	I-28	300
9 - Supplement to Response to Second Set of Interrogatories	I-28	300

INDEX (Continued)

- - -

APPLICANT EXHIBIT	IDENTIFIED	ADMITTED
10 - Correction to Response to Second Set of Interrogatories	I-28	300
11 - Response to Third Set of Interrogatories	I-28	300
12 - Correction to Response to Third Set of Interrogatories	I-28	300
13 - Response to Fourth Set of Interrogatories	I-28	300
14 - Response to Fifth Set of Interrogatories	I-28	300
14A- Response to Fifth Set of Interrogatories (Confidential)	I-28	300
15 - Response to Sixth Set of Interrogatories	I-28	300
16 - Certificate of Service, 11/3/16 Public Information Meeting	I-28	300
17 - Proof of Publication, 11/3/16 Public Information Meeting, The Plain Dealer	I-28	300
18 - Certificate of Service of the accepted, complete application on local public officials & libraries	I-28	300
19 - Proof of Service of the accepted, complete application on local public officials, libraries, and each owner of property crossed and/or adjacent to the proposed facility	I-28	300
20 - Proof of Publication of the accepted complete application, The Plain Dealer	I-28	300

- - -

INDEX (Continued)

- - -

APPLICANT EXHIBIT	IDENTIFIED	ADMITTED
21 - Second Proof of Publication of the accepted complete application, The Plain Dealer	I-28	300
22 - Proof of Service of the accepted, complete application on local public officials, libraries, and each owner of property crossed and/or adjacent to the proposed facility	I-28	300
23 - Proof of Publication of the reestablished Procedural Schedule of the accepted, complete Application in The Plain Dealer	I-28	300
24 - Proof of Publication and service of the reestablished Procedural Schedule of the accepted, complete application in The Plain Dealer	I-28	300
25 - Direct Testimony of David P. Karpinski	I-28	300
30 - Direct Testimony of Caleb E. Gordon	304	--
35 - Proof of Publication in Compliance with the 8/1/18 Entry	I-28	300

- - -

STAFF EXHIBIT	IDENTIFIED	ADMITTED
1 - Staff Report of Investigation	I-109	303
2 - Letter to Dr Diehl, 12/21/17	I-138	303
3 - Prefiled Testimony of Erin Hazelton	440	--

- - -

INDEX (Continued)

- - -

BRATENAHL RESIDENTS	IDENTIFIED	ADMITTED
1 - Depictions of Projects and Turbines	I-44	302
2 - David Karpinski's Résumé	I-47	302
3 - 5/6/2016 Power Purchase and Sale Agreement	I-51	302
4 - Joint Stipulation and Recommendation	I-62	302
5 - 7/14/2018 BSBO & ABC Comments to Stipulation	I-90	302
6 - 3/12/2018 Letter to Gary Obermiller	245	302
7 - 2/28/17 FWS & ODNR Recommendations	324	--
8 - 1/23/17 NEXRAD Study	341	--
9 - 11/29/16 Summary of Risks to Birds and Bats	349	--
10 - Pictures of Turbines	381	--
11 - Superimposed Rose Plots	389	--
12 - 10/4/17 FWS Letter	401	--
13 - 12/19/17 E-mail	408	--
14 - 12/22/17 E-mail; Letter to Dr. Diehl, 12/21/17	423	--

- - -

Tuesday Morning Session,
September 25, 2018.

- - -

ALJ WALSTRA: We'll go back on the record for Day 2 of Case No. 16-1871-EL-BGN, regarding Icebreaker Windpower Incorporated, and I believe Mr. Karpinski was on the stand. I will remind you you are still under oath.

THE WITNESS: Yes. I understand.

ALJ WALSTRA: I believe we were doing recross with Mr. Stock.

MR. STOCK: Yes, thank you.

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DAVID P. KARPINSKI

being previously duly sworn, as prescribed by law, was examined and testified further as follows:

RECROSS-EXAMINATION

By Mr. Stock:

Q. Mr. Karpinski, when you were -- when you first took the stand, you understand you were placed under oath when you were giving direct examination, correct?

A. Yes.

Q. All right. And then I cross-examined you before we took our lunch break yesterday at 1:15. Do

you remember that?

A. Yes, yes.

Q. And we recessed, and you understood you were still under oath when we recessed, correct?

A. Yes.

Q. Now, during the lunch break, did you consult with anybody about your testimony?

A. My attorneys.

Q. Okay. How about any of the witnesses that are going to be called for Icebreaker?

A. They were in the room when I was talking to my attorneys about the testimony.

Q. Okay. Were they -- were they involved in the discussion as well?

A. They may have been to some extent, but the focus was my attorneys.

Q. Okay. Did you discuss the probable cross-examination to come by Mr. Jones?

A. Just --

MR. SECREST: Let me note an objection to the extent that would involve attorney-client privileged information. He's testified counsel was present.

MR. STOCK: He's consulting while he is under oath and still on the stand. Under evidence

Rule 611, I am entitled to inquire into all matters regarding credibility, and if I am getting group testimony or group think, I'm entitled to find that out.

MR. SECREST: He is not entitled to find out the substance of communications where counsel is present and that is exactly what he is asking by that question.

ALJ WALSTRA: I'll allow the question but, as to the substance, I think that is -- should remain confidential.

Q. Okay. So my question was, did you discuss the probable cross-examination to come by Mr. Jones?

A. In general terms.

Q. Okay. Now, did you review any documents?

A. No.

Q. Okay. Did you take with you the exhibit binder I had used on cross-examination?

A. No. That remained here at the stand.

Q. Okay. We then had a break at around 4 o'clock yesterday. You were still on the stand. You understood you were still under oath, correct?

A. Yes.

Q. Did you discuss your testimony with

anyone at that point?

A. My counsel.

Q. Okay. Did you review any documents?

A. No. I don't believe I did.

Q. Okay. At adjournment, yesterday afternoon, you understood you were still under oath and were going to be testifying this morning, correct?

A. Yes.

Q. Did you have any discussions with anyone about your testimony?

A. Yes. Again, my counsel.

Q. Okay. Did you review any documents?

A. No.

Q. Okay. Now -- and correct me if I misstate what some of your testimony was yesterday because it was yesterday and, at my doddering age, my memory isn't as good as maybe it should be. Did I understand you to testify yesterday that -- you testified about the expense and I think you mentioned a 9-million-dollar figure to place a fixed platform out at the project site and put a radar unit on it, was that --

A. Yes.

Q. Correct? The gist of it? Did you also

testify to the effect that using a vessel, a platform that would float and have a radar unit on it, would be more economical and would still provide valid avian radar data?

A. Yes, I did, and that was also one of the conclusions of the Diehl Report.

Q. Okay.

A. And U.S. Fish and Wildlife.

Q. Okay. That's what I thought you said.

Now, I thought you also said that there were some European studies that had confirmed that placing avian -- an avian radar unit on a vessel, a floating platform, could provide valid data. Did you?

A. So my recollection is I didn't -- I didn't -- I don't believe I said there were studies. I believe what I said was it's been done in Europe for some time and it's an accepted practice to do such studies on floating -- floating vessels.

Q. So you were not testifying that there were studies that exist in Europe to corroborate that an avian radar unit on a floating vessel will provide valid data.

A. Right. That's what I testified. I would say that, you know, what I did testify to is that

it's been used in Europe for some time. What I would add today is, what I also know is part of the German regulatory regime that specifies that vessel-based radar is an acceptable use to such pre-construction sites.

Q. But you're not testifying here -- well, you are not an expert in avian radar, correct?

A. No. We established that yesterday.

Q. Okay. All right. So you're not testifying here today that there exists a study anywhere that confirms that the use of an avian radar unit on a floating vessel provides valid data.

A. Again, I'm not -- I'm not testifying of any specific studies I'm aware of. I'm just testifying of the knowledge of this being used in the European market.

Q. Okay.

A. Yeah.

Q. Now, I think you just repeated to me that Mr. Robert Diehl has confirmed that the use of avian radar on a floating vessel, for this project, will produce valid data regarding bird use of the project site; is that correct?

A. That's my understanding, yes.

Q. Okay.

A. The way I read the report.

MR. STOCK: May I approach the witness?

ALJ WALSTRA: You may.

Q. (By Mr. Stock) Mr. Karpinski, I've handed you what I've marked as Exhibit 6. I know Mr. Jones used this document, I believe, in his cross-examination as well. This is a report, an evaluation that was prepared by Robert Diehl for LEEDCo, correct?

A. Yes.

Q. Okay. LEEDCo paid him to perform these services and present the report, correct?

A. Actually we never -- there was never any fee paid for this report. I would also add that the report says prepared for LEEDCo. It was also done in cooperation with -- with ODNR and U.S. Fish and Wildlife. It was never executed, but the understanding was he was an objective party brought in to help all three parties kind of come to some understanding here.

Q. Well, on the front page, who does it say it was prepared for?

A. It says -- it says Lake Erie Energy Development Corporation. I just testified, though, that there were other factors that -- that -- beyond

what he wrote on the front page of the report.

Q. Yes. I heard what you testified to, but where in this report does it say it was prepared for anybody else?

A. It doesn't say in this report.

Q. Okay. Thank you.

Now, if you take a look at -- well, let's get some background here. Icebreaker was soliciting proposals from vendors to provide a proposed methodology for them to conduct an avian radar study at the project site using a radar unit on a floating vessel, correct?

A. Yes.

Q. Okay. And Mr. Diehl was retained to evaluate those proposals, correct?

A. A portion of his scope was to evaluate the proposal. A portion of his scope was to evaluate the overall concept of vessel-based radar as a viable option for pre-construction sites.

Q. Okay.

A. Part of that, then, involved looking at the specific proposals we solicited, in making some comment and evaluating those.

Q. Okay. All right. And this is his report, correct?

A. Yes.

Q. Are you aware of a different report that he prepared?

A. No.

Q. Okay. Now, I want you to take a look at page 1, the second full paragraph.

It reads here: "Initial examination of these criteria...." And the criteria are mentioned in the first paragraph. I'll read the criteria into the record so we have a full record:

"Among the most important criteria are concern over the ability to gather data on altitude-specific migration traffic rate or density and behavioral response to turbine presence (pre- versus post- construction), and the ability to do so with high reliability while avoiding contamination by clutter, primarily from insects and the lake surface." Did I read that correctly?

A. Yes.

Q. Now, let's go down to paragraph 2.

"Initial examination of these criteria" followed the feel -- "narrowed the field" -- excuse me -- "to two options referred to as VendorA and VendorC (Option 2). For reasons expanded upon below, VendorA proposed the approach most likely to succeed

among vendor responses and other information provided that forms the basis of this evaluation. This should not be taken to mean VendorA's approach is not without concern, particularly over the ability to track targets in an offshore setting where sea clutter will likely pose a persistent problem that is magnified by a rolling and pitching barge."

Did I read that correctly?

A. Yes.

Q. Now, how are persistent -- how is the persistent problem, like sea clutter, magnified by a rolling and pitching barge?

MR. SECREST: Objection, outside the scope.

MR. STOCK: He testified -- he gave his opinion that Mr. Diehl had opined that the use of radar on a floating platform at this site would provide valid data. We are now -- I'm now testing the basis of his knowledge or the foundation for that opinion he rendered under oath.

MR. SECREST: He was questioned about Mr. Diehl's opinion. Now he is being questioned about his opinion as to what can reduce sea clutter and that's outside the scope of his testimony.

ALJ WALSTRA: Overruled.

MR. STOCK: Thank you.

A. So I am not a radar expert. I don't understand the technical aspects of how you -- how you manage sea clutter, insects as well. I think he goes on to say, later, that he suggested numerous approaches that could mitigate some of those concerns.

Q. Well, let's focus right now -- we are going to go paragraph by paragraph, so we'll get to "later." But in this paragraph, you don't know what he's referencing as to why a -- why a persistent problem like sea clutter would be magnified by a rolling and pitching barge, correct?

A. I think you are asking me, I don't know why it's a problem or?

Q. Yeah. Why -- you don't know why a rolling and pitching barge would exacerbate, as he says, magnify problems of sea clutter, right?

A. From my -- my judgment is based on my experience, trying to measure something, and if the base is moving a little bit, it causes issues.

Q. Right.

A. Not that those issues can't be addressed in certain ways, but that's kind of intuitive that that would cause some problems that would be -- that

would be -- introduce variables that aren't in an area where it's not moving.

Q. All right. And can we agree that there's no language in this paragraph of the report that -- in which Mr. Diehl opines that the use of a floating barge by Icebreaker, out at the site, with a radar unit on it, will provide accurate data?

A. In this paragraph, no. But this is a report that has many other aspects. And taking it one paragraph at a time, I wouldn't expect it to be in that paragraph actually.

Q. Okay. All right. The next paragraph reads: "Owing to perceived shortcomings of vendor responses, the report concludes by seeking to identify an approach to address the challenge of monitoring vertebrate behavior in an offshore setting that would increase the likelihood of gathering useful data."

So is it correct that Mr. Diehl found shortcomings in the responses of every vendor?

A. That --

MR. SECREST: Objection, speculation.

A. He recommended -- he recommended.

ALJ WALSTRA: Hold on.

THE WITNESS: Oh, sorry.

ALJ WALSTRA: He can answer if he knows.

A. I think he had recommendations on how to make these better. I think he ranked the vendors, which is a common thing to do in any evaluation. So I think he did his job and evaluated and ranked them as the way he saw their ability to meet the requirements.

Q. Let's turn to page 10. At the top of the page, first paragraph. "As an alternative to construction of a fixed platform, vendors could mount just the radar to a stabilizing gimbal fastened to the barge. Vendors do not advocate such an approach, presumably owing to cost and complexity, and an evaluation of the costs and benefits of adopting this approach is beyond the scope of this evaluation. Motion of the platform will necessarily introduce errors into all movement-based radar metrics." Do you see that?

A. Yes.

Q. Okay. I read that correctly into the record, did I not?

A. Yes.

Q. All right. And the purpose of this radar is to track the movement of birds in the project site, right?

A. Yes.

Q. Okay.

A. But I look at the second half, that you failed to mention, that those biases average out over time, and the principle of this can be corrected, which I think is an important aspect to that whole paragraph taken in total.

Q. All right. Well then, let's read that into the record. I don't want you to think we have an incomplete record here.

"Although these would tend to average out assuming no systematic bias in barge movement, certain observations of individual movements may be more sensitive to barge motion (e.g., the movements of animals in the vicinity of turbines in a post-construction study)." Did I read that correctly?

A. Yes.

Q. "The effects of barge movement on radar-determined animal movement data can in principle be corrected by sampling the three axes of a vessel-mounted gimbal or inertial measurement unit and use those data to adjust target position observations." Is the proposed radar unit going to have a gimbal-mounted inertial measurement unit?

A. It's my understanding the proposed solution is to have some mechanism to measure the inertial movements in the three axes, yes. I don't know exactly what specifically they are proposing.

Q. Page 18. "Advantages." Excuse me, above that. Just above that. "VendorA's response to the RFI was the most thorough of all the vendors and generally addresses the relevant issues (although I was surprised by the large number of minor grammatical errors). VendorA has experience with radar-based monitoring in relation to wind energy but not in offshore settings." Is that correct?

A. That's what that report says, yes.

Q. Do you have any reason to disagree with that?

A. No.

Q. Okay. Page 19, second bullet. "VendorA" -- and VendorA is Accipiter, isn't it?

A. I don't know offhand, sir. I don't recall if that was VendorA or not.

Q. Is Accipiter the chosen vendor?

A. They are the preferred vendor at this point, yes.

Q. Okay. They have not been chosen though?

A. There's been no contract awarded, no.

Q. Okay.

A. No.

Q. So, at this point, there is no vendor who has been contracted by Icebreaker to perform the avian radar study at the project site?

A. No, we have no agreement on what has to be done yet, so it would be -- it would be kind of premature to contract with a vendor at this stage until we have an agreement on the protocol.

Q. Okay. I want to go to bullet point 2. The second bullet point, rather, on page 19.

"VendorA and their equipment are untested operating in offshore environments, so there is the greater risk of otherwise avoidable problems occurring during operation. The vendor addresses many of the known challenges, so the risk is likely relatively minor." Did I read that correctly?

A. Yes.

Q. "The capacity for VendorA to elevate their antenna may reduce clutter but is unlikely to eliminate it sufficient to reliably enable data collection on horizontal and altitudinal movements"; is that correct?

A. That's correct.

Q. All right.

A. I would also add I'm aware those are the same issues you would face on a fixed platform, the waves, as I testified yesterday. Some of the issues are going to be the same on a fixed platform or floating platform.

Q. But you don't render that opinion based upon any expertise with radar, correct?

A. Based on what I understand from reading these reports.

Q. All right. Let's go to his conclusions on page 23. "Far too many unknowns are present to anticipate the outcome of radar work in relation to this project." Do you see that?

A. Yes.

Q. That is not a conclusion by Mr. Diehl that use of a floating vessel with a radar unit on it, at the project site, will provide valid data, correct?

MR. SECREST: Objection, speculation. The document speaks for itself.

ALJ WALSTRA: Overruled.

A. You know, again, that's one sentence in the context of this -- of this 30-page study --

Q. Okay.

A. -- report. So I'm --

Q. It's the first sentence of his conclusion, right?

A. But it's not the only part of his conclusion, sir, yes. But it is the first sentence, I agree.

Q. All right. "Use of a barge" -- the second sentence of his conclusions. "Use of a barge magnifies an already existing problem, that seas will introduce clutter into radar data. I read that correctly, right?

A. Yes, you did.

Q. And as you discussed before, you don't know how the fact that we have a moving barge will magnify those problems, correct?

A. Yes. I don't understand all the dynamics of the technology.

Q. Okay. Now, let's go to page 27.

A. I guess I would like to come back and clarify what I mean about this fixed versus float. On page 25, his report addresses the fact that these sea clutter issues are present on a fixed platform as well. It's in his report on page 25.

Q. Right. Sea clutter will happen with a fixed platform, but he has said, in at least two places, that use of the rolling platform will magnify

that problem, correct?

A. I believe he also said there are ways to compensate for that, adjust for that.

Q. And does he say anywhere that the data that will be produced from an avian radar unit on a floating platform at the project site will provide valid data?

A. He says it's likely that it will produce viable data given the recommendations he's suggesting.

Q. Okay. Where -- okay. Show us where he says that.

ALJ WALSTRA: Let's go off the record.

(Off the record.)

ALJ WALSTRA: We will go back on the record.

A. So on page 24, at the bottom, I think he says that "In sum, VendorA proposes the approach most likely to succeed among the vendor responses...." He says there are still some concerns and he recommends several things that address those concerns.

Q. So that language is the basis for your conclusion that Mr. Diehl has opined that the use of a floating vessel on which the radar will sit at the project site will produce valid data?

A. Yes, that's what he says, that it's likely to produce viable data.

Q. Okay. Let's take a look at the language on page 26, "Alternative Configurations." He says there in the first sentence, does he not, "None of the proposed radar configurations" -- and he is talking about the radar configurations proposed by the vendors -- "is without shortcomings," correct?

A. That's what he says, yes.

Q. "...indeed, it is difficult to envision any reasonable scenario that does not bring some limitation." Did I read that correctly?

A. Yes.

Q. Okay. Then on page 27, under "Adaptable sampling." "None of the vendor options satisfactorily addresses all the challenges such operations face in an offshore context and in other settings as well."

A. Again, you read that well. I would just continue to point out this is a comprehensive study and picking out a sentence at a time is challenging to build a case. The whole report has to be taken in total.

Q. Well, you were rendering an opinion, even though you don't have expertise in avian radar, and I

wanted to -- as to what Mr. Diehl had concluded, and I wanted to test that.

MR. SECREST: Move to strike. Argumentative.

ALJ WALSTRA: Overruled.

Q. Now, page 28, this comment at the bottom of the page, the last sentence precede -- or follows some sampling information that he recommends, that is Mr. Diehl. He says, at the bottom, "I am unaware of any vendors, including those not responding to this RFI, capable of implementing such a strategy in the near term." Did I read that correctly?

A. Yes. Can you clarify what "such a strategy" is referring to? I believe there is quite a bit of discussion above that.

Q. Well, you can read that. It's all under "Adaptive sampling." If you want to take a minute to read it, go ahead.

A. I am agreeing that's what the sentence says, but "such a strategy," I am not sure if there is any other question there beyond verifying that's what the report says.

Q. You can put that aside now.

I want to make sure I understand your testimony further. Did you also tell us that Fish

and Wildlife Service had concurred that the use of a vessel-based radar -- vessel-based avian radar unit floating on the Lake at the project site would produce valid data?

A. I believe that's in the March -- the March letter refers to that.

MR. STOCK: May I approach?

ALJ WALSTRA: You may.

Q. Before we get to the March letter, I've handed you what I've marked as --

ALJ WALSTRA: I believe this has actually already been marked as Staff Exhibit 2.

MR. STOCK: All right. This will be our Exhibit 7.

ALJ WALSTRA: We can keep it Staff Exhibit 2.

MR. STOCK: All right. We can call it whatever you want. That's fine.

ALJ WALSTRA: That's correct.

Q. (By Mr. Stock) Now, are you familiar with this letter?

A. Generally, yes.

Q. Okay. This letter was a direct response to Mr. Diehl's report that we just went over, was it not?

A. Yes, that's the case.

Q. Okay. Mr. Diehl --

"Dear Dr. Diehl:

"Following the U.S. Fish and Wildlife Service's...comments on the Evaluation" -- "Following are" -- excuse me.

"Following are the U.S. Fish and Wildlife Service's...comments on the Evaluation of Icebreaker Wind project vendor proposals for radar-based monitoring of flying animals. We received the draft report on December 14, 2017 and comments were requested by December 20, 2017. Given the short time-frame, this is a summary of our major concerns with the report along with some specific examples." I read that correctly, did I not?

A. Yes, you did.

Q. Let's turn to page 2. The last paragraph, the first sentence. "Chief among our concerns is that the evaluation was limited to options using a non-stable platform. This technique has not been used in a long-duration study...." You have no basis to refute that, do you?

A. No. There's never been an offshore wind farm done in the Lakes that would require such a study, so we are going to be the first ones.

Q. It then reads, further down in the paragraph: "It is likely that any of these systems would perform better on a stable platform, but this option was not considered." Did I read that correctly?

A. Yes, you did. That was -- that was the opinion in the December 2017 letter and later it was modified in the March letter. We didn't agree with that position, but this was their position. We didn't agree with that.

Q. And ODNR and Fish and Wildlife Service had been telling LEEDCo and Icebreaker, since 2008, to place a unit on a fixed platform out at the project site, correct?

A. I don't know about "since 2008." I can say that -- that the initial desire was to place a fixed platform at the project site. We had much discussion about the ramifications of that and the alternatives to that. But the dialogue went on for a long period of time. That dialogue kind of culminated in a case where -- where all three parties were -- could reach a consensus where we all agreed on something and then we agreed to bring in Robb Diehl to render his opinion as an objective kind of outside party. He did that in the Diehl Report.

And we believe that the Diehl Report and our radar experts will testify later that the Diehl Report supported the fact there is a high likelihood -- a likelihood that we can get good data from a floating platform. There are also problems with a fixed platform at the site. We made that case to the Fish and Wildlife Service. In the March letter, they, I think, concurred that it's -- that there's a likelihood we can get good data with a floating platform at the project site.

Q. All right.

A. So it was a long process that evolved, with a lot collaboration with many parties, many discussions, much information back and forth, lots of dialogue that kind of led to this point where we are now.

Q. Well, as of -- as of this December 21, 2017, letter, the Fish and Wildlife Service is not saying they accept any conclusions of the Diehl Report, are they?

A. In this letter as of December 27 -- or December 2017, that's correct.

Q. All right.

A. Again, later, this isn't the end of the story, I would point out, and there was a subsequent

chapter that I think is very important in the March letter.

Q. Oh, we'll get to the March letter. But, right now, I want to talk about this letter. Let's turn to page 3, the carryover paragraph. "The Service is unaware of radar studies that successfully used a floating platform for offshore studies." That's the position the Fish and Wildlife Service took, correct?

A. Yes, that's their position, yes.

Q. Okay. Let's go down to the second, third, fourth paragraph. Third sentence. "All systems proposed by LEEDCo's respondents were engineered for use on land or a stable platform." That's correct, isn't it?

A. I --

MR. SECREST: Objection, speculation.

A. I can't speak to that. I don't know the details of the development of all the vendors' radar systems.

Q. Okay.

MR. STOCK: Can I have a minute? I need to see if I can find -- if I have prepared multiple copies of the March 12 letter.

ALJ WALSTRA: Go ahead. If it helps,

Mr. Stock, I think we have a copy of the letter in the motion to quash.

MR. STOCK: Yeah. That's where I got it actually. I appreciate that. I apologize. I just need a minute to regroup here. If I may approach?

ALJ WALSTRA: You may.

MR. STOCK: And this will be 8? Or 7?

ALJ WALSTRA: I think technically 6.

MR. STOCK: 6, okay. Thank you.

(EXHIBIT MARKED FOR IDENTIFICATION.)

Q. (By Mr. Stock) Mr. Karpinski, have you had a chance to review the letter?

A. Yes.

Q. Okay. You've referenced this letter a couple of times as setting forth, as I understand what you were saying, Fish and Wildlife's acknowledgment that use of an avian radar unit on a floating platform at the project site will produce valid data; is that what you were telling us?

A. Yes.

Q. Okay. What language in the letter says that?

A. "However, both proposals have the potential to contribute meaningfully to migratory bird and bat exposure data for the project."

Q. All right. Well, let's get some context for that. It reads above that: "Accipiter" -- and is that the favored vendor at this point?

A. Yes, yes.

Q. All right. " -- provided LEEDCo with a second proposal that would include placing the radar on a fixed platform, at a water intake crib a few miles offshore." Is that true?

A. That's right.

Q. Okay. When did they make that proposal?

A. It was -- it was sometime after this -- after the December letter, I think. I am really not sure. I would also point out we had proposed putting radar on that crib years ago with ODNR. It was kind of not accepted by ODNR at that time because the requirement was it had to be at the project site and the crib was not at the project site. So this actually kind of comes back to a proposal we made early on that opened the door back up to say, well, maybe that is a viable site to collect this pre-construction data from.

Q. Okay.

A. And that both these proposals, the vessel-based radar and the crib, would offer solutions that were meaningful and contribute to

this, which in my interpretation means collect the data we are all trying to collect, to answer the questions we are all trying to answer.

Q. Okay. So let's read the next sentence. "The Service believes both proposals have trade-offs. (i.e., vessel based at the project site versus fixed platform several miles away) and uncertainties related to data collection and interpretation."

You are not suggesting that their language that both -- that vessel-based radar at the project site having uncertainties related to data collection and interpretation is a conclusion by Fish and Wildlife Service in this letter that, in fact, vessel-based radar will produce valid data, correct?

A. I think they are saying it has the likelihood of producing useful data that can inform this decision and we've -- the questions have been clear for a long time on what the pre-construction radar study is trying to address. I think their statement says these solutions have the likelihood of being able to contribute to this by answering those questions. The way I interpret that to mean is by contributing to this, "contribute meaningfully" means answering these questions.

Q. You are talking about the next sentence.

I am talking about this sentence. Let's -- let's concentrate on this language. I know what you want to tell me, I've heard it a couple of times, but I want to talk about what this sentence says.

"The Service believes both proposals have trade-offs." One of the proposals specifically identified there is "vessel based at the project site." And that's what's being proposed, correct?

A. Yes.

Q. All right. And it says -- what are the tradeoffs? Uncertainties related to data collection and interpretation; is that not correct? Isn't that what the Fish and Wildlife Service said, that there are uncertainties related to data collection and interpretation?

MR. SECREST: Objection. The document speaks for itself.

ALJ WALSTRA: Overruled.

A. That's what the document says. It says there are uncertainties with both.

Q. Okay.

A. I think it's -- you know, there are always tradeoffs and uncertainties in everything that's done in the engineering world, so it's not surprising that they would conclude this is not a

100-percent-guaranteed solution with no risk of any questions or uncertainties. So I think it's very consistent with state-of-the-art engineering principles.

Q. And so then -- and the next sentence, "However, both proposals have the potential to contribute meaningfully to migratory bird and bat exposure data for the project." That sentence is the basis for your conclusion that Fish and Wildlife Service has concluded that the use of vessel-based radar, at the project site will, in fact, produce valid data; is that correct?

A. Yeah. I think it's their opinion. It hasn't been done yet, so they can't say it has contributed meaningfully. I think their opinion is that it can and it has the potential to do so, but they can't say definitively until we actually perform the study and have the results.

Q. Okay. Thank you.

Now, I understood you also to testify on redirect yesterday that one of the benefits of this project is that it would be good for the environment.

A. Yes.

Q. Okay. And I think specifically you said, did you not, it would help to clean the air by

displacing fossil-fuel-fired electricity generation; is that correct?

A. Yes.

Q. Okay. Now, you also acknowledged yesterday, and it's set forth expressly in the PPA, excuse me, Power Purchase Agreement, that wind energy is intermittent, right?

A. Yes. That's -- that's a commonly accepted fact, yes.

Q. Well, sure. When the wind doesn't blow, there is no electricity being produced, right?

A. That's right.

Q. All right. So in the PJM electric grid system, wind energy is not used for baseload energy production, is it?

A. That's correct, yes. It's not considered baseload by definition.

Q. Right.

A. It's not considered baseload.

Q. Now, are you aware that in the PJM system, PJM attributes an average capacity factor to wind-generated electricity of 17.6 percent?

MR. SECREST: Objection, outside the scope and relevance.

MR. STOCK: He was allowed to testify,

over my objection, as to all these flowery benefits that are going to occur, and one of them, he said, was to clean the air. Now we are going to talk about whether or not this project is going to help clean the air. I asked that the testimony not be admitted. It was admitted.

ALJ WALSTRA: Yeah, I believe that door was opened. Go ahead.

MR. STOCK: Thanks.

A. So the question is, am I aware that PJM assigns a capacity factor of 17 percent?

Q. An average capacity factor of 17.6 percent -- 17.6 percent for wind-generated electricity.

A. So my understanding of that -- of that point, Mr. Stock, is that it's not the -- sometimes we talk about capacity factor as the percentage of the -- of the average output of a wind farm to its nameplate capacity and that's not what PJM is referring to there.

What PJM is referring to in that statement is that -- is that they, in their capacity market, which is one of the several markets that PJM operates, where generators can bid in capacity such as a wind farm or a coal plant or nuclear plant, that

they only allow those bidders to bid in, on average, 17 percent of the nameplate capacity of the wind farm. So just a clarification, it's not really the capacity factor of the wind farm. It's the capacity that PJM has determined that they will accept in their market for capacity.

Q. Right. So, hypothetically, if a wind-turbine project connected to the PJM system has a nameplate capacity of 100 megawatts, they'll credit, if you will, on average, a capacity factor of 17.6 megawatts, correct?

A. I wouldn't use that terminology that they would "credit." I would say they would allow you to bid into the capacity market up to that point.

Now, the capacity market functions as a competitive market. Depending on the price you bid, you may or may not be selected into that market.

I would also point out there is a whole other market of the energy. So the actual energy produced by the wind farm is different than this average capacity that PJM has allotted for wind. So, in a given hour, a wind farm could produce 100 percent of its nameplate; another hour, it could produce less.

So the actual energy produced, which is

really where my comments about the healthy environment come in, is that it does produce much, much more than 17 percent of the nameplate, on average.

Q. But, on average, the PJM system will allow an energy -- a wind-turbine energy project to bid in 17.6 percent of its nameplate capacity, correct?

A. So, again, we have to be clear about the two parts of the market. So the capacity market for PJM, that's correct, but the energy market, which is the market where energy that's consumed by users is operated, PJM places no limit up to the nameplate capacity of the wind farm for which it approved the interconnect rights.

So in our case, for example, we are approved for generation capacity. So if we generate that many megawatts in that hour, we can sell those into market. We are not limited to the amount of energy we can sell to the market based on the capacity that PJM assigned. It's two separate markets, I guess, is what I am trying to say.

Q. So are you talking about --

A. They are both PJM markets. They are both PJM competitive markets. One is capacity and one is

energy. They are separate markets with separate pricing, with separate rules, with separate, you know, it's two separate markets.

Q. Well, let's get right to the heart of it. What coal-fired or natural gas-fired generation will this project supplant?

A. I never said it would supplant a specific resource. My comment was to the extent this energy is used, and it offsets other fossil-fuel-powered energy that might not be used in this competitive market, then, to that extent, it's a cleaner energy source that helps -- helps the environment.

I didn't say it cures the environment and it overcomes every other resource. It is an incremental effect that this project will contribute to. That was my -- I believe that's a benefit and that's what clean energy, generally, is attributed to.

Q. Well --

A. Not just this project.

Q. All right. Let's talk about hypothetically there is 100 megawatts of new demand for electricity from the PJM system. And can -- through the PJM system, will wind energy be used by the system to provide baseload supply to that new 100

megawatts?

MR. SECREST: Objection, speculation, relevance.

MS. LEPPLA: Objection, your Honor. I think this is outside the scope of recross -- redirect, I'm sorry.

ALJ WALSTRA: I will let him answer it if he knows.

A. It's a complicated answer. The way the PJM energy market works is you bid in up to a point of what PJM needs for that given hour. So that last incremental 100 megawatts could be filled by a number of resources. And it's really determined by the operation of the competitive market. So it doesn't say that wind would never be consumed. It's a matter of what price did the wind energy source bid into and what other resources bid in in that hour, and where did the market clear based on the demand they had.

The demand, as you know, fluctuates over time, and the -- the generators bidding into the market make decisions on what price to offer in those time periods, and the market then clears based on the competitive nature.

So -- so it's a -- I testified that yes, wind, by definition, meaning that because it's an

inert resource, it's not considered baseload, but that doesn't mean it's not selected in the competitive market for generation in any particular point in time.

Q. So when wind -- the wind is not flowing, how much energy will this project supply or could this project supply to that --

A. That's pretty simple answer. If the wind is not blowing, it doesn't generate any.

Q. Right.

A. I would say on average, over the period of a year, our studies show for this particular wind farm there is a capacity factor that we've included in our reports on how much energy we generate relative to the nameplate capacity.

Q. And what's that factor?

A. It's in the 41-point-something percent, I believe, I don't remember exactly offhand.

Q. So 59 percent of the time it wouldn't be producing electricity; is that what you are saying?

A. No, that's not quite right. It's more subtle than that. It doesn't mean that it's either on or off at 100-percent capacity. As you know, the wind doesn't always blow with the same intensity.

Q. Right.

A. So the output of the wind farm varies with the intensity of the wind. So what I am saying, the capacity factor is an annual average that says, over this period of time, the average output, as a ratio of the possible 100-percent output, is the capacity factor.

I would also point out all the generation sources, you know, have a nameplate capacity and an actual output over time that's less than the nameplate capacity for a number of reasons. For the case of wind, it's because you can't always count on the wind blowing. In the case of other sources, there are other reasons for the actual output to be less than the nameplate.

Q. What's the capacity factor for natural gas-fired?

A. You know, I don't really do a lot of work in the natural gas industry. I don't really -- I don't know what that is, sir.

Q. What's the capacity factor for coal-fired?

A. Again, I don't study the capacity factor of coal plants.

Q. Okay. Let's move on to another aspect of your testimony. As Mr. Jones got into, your -- your

report -- excuse me, your testimony repeatedly references this project being unfinanceable.

A. Well, I guess I clarified the three conditions that I cite, in my opinion, render the project unfinanceable. The project inherently is not unfinanceable; it's those three conditions.

Q. Right, right. Excuse me. Right. Thank you.

Now -- and on redirect, Mr. Secrest got into testimony from you as to the basis upon which you are qualified to make those opinions. Do you remember that?

A. Yes.

Q. Okay. Now, the Staff Report, have you ever taken that to a bank and asked whether or not the bank would be willing to finance this project, if Icebreaker were subject to the conditions of the Staff Report?

A. As I testified yesterday, my opinion is based on my knowledge of -- over many years, prior to LEEDCo and with LEEDCo, how I gained that expertise. No one -- it would be inappropriate -- I have never heard of any project that would take a report like this to a bank to request financing and get an opinion. So it's very premature.

My opinion is based on, as I testified yesterday, numerous discussions with lenders over time, attendance of conferences where these topics are addressed, engagement of two financial advisors over the time at LEEDCo, which provided advice of counsel, and discussions with our investors who --

Q. Excuse me. I don't mean to interrupt, but we are going on and on. I asked a simple question. Did you take this to a bank and have them review the conditions and ask them if the conditions would prohibit financing of the project?

A. And I believe I answered that and said no.

Q. Okay. All right. That's all I'm looking for. The Stipulation, have you taken that to a bank and shown them the conditions in the Stipulation, and asked them whether or not they would be willing to finance the project if these conditions proposed in the Stipulation were entered into?

A. Again, for the same reasons I mentioned for the Staff Report, that would be inappropriate and not a good thing. So no, I did not take that Staff Report --

Q. Okay. All right. Thank you. That's what I was looking for. Let's go to the Stipulation,

paragraph 18.

A. Okay.

Q. And I don't -- correct me if this is a mischaracterization, but I understood your testimony on redirect to be that paragraph 18 in the Stipulation --

ALJ WALSTRA: Do you mean Condition 18?

MR. STOCK: Condition, excuse me, yes, Condition 18.

Q. And the Stipulation is substantively the same as Condition 18 in the Staff Report, with minor changes.

A. Yes, I believe my testimony was the change -- was this confirmed compliance for this condition that conforms this language with other certificates.

Q. Okay. Do you have both the Stipulation and the Staff Report there?

A. Yes.

Q. Okay. And let's take a look at Condition 18 in both of them. Ready?

A. Yes.

Q. Okay. We're in the Stipulation. At least 60 days prior to commencement of construction, the Applicant shall submit an avian and bat impact

migration plan which incorporates the most current survey results and post-construction avian and bat monitoring plan to the ODNR and Staff for review to confirm compliance. I read that correctly?

A. Yes.

MR. SECREST: I'll note an objection. It states "mitigation" as opposed to "migration" in the document.

MR. STOCK: Thank you. Can we --

MR. SECREST: I don't think you have to reread it again.

MR. STOCK: We'll stipulate it reads "mitigation."

A. Another thing I'll point out, Mr. Stock, is you didn't finish the sentence. You kind of stopped before the end of the sentence.

Q. You can read the rest of it into the record.

A. Okay. "...confirm compliance with this condition that implementation of the plans would be effective in avoiding significant impacts to avian and bat species."

Q. Okay. Here's what I want to get to is the change that Icebreaker has made in that sentence and that is if you look at the Staff Report, it

reads: "...which incorporates the most current survey results and post-construction avian and bat monitoring plan to the ODNR and Staff for review" that follows your language, but then says "and acceptance." You took away the authority for ODNR or the requirement that there be acceptance of the plan, correct?

A. No, we did not. We just replaced it with the language that says "confirm compliance." So my understanding is that we submit this plan, and they have to confirm that the plan we submit addresses this condition and complies with that condition. So they have to accept it, they have to review it, they have to agree that it addresses this condition. I can't submit a plan that says I'm going to go out and, you know, fish on my boat for a week and call that post-construction monitoring. So they have to -- we didn't take away any authority.

In fact, my understanding is that this -- the way this is worded makes it consistent with the similar wording in other certificates issued by the Ohio Power Siting Board, and that was the reason why we proposed this, to keep it consistent with past practice. But it doesn't take away any authority, that I see, Mr. Stock.

Q. It took out the term "acceptance," didn't it?

A. And replaced it with "confirm compliance." So ODNR and Staff have to confirm compliance.

Q. It says --

A. How would they confirm compliance --

Q. "...for review to confirm compliance." But it doesn't require any acceptance, right?

MR. SECREST: Asked and answered.

ALJ WALSTRA: Overruled.

A. So "confirm compliance" is a -- is a process where ODNR has to review this and render an opinion that, yes, this document we submitted does comply with this condition. I think that's an approval and acceptance. I think there are a lot of words that could be used. This is the word that was in other certificates that we chose to seek to make this consistent.

Q. And you took out "acceptance."

A. Replaced it with "confirm compliance" which I think takes no authority away from ODNR and Staff at all.

Q. Okay.

A. If they confirm compliance, is that not

a -- an acceptance of the plans?

Q. If you are asking me, I don't see any requirement in there that they accept it.

MS. LEPPLA: Objection, your Honor.

MR. STOCK: He asked me a question.

MS. LEPPLA: He's testifying.

MR. STOCK: I'll answer it.

ALJ WALSTRA: Granted.

Q. (By Mr. Stock) Now, let's look at the last sentence. "Any proposed modifications to the plans shall be submitted to the ODNR and Staff for review to confirm...." It says what they'll do is they will review, right?

A. That's one part of it.

Q. All right.

A. That's one part. The other part is confirm compliance.

Q. It tells you what the purpose of their review is, right? They are to review it to confirm compliance. But you took out, again, acceptance.

A. Again, we just covered this. It's the same comment there that confirming compliance -- I guess I can't imagine a case where ODNR and Staff would confirm we complied with this condition if they didn't accept the plan. I don't -- I don't think

they would do that. You know, it doesn't make any sense to me that they would say, "Yes, you complied with this condition but we don't accept your plan. We think your plan is not valid, we think it's inadequate, we think it doesn't address these things, but we are going to confirm you complied with this condition."

Our understanding is we have to submit a viable condition that they look at and agree addresses all the requirements of the condition. And when we do that, they will confirm, they have to confirm that we did so. We don't meet that condition unless they confirm it.

And further, if we don't meet this condition, my understanding is we're not in compliance with this condition. And I testified yesterday that I believe there is enforcement action that the Ohio Power Siting Board and Staff could bring if we are not in compliance. They are in control of confirming this compliance.

Q. Let me know when you are done so I can ask another question.

A. I just answered the question, sir.

Q. Yeah, that's one person's opinion.

Condition 19, I believe, and I want to

make sure I understand this, that you testified on recross-examination that under paragraph -- excuse me, Condition 19. ODNR -- excuse me -- Icebreaker operating before there has been approval of the post-construction avian and bat collision monitoring plan -- and I am talking about Condition 19 in the Stipulation just to make sure you understand. That while -- or if Icebreaker were operating and there had not yet been approval by ODNR of the post-construction avian and bat collision monitoring plan, that Icebreaker could not operate under that set of circumstances in perpetuity, I believe is the term you used.

A. Yes.

Q. Do you recall that?

A. Yes.

Q. Where is there a time limit, in Condition 19 of your Stipulation, as to how long Icebreaker could operate under that condition?

A. Again, as I testified yesterday, this -- this -- all these conditions in total make up the requirements under which the certificate will be issued. We are required to comply with all of them. And if we don't comply with them, then the Board and Staff have the recourse to bring enforcement action

and that enforcement action includes due process before the Board.

So if we do not -- if we do not provide a plan that's confirmed to be "compliant" in our language -- your language was "approved" -- it's not confirmed to be compliant, then we are not in compliance with this condition.

So, at some point, it's up to -- it's up to ODNR and Staff to determine when they decide to take that enforcement action, but that's their discretion, not ours. We don't have any limitations on that. If we don't produce a plan that they confirm to be compliant, they could find that we're not complying with the conditions of the certificate and they could take enforcement action. It doesn't say each condition. That's an overarching framework of what I understand the certificate to embody and the authority of the Ohio Power Siting Board.

Q. So while this enforcement action is being prosecuted to prohibit operation, is Icebreaker still operating?

MR. SECREST: Objection, speculation, and calls for a legal conclusion.

ALJ WALSTRA: He can answer if he knows.

A. I think the way I understand the

enforcement action, they could bring injunctive relief to be effective immediately if they chose to. And again, there is a due process that they would have to be before some body that would have to grant that.

Q. And by "due process," you mean Icebreaker could oppose the enforcement action, right?

A. We could represent our interest, absolutely, and I think that's very appropriate.

Q. Right.

A. Unilateral authority from Staff -- the Board is who has the authority here to issue the certificate. So the Staff's unilateral authority to make these decisions, I think it's appropriate that there's due process under the Board who has the ultimate authority here to issue the certificate or not.

Q. So Icebreaker is operating under this condition where ODNR has not approved the post-construction avian and bat collision monitoring plan, and unless and until ODNR were to get an injunction to prohibit Icebreaker from operating, Icebreaker could continue to operate under this condition.

A. Again, it's up -- it's up to the Staff

and ODNR to determine when they might bring that action. If they don't believe we have a viable or compliant plan, then I think they would assess when it was appropriate to bring that action. And I would think it would be -- it would be dependent upon the severity of what's happening.

I would also point out there are many other conditions that I testified to yesterday as well, that have mitigation measures and adaptive management strategies that will be agreed upon before construction that, under certain cases that are defined ahead of time, certain actions will be taken that will -- that are intended to minimize impacts.

So you're painting a scenario where nothing is going to be happening, and I just wanted to clarify there are many other provisions in this -- in the conditions of the certificate, and the plans that are embodied in these conditions, that represent significant work that's been, you know, the result of collaboration of many years with ODNR, all intended to put in place measures that protect wildlife.

Q. I think I understood the beginning of your answer. I didn't ask about any other provisions, but thank you.

MR. STOCK: Those are all the questions I

have on recross.

ALJ WALSTRA: Thank you.

Mr. Jones?

MR. JONES: Thank you, your Honor.

ALJ WALSTRA: If you could turn your mic on too.

MR. JONES: Oh, sure.

ALJ WALSTRA: Thank you.

- - -

RECROSS-EXAMINATION

By Mr. Jones:

Q. Good morning, Mr. Karpinski.

A. Good morning, Mr. Jones.

Q. I have a few questions for you.

Would you agree with me that there is a heightened and significant risk to birds and bats flying through the project site during spring and fall migration? At night?

A. I would.

MR. SECREST: Objection. This is outside the scope of his redirect.

MR. JONES: I'm sorry, your Honor. It's not. They rehashed all the conditions in their redirect. He gave him broad authority. They have all that testimony. They --

ALJ WALSTRA: Overruled.

MR. JONES: -- rehashed all the conditions again.

ALJ WALSTRA: Go ahead.

MR. JONES: Thank you.

A. I would say there is increased bird activity in the area, and what our wildlife experts will testify to later is that doesn't equate to necessarily increased risk. So I would agree there is increased activity, but I wouldn't agree there is increased risk.

Q. So if you have increased activity, you don't have increased risk?

A. Again, our wildlife experts will testify to that later and explain -- explain that but, yes.

Q. So -- all right. So you're saying during the migratory season, spring and fall, at nighttime, outside the peak times, there's no heightened risk to those other times outside the peak times?

MR. SECREST: Objection, your Honor. This is outside the scope of his testimony. He just indicated that there are other experts who will testify to these issues.

MR. JONES: Your Honor, he's testified on these conditions too. He's made himself the expert

on these conditions too. He's got opinions and everything. I think it's reasonable.

ALJ WALSTRA: He can answer.

A. Based on my understanding and as will be elaborated on by our wildlife experts, that exposure does not equate to risk. There are other factors to risk. And we will get into that in a lot more detail than I am qualified to do here. So I am sharing what I know based on my discussions with our wildlife experts.

Q. Now, at this time, the Applicant has not identified a proven collision-monitoring technology, and one may not be available until an undetermined point in the future, correct?

A. We have not selected -- we have not selected a collision-monitoring detection technology, yes, I agree with that. There are technologies available now and we expect them to get better, and there may be other solutions that may evolve before the time we need to select. So I wouldn't agree with the second part of that, I guess.

Q. And Stipulation Condition 18 would allow construction of the turbines, the six turbines, with or without an approved collision-monitoring protocol, correct?

A. As would -- as would Staff Condition 18, yes. Staff Condition 18 is essentially the same in that matter.

Q. And do you agree that for Staff Condition 19, this allows for that flexibility, to be able to construct and -- and -- go ahead and construct, knowing because -- because Staff's Condition, it minimizes those impacts to birds and bats at nighttime, during spring and fall migration, and not just at peak times, correct?

A. So I am not sure what your question is. I think you asked if Staff Condition 19 allows for the project to be built before there is an approved collision monitoring plan. Yes. And so does Stipulation Condition 19.

So they both allow for the possibility that we could construct the project before the collision monitoring plan. Again, I testified yesterday, the plan, we understand it to be more than just words about what we are going to do later, to a demonstration that the technology has been proven to actually work and detect collisions.

So my understanding is both these -- both Staff and -- and Stipulation Condition 19 allow for the project to be built before that's been proven to

ODNR and Staff.

Q. But what's your understanding of Staff Condition 19 as to giving the Applicant that flexibility and not requiring them -- not requiring that the post collision monitoring plan not be approved prior to construction.

A. What's my understanding of that?

Q. Of Staff Condition 19.

A. Just as you said, it allows for the project to be built before the -- before Staff and ODNR accept the collision-monitoring technology.

Q. Well, isn't it true that that flexibility that Staff provides, you know, for 19, in not requiring that post collision monitoring plan to be approved prior to construction is because they provide protection for the entire migratory season times and not just the peak season times?

MR. SECREST: Objection, speculation.

ALJ WALSTRA: Overruled.

A. So my understanding is -- is that the Staff and ODNR wanted to allow for the fact that they may not be able to come to a conclusive decision, before construction, that the technology is operating and is proven to be effective. So they allowed for this possibility that we could go into construction

and you may want -- "you" being -- I'm sorry -- ODNR and Staff may want to see it demonstrated on the actual turbines of this project, so it allows for that possibility.

I'll go back and say, you know, reviewing our discussion yesterday, that there are many protections afforded to wildlife, through many conditions in here, referenced in many of these plans. And the sole set of protection of wildlife is not limited to the feathering condition in Staff and Stipulation Condition 19.

Q. But the difference between Stipulation Condition 19 and Staff Condition 19, Staff Condition 19, would you agree, is broader in terms of providing protection during the entire migratory spring and fall seasons; isn't that correct?

MR. SECREST: Objection to the characterization of "broader."

ALJ WALSTRA: He can clarify.

A. So the differences are -- there are other differences beyond the curtailment. The main difference and the reason we proposed an alternative is the, what we believe, unnecessary restriction on operation that made the project unfinanceable.

So we believe that there are protections

for wildlife in place in Stipulation Condition 19 that ensure minimum adverse impact. We believe that the conditions in Staff Condition 19 are necessary to ensure protection and minimum adverse impact. And by the way, the condition -- Staff Condition 19 have a very consequential impact of making the project unfinanceable.

MR. JONES: Your Honor, I move to strike the entire answerer. It was not responsive to my question. My question is very simple and very narrow as to doesn't Staff Condition 19 provide broader protection than Stipulation Condition 19, because Staff Condition 19 covers the entire migratory season, spring and fall, for birds and bats. That was the question. He didn't answer it.

ALJ WALSTRA: I will deny the motion to strike.

MR. JONES: I would ask the Bench to direct the witness to answer the question.

ALJ WALSTRA: If you have a clarifying question, you can ask that. I think you both -- he danced around it, but I think he was trying to answer.

Q. Would you agree that Staff Condition 19 provides a broader protection for birds and bats

during the migratory season, spring and fall, than Stipulation Condition 19?

A. I would agree that Staff Condition 19 requires curtailment for a longer time than Stipulation Condition 19.

Q. And because it provides further curtailment, it provides further protection, correct?

MR. SECREST: Objection. This is outside the scope again, your Honor.

ALJ WALSTRA: Overruled.

A. I suppose that if the turbine is never operated, that's more protection as well, but that's not feasible.

Q. Thank you.

On page 21 of your testimony, which let me know when you get there.

A. Okay.

Q. You say that -- on page 21 of your testimony you say, in several places here, and I'll just pick one here, you said, line 21, that the Staff Report lacks any definition of "wild animals" in Staff Report Condition 24; is that correct?

A. Yes.

Q. And you did testify yesterday that you had read the testimony of Erin Hazelton?

A. Yes.

Q. And Ms. Hazelton's testimony was filed after your testimony?

A. No -- oh, yes, after. Mine was filed first.

Q. Yeah. So -- and didn't she then testify in her -- provide testimony that the definition of "wild animals" would primarily focus, at the project site, on birds, bats, and aquatic species? Do you remember reading that in her testimony?

A. I remember reading that and it said "primarily" which means it's not solely. She didn't say it's only -- that it's limited to birds and bats and fish. She said "primarily." So the question I would have is what's secondarily and tertiary, would be considerations, so she did limit the scope. She just stated the primary focus would be birds and bats and fish.

Q. And she also stated in her testimony that ODNR, Division of Wildlife, they are delegated the responsibility to protect all wild animals in the State because they're held in trust for the benefit of all the people? Do you recall that testimony?

A. I recall that in her testimony, yes.

Q. Do you have any reason to dispute that

testimony?

A. I don't have any reason to dispute her statement about the responsibility to protect wild animals, in the state law, no. I would say what does protection involve? And clearly there is a wide array. We believe the wild animals, the birds, bats, and fish are protected in our -- in our proposals and in the plans that are embodied in the conditions.

Q. Okay. And further -- let's see here, on page 13 of your testimony. Let me know when you are there.

A. I'm there.

Q. Okay. You testified, on lines 19 and 20, "it appears the regulator has an indefinite and unlimited amount of time in which to approve the collision monitoring plan." Do you see that?

A. Yes.

Q. Well, let's walk through that for a second. When -- when do you expect construction to begin?

A. We -- at this point we expect construction to begin in the summer of 2021.

Q. Summer of 2021?

A. Yes.

Q. And how long do you expect that

construction to take place before it's built?

A. The construction activities are approximately -- approximately three months.

Q. So then, by the fall of 2021, the project will be built?

A. The project will be built. There's some time for testing and commissioning, and by the end of 2021 it would be operational is what I would say.

Q. So you would have, between now and the fall of 2021, to demonstrate that your collision monitoring plan is sufficient to ODNR and Staff, right?

A. That's our intent is to demonstrate it before we go to construction, yes.

Q. I mean, that's a reasonable amount of time, isn't it, for you to be able to demonstrate that?

A. My testimony referred to there's no guarantee on the other side, on the criteria that ODNR and Staff would use and how long they might take to evaluate it; not how long we would have to be able to present it to ODNR and Staff.

Q. But if you could start that testing today, right, you could do the testing today, in a lab, at another project site, that could begin --

that would begin today, right?

A. We've started the evaluation process, sir, yes, and there's -- there's a process of evaluating what the best solution is and that will lead into testing, and we intend to continue that process, leading to the selection of a -- of a technology and appropriate testing to make the case, to ODNR and Staff, that it is effective.

Q. And let me jump back here. Let me go back to Staff Recommendation 24. I believe we're -- your criticism of Staff Condition 24 would be that -- that you're saying that when you're -- when Staff would prescribe something to account for the significant adverse impact, you're saying that they would go to the extreme, they could shut you down; is that correct?

A. I'm not saying they would, Mr. Jones. I am saying that the language, as it's written, has no limits. So when assessing the risk of what could be done, it could be anything. It could be shutting down. I mean, you've already proposed, in Staff Issue 19, not operating the turbines for 10 months. So it's already on the table. So, clearly, that could be -- that could be one of the actions that could be extended even further.

The objection was there is no limitation and there is no guidelines to how it would be -- how it would be administered and we -- and I have assessed that the risk, in trying to secure financing in that sense, the risk to the revenue stream is unacceptable and would prevent us from being able to get bank loans and financing.

Q. And you didn't have the benefit of Mr. Hazelton's testimony because you filed before her, but do you recall in her testimony she addressed this issue by saying "ODNR and OPSB Staff envision an incremental system to be used for the mitigation/adaptive management, with the selective mitigation being a proportional response, and only as restricted as is necessary to alleviate the significant adverse impact." Do you recall that testimony?

A. I recall reading that. As I said, my testimony was filed before hers as well. And there is no change to the -- that language in her testimony wasn't offered as a change to the Staff condition language. So although it's a good intent, we can't depend upon that in terms of assessing what the Staff might do. I accept her opinion if that's what her intent is at this time, but there may be other people

in place at that time. So the language doesn't say they are limited to that and that's what they will do. It says that's our -- that's what we envision. But the language still remains, as prescribed, with the limitation.

Q. So you don't think they will do that?

A. Sorry. I just testified I don't -- I am not saying I don't believe they wouldn't do that. I'm saying the language leaves open this risk that they could do much more. They are not saying they won't do much more. They're saying they envision this. So it's a softening -- I don't -- it's not that I don't believe them that that's not what they think now, but the language in the condition says something different.

Q. So -- okay. So you disagree. But if you were to assume that were true, say that testimony were true and they would honor that, then it would be very unlikely that there would be a scenario where a complete shutdown would be necessary, correct?

MR. SECREST: Objection, speculation.

A. I don't know.

ALJ WALSTRA: I'll sustain.

Q. Stipulation Condition 19 talks about feathering at nighttime, for 30 minutes prior to

sunset, to 30 minutes after sunrise, during peak spring and fall migration periods when cloud ceilings are low. Do you remember that for Condition 19?

A. Yes.

Q. Would you agree that birds and bats still migrate when cloud ceilings are not low?

A. That's my understanding that they do. In fact, that's the majority of the time they migrate. I would also -- it's my understanding that when that condition exists, they are typically flying much higher than the turbines.

Q. So Stipulation Condition 19 will not protect migratory birds and bats when cloud ceilings are not low, by feathering, right? Because there is not going to be feathering during those times.

A. Yeah. As I said before, the Staff Condition 19 is not the only protection for migratory birds. I mean, we can go back to the fact that it's cited, where it's cited it's a protection for migratory birds. The fact that we are so far offshore is a protection of migratory birds. The monitoring we are going to do to characterize this is a protection of migratory birds. So I guess I don't agree that the only protection for migratory birds is in the curtailment provisions and Condition 19.

Q. But for purposes of my question, I want you to stay with 19. Not anything else, but just 19. As pertains to Stipulation Condition 19, as it's written, it will not protect migratory birds and bats when cloud ceilings are not low; is that correct?

A. Again, what I could say is it will not -- that Stipulation Condition 19 --

Q. Yes.

A. -- will curtail only under certain conditions. Staff Condition 19 requires curtailment over a much longer period.

Q. On page 15 of your testimony, you talk about the barge operator, correct? Let me know when you're there.

A. Okay. I'm there.

Q. I'm sorry, that would be page 17. 17 is the barge operator.

A. Okay, yes. There is testimony about the barge, yes.

Q. And so, when you look at Stipulation Condition 22(c), and the barge operator would be responsible here for determining heavy precipitation in high sea events for making an exception to the 80-percent standard, where is he going to be when he -- to get that information? Is he going to be on

the barge or is he going to be somewhere else?

A. No. The plan is the barge would not be manned. We've confirmed that with the Coast Guard. It's not required to be manned. So the barge operator will be using -- will be, you know, in some remote area, using, as I testified to yesterday, the various forecasts and weather data that he has access to.

Q. So is he at some operations center or something, on land, at the port?

A. Not necessarily at the port. The barge operator doesn't necessarily have an office at the port. It doesn't matter where he is located. The tools for assessing the current weather and forecasts are all electronically available. So they typically have operation centers.

I also testified yesterday that we haven't chosen a specific operator. So they have different modes of operation, but they all have a function to monitor. And you can imagine, in every operation that they are out in the water, this is a concern to be able to understand and be aware of the weather conditions; so they have practices in place for that.

Q. So is the barge operator a full-time

employee of the Applicant?

A. No. I testified the barge operator is someone we are going to contract with. So we are going to enter into an engagement where we charter the barge for purpose of the study. So he's not an employee of the Applicant.

Q. So he doesn't necessarily have to be anywhere near the site; is that correct?

A. That's right. He has to have access to the data that he needs to make the decisions, but that doesn't require him to be at the site.

Q. So he's going to have to check his computer, every hour, to see what the conditions are?

MR. SECREST: Objection, speculation.

ALJ WALSTRA: Overruled.

A. He's going to have to check the weather forecast in the means he does today, sir. This is not a -- I guess what I would say is this is not a unique condition of deploying a vessel in a marine environment. So there are practices in place, I can't testify to the details of all those practices, but I do know they are in place and that -- and that would be his responsibility, the barge operator's responsibility.

Q. And so -- okay. So he's supposed to

determine heavy precipitation in combination with high seas events; is that correct?

A. What I testified to is he is supposed to determine the conditions that render the operation unsafe and mandate that it will be -- that the barge be taken back to the shore. Those are factors. If the current high seas and current precipitation are the factors of the forecast of what might be coming, and there might be others that I am not aware of, but he's making a decision on the safety of the deployment, not -- he is not just saying are there high seas and precipitation.

The assessment, as I understand it, is on the safety of the -- of the deployment and what are the conditions that are -- that are present and forecasted to be present. In his judgment, based on his experience, he makes the decision whether to pull the barge in or leave it in place.

Q. And he is making that decision from looking at a screen?

A. Sir, he is making that decision by evaluating information available to him. It's done -- it's done all the time. So, you know.

Q. And so, who -- what is that formula then, that he would then determine the barge has to come

off --

A. Sir --

Q. -- when you are looking at heavy precipitation, high seas, and winds?

A. I testified that it is not a black-and-white formula. It's a judgment. And he weighs many factors based on the experience of their operations. One, are the conditions such that it's unsafe to leave the barge where it's deployed. It's not a black-and-white formula that -- that he enters in and out comes the result. It's based on professional judgment of the barge operator.

Q. And so, it would be up to whoever the operator is here, as to what the definition of heavy precipitation is?

A. No, sir. It wouldn't be up to his definition of heavy precipitation. It would be up to his definition what are safe conditions and unsafe conditions.

Q. Well, how do you define "heavy precipitation"?

MR. SECREST: Let me just note an objection. Misstates the testimony. The page he's referring to refers to "high seas."

ALJ WALSTRA: I'll allow the question.

A. You are asking me how I define "precipitation"?

Q. Yeah. You are covering Stipulation Condition 22(c), aren't you?

A. I am just confused. You are asking about the barge operator, how they would determine things. Now you are asking how I would determine?

Q. Yeah.

A. So I would interpret "heavy precipitation," as I testified yesterday, the steady, consistent fall of rain. And I would also clarify, sir, that the -- that the -- the heavy precipitation doesn't necessarily mean the barge has to be removed. The testimony was heavy precipitation may cause the data that's collected by the radar to not be viable. So we never said that the barge has to be removed in every condition of heavy precipitation.

Q. And so -- all right. So let's say he is looking at whatever data, and he determines, okay, I got to go out there and remove this barge. So what would he have to do to prepare to go out there and remove the barge?

A. He has to commission a tugboat that he has available. And there are several tugboats, available in the Cleveland harbor, operated by a

company. He could also choose to have his own tugboat available for deployment. The tugboat has to travel out to the project site. It's 8 miles away from the Port of Cleveland. They have to pull up the anchors and affix the towing rig and tow the barge to the harbor.

Q. So you would agree then, that the time involved as far as commissioning a tugboat, or him taking his own tugboat, going 8 to 10 miles out to the project site, lifting up the anchors and bringing this thing back in, I mean, that sounds like it would take a day to do that. Does that sound right?

A. Actually, in my experience, it's not. It's less than a day. I testified, yesterday, I had experience with a barge for a geotechnical investigation. It's a few hours out to the site. And, you know, lifting up the anchors, depending on the barge and the facilities, is -- could be a few hours.

Q. And so, it could very well be that by the time he gets prepared and gets out there and gets to the site, the high seas event could have dissipated, the heavy precipitation could have dissipated. Can he then just call an audible at the scene and say, "Hey, guess what. I am going to keep the barge out

here." He could do that, couldn't he?

A. He could, yeah. But I would say, based on the forecast, that if he -- if the forecast was it was a short-term event, then, in my opinion, the judgment could likely be that okay, we can withstand this short-term event. It's the long-term exposure that he might send.

So I guess in that scenario that you are presenting that you are asking me to speculate on, I would say in that case he probably would not have commissioned the tug to go collect the barge anyway if it was such a short-term event.

Again, I also said the precipitation itself is not a condition that would require -- that would render the operation unsafe. It's the -- it's not just the precipitation. It's the high seas, the winds, and all the other factors that he would consider.

Q. You would agree with me, at any time he would then be making that judgment, it would take him a half a day to get out to the site; is that correct?

A. No. I think I included that in my testimony that although the period that the waves exceed this point, the time the barge would be at the project site may be longer because of those

conditions.

I also would say that there could be times, because of what I just described, that the forecast of how long this condition is going to last, it could be that he deems that although the waves are slightly over 6 feet, he deems it safe to remain there because of other factors.

So what I testified to was the data that we have says that 8 percent of the time the waves are above 6 feet. I also testified that doesn't necessarily equate to the exact amount of time the barge will be or won't be at the project site.

Q. At what point is the vessel-based radar not a viable option?

A. What do you mean "at what point"?

Q. Yeah. As to the quality of the data that you are getting from the radar attached to the vessel-based radar.

A. I'm going to defer to our radar expert who can go into depth about viable data and the necessary amount of data to draw the conclusions that we are -- try to answer the questions we are trying to answer.

Q. So you don't know, like, from -- for the time that the barge will be out there, and how long

do you -- how long is the barge going to be out there doing the surveys?

A. The entire migratory period. Again, I would have to look back, but I think it's April to mid-June, and August to mid-November.

Q. And so, it's the Applicant's position then, that having covered those -- covered the whole season, spring and fall, and that you only have, say, something less than 50 percent, say you even have 20-percent quality data, you think that you should not have to repeat that season?

MR. SECREST: Objection. This is outside the scope of redirect and outside the scope of his testimony.

ALJ WALSTRA: Overruled.

A. Again, I'll defer to the radar expert. I believe that it's necessary to collect the amount of data necessary to adequately answer the questions. I don't know what that number is. And I don't believe there is a hard number that says below this, it's bad; above that, it's good. There's many other factors and our radar expert will testify to that later on.

Q. But you're the one giving the opinion on minimum adverse environmental impact on 22(c),

Stipulation 22(c); is that correct?

A. I am giving an opinion. He'll give an opinion also. My opinion isn't based on the pre-construction radar level of data collection; it's based on the conclusion of low risk that comes from many, many sources. And you will hear, later, that some of those sources are actual fatalities in other wind projects in the vicinity.

Q. And having quality data is not important to minimum adverse?

A. Having quality data is important. Its importance is relative to what you are speaking about. Is it the risk assessment? Is it the construction data? Having sufficient data is important. And that definition varies based on what we are talking about here. If you are talking specifically about the pre-construction radar, then, again, I'll defer to our radar expert.

But the conclusion -- our opinion and my opinion of "we meet minimum adverse impact" is not based on a pre-construction radar study. It's based on a multitude of other data that you will hear from our wildlife experts in detail that we come to the conclusion -- they come to the conclusion, and I understand and support it, that this project

represents low risk.

Q. Is the barge just for pre-construction surveys?

A. Actually, there's -- that issue is still -- we are -- as we've been working with ODNR and Staff on the protocol, that detail hasn't been determined yet. Again, we are endeavoring to agree upon the radar protocol, and we haven't yet, as you know, as evidenced in these conditions. So the options are to put it on a vessel or put it on the turbine platforms. And there's discussion, on both sides, that make a case for why you want to do either case, but the final decision hasn't been made yet.

MR. JONES: I have no other questions, your Honor.

ALJ WALSTRA: Thank you.

Ms. Leppla?

MS. LEPPLA: No questions.

ALJ ADDISON: I just had a few questions, sir.

THE WITNESS: Oh, okay.

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EXAMINATION

By ALJ Addison:

Q. On page 15 of your testimony, just let me

know when you're there.

A. Okay. I'm there.

Q. And I believe we've had an extensive discussion, I believe it was with Mr. Jones, regarding your two concerns of heavy precipitation and high seas with regard to the Staff Report Condition 22(c); is that correct?

A. Yes.

Q. Is it safe to assume heavy precipitation and high seas would at least be somewhat correlated with one another?

A. Not necessarily. I mean, high seas can be brought about by high winds. Oftentimes in a storm, when there is heavy precipitation as a result of a storm, that creates high winds which creates high seas. So it's not necessarily always true.

Q. Okay. But you haven't provided any information as to what -- if any type of correlation factor applies to those.

A. That's correct. I haven't provided any testimony, and I don't have an opinion today on that.

Q. Okay. Thank you.

And then just a follow-up with Mr. Jones' questioning just now as to the 80-percent requirement also in 22(c). You are not proposing any minimum

threshold --

A. That's correct.

Q. -- compared to that 80 percent, correct?

A. That's correct.

Q. And if you would turn, Mr. Karpinski, to page 21 of your testimony.

A. Okay. I'm on page 21.

Q. I believe in your discussion regarding Staff Report Condition 24, it starts on line 10, you have a reference to Ohio Revised Code 4906.10(A)(3). Do you see that?

A. Yes, I do.

Q. And a portion of that reference includes the phrase "other pertinent considerations," does it not?

A. Yes.

Q. In your opinion -- in your -- I think we've established you are not an attorney and you are just providing regulatory-expert opinion testimony today, in your -- in that capacity, in your opinion, would you believe that this phrase would allow the Board to consider the fact that this proposed facility would be the first freshwater installation of a wind-powered electric generation facility in Ohio?

A. Yes. I think that's appropriate, and I think there are many provisions in these plans, in the mitigation plans, the monitoring plans, and adaptive management strategies that I think consider that and respond to that fact that it is the first project in Lake Erie.

Q. And correct me if I'm wrong, this is the first of such a project to be proposed in North America; is that correct?

A. No. There is one operating wind farm actually operating in Rhode Island. It's off the coast of Block Island, which is an island off Rhode Island. There are many projects proposed, in various stages of approvals, on the east coast. We're the only project currently proposed in Lake Erie.

Q. Okay. But those other projects, are they either being proposed or constructed in freshwater?

A. No, no. Those -- those projects are all in seas. I would say the freshwater is a distinction, but there are many, many similarities. The migratory pathways have similarities and the wildlife considerations are similar in a lot of these areas, and the wildlife experts can testify more to that later.

ALJ ADDISON: Thank you. That's all the

questions I have.

ALJ WALSTRA: Thank you. You're all set.

THE WITNESS: Oh, okay.

ALJ WALSTRA: Icebreaker, if you would like to move your exhibits.

MR. SECREST: Yes, your Honor, thank you. We would move for the introduction of Mr. Karpinski's testimony which is Exhibit 25. And I think the only other exhibit we presented -- we did present Applicant Exhibit 35 which was filed -- oh, I am sorry. We would move for the admission of Applicant's Exhibit 35, as well as 1 through 24.

ALJ WALSTRA: Thank you.

MR. SECREST: Thank you, your Honor.

ALJ WALSTRA: Any objections?

MR. JONES: Your Honor, I just want to note my continuing objection as to the pieces I have already outlined that were no foundation and hearsay.

ALJ WALSTRA: Barring that, and not hearing any objections, they will be admitted.

(EXHIBITS ADMITTED INTO EVIDENCE.)

ALJ WALSTRA: Would you like to move Joint Exhibit 1?

MR. SECREST: Yes, your Honor. Thank you. So moved.

ALJ WALSTRA: Any objections to that? Hearing none --

MR. STOCK: Which one is Joint Exhibit 1?

ALJ WALSTRA: That's the Stipulation.

MR. STOCK: Okay.

ALJ WALSTRA: Hearing none, that will be admitted.

(EXHIBIT ADMITTED INTO EVIDENCE.)

ALJ WALSTRA: And, Mr. Stock, would you like to move your exhibits?

MR. STOCK: I would like to move Exhibits 1, 2, 3, 3A [verbatim], 4, and 6. Exhibit 5 was the comments of Black Swamp and ABC and that was not a foundation -- a document for which I was providing a foundation.

ALJ WALSTRA: I'll note for the record, Exhibit 4 is also Joint Exhibit 1.

MR. STOCK: Sure. Okay. That's fine.

ALJ WALSTRA: Outside of that, any objections?

MR. SECREST: Just for clarification, Mr. Stock, was 7 the 3/12/18 Fish and Wildlife?

ALJ WALSTRA: I don't think he had a 7.

MR. SECREST: Did it end with 6, the Diehl Report?

MR. STOCK: No. Diehl is a joint exhibit.

ALJ WALSTRA: That was part of your Application, I believe.

MR. STOCK: So the December 21, Fish and Wildlife Service letter, became 6.

MR. SECREST: Okay. Thank you.

ALJ WALSTRA: The March 12th.

MR. STOCK: Excuse me.

MR. SECREST: Yeah. I believe the Fish and Wildlife, 21st letter, was Staff 2; is that right?

MR. STOCK: That's Staff?

ALJ WALSTRA: Yeah.

MR. STOCK: So 6 is the March 12th letter, okay.

MR. SECREST: No objection.

ALJ WALSTRA: No objections?

MR. SECREST: Thank you.

MR. JONES: No objections.

ALJ WALSTRA: It will be admitted.

(EXHIBITS ADMITTED INTO EVIDENCE.)

ALJ WALSTRA: We'll take a -- we'll take a break until 11:15.

(Recess taken.)

ALJ WALSTRA: We'll go back on the record. Briefly, I think I did skip over Staff's exhibits. If you would like to move.

MR. JONES: Yes, your Honor. I would like to move for the admission of Staff Exhibit 1 and 2. 1 being the Staff Report of Investigation; 2 being the U.S. Fish and Wildlife Service letter, December 21, 2017.

ALJ WALSTRA: Thank you.

Any objections?

Hearing none, those will be admitted.

MR. JONES: Thank you, your Honor.

(EXHIBITS ADMITTED INTO EVIDENCE.)

ALJ ADDISON: The Applicant may call its next witness.

MR. SECREST: Thank you, your Honor. The Applicant calls Dr. Caleb Gordon.

(Witness sworn.)

ALJ ADDISON: Thank you. Please be seated.

MR. SECREST: May I approach the witness, your Honor?

ALJ ADDISON: You may.

MR. SECREST: Thank you.

May I approach the Bench as well?

ALJ ADDISON: You may. Thank you so much.

(EXHIBIT MARKED FOR IDENTIFICATION.)

MR. SECREST: May I proceed, your Honor?

ALJ ADDISON: You may.

MR. SECREST: Thank you.

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CALEB E. GORDON, PH.D.

being first duly sworn, as prescribed by law, was examined and testified as follows:

DIRECT EXAMINATION

By Mr. Secrest:

Q. Dr. Gordon, will you state your full name for the record.

A. My name is Caleb Edward Gordon.

Q. Okay. You have in front of you your prefiled testimony. Do you recognize that as such?

A. Yes.

Q. Do you have any corrections to your prefiled testimony?

A. Yes, I do.

Q. Please turn to page 10 of your prefiled testimony, specifically line 21.

ALJ ADDISON: Before we proceed, Mr. Secrest, would you like to mark this exhibit?

MR. SECREST: Yes, your Honor.

ALJ ADDISON: Thank you.

MR. SECREST: I would like to mark it as 30, your Honor.

ALJ ADDISON: And, for clarification purposes, you passed out two documents designated as attachment CEG-11 and Attachment CEG-12. Was that also part of the prefiled testimony?

MR. SECREST: It should have been part of the prefiled testimony, your Honor, yes. It should have been attachments to 30. 11 is referenced as attachment -- as an attachment but it's referenced as Attachment CEG-2 and it should have been 11. And, similarly, 12 is referenced in the testimony as CEG-2; however, it should have been 12.

THE WITNESS: Those are some of the errors we were -- those are the mistakes we're about to fix.

MR. SECREST: So, your Honor, line 21 of page 10. And Dr. Gordon can confirm there is a Footnote No. 4. It says "See Attachment CEG-2." The footnote citation is correct. The reference to "CEG-2" is incorrect. It should be "CEG-11."

ALJ ADDISON: Thank you.

MR. SECREST: On that same page, your

Honor, line 25, there is another reference to "CEG-2." That also is an incorrect reference. That should be "CEG-12."

ALJ ADDISON: All right. Perfect. Thank you for that clarification. I apologize.

MR. SECREST: No problem.

Q. (By Mr. Secrest) Dr. Gordon, will you please turn to page 11, line 15.

A. Yes, I'm there.

Q. It states "with total bird fatality rates ranging from less than 1 to 7 birds/year...." Is the "bird/year" a correct reference?

A. No. That should read "birds/megawatts/year."

Q. Thank you.

Dr. Gordon, other than those corrections that we've just referenced and made, are you aware of any other corrections to your testimony?

A. No.

MR. SECREST: We would tender Dr. Gordon for cross-examination.

ALJ ADDISON: Thank you, Mr. Secrest.

Mr. Berkowitz, any questions?

MR. BERKOWITZ: No questions.

ALJ ADDISON: Thank you.

Ms. Leppla?

MS. LEPPLA: No questions.

ALJ ADDISON: Thank you.

Mr. Stock?

MR. STOCK: Yes. I want to make sure I have clarified what these exhibits are. Were these exhibits attached to his testimony?

MR. SECREST: They were not.

MR. STOCK: Okay.

MR. SECREST: 11 was referenced -- both were referenced in his testimony. 11 was footnote No. 4 in his testimony, but was inadvertently not attached.

MR. STOCK: Okay. I just wanted to clarify that.

MR. SECREST: Sure.

MR. STOCK: May I approach the witness?

ALJ ADDISON: You may.

MR. STOCK: With exhibits?

- - -

CROSS-EXAMINATION

By Mr. Stock:

Q. Good morning.

A. Good morning.

Q. We've spent some time together.

A. Yes.

Q. In deposition. You know who I am. I'm John Stock. I represent the Intervenors here.

ALJ ADDISON: Mr. Stock, would you mind just turning on your mic. Thank you so much.

MR. STOCK: Thank you.

Q. You're being paid to provide your testimony today, correct?

A. That's correct.

Q. All right. Now, if you take a look at your testimony, I've got it at Tab E in the binder.

ALJ ADDISON: Mr. Stock, I'm sorry. Just to be make sure the record is clear. Since his testimony has been marked as Applicant Exhibit No. 30, if we could just be consistent with our references.

MR. STOCK: Yes. And thank you very much and if you can help me along the way --

ALJ ADDISON: Absolutely --

MR. STOCK: Because I have my separate binders, trying to keep it all organized. I thank you.

Q. (By Mr. Stock) Applicant Exhibit 30, your testimony. On page 1, look at 19, line 19.

A. On my page 1, I don't see the line

numbers.

Q. Page 2, I'm sorry, page 2. Page 1 of the text, but you're right. Page 2, line 19. It says "Over the course of my career, I have either designed and conducted, or evaluated wildlife risk and impact studies for over 100 wind energy projects across the United States and internationally," correct?

A. Correct.

Q. But in your entire professional career, you personally have never designed and implemented an avian radar study to identify the density of birds flying through a wind-turbine project area; isn't that correct?

A. That's not exactly correct.

Q. Let's take a look, Tab F is your deposition, and you might want to keep that out because we are going to be referring to that today. Let's go to page 23 of your deposition. Are you there?

A. Yes.

Q. Okay. Line 20, my question:

"Dr. Gordon, have you in your professional experience designed and implemented an avian radar study, the purpose of which was to identify the density of nocturnally migrating birds

within a wind turbine project area?" And what was your answer?

A. My answer was "No, I have not."

Q. Okay.

A. But if I may explain --

Q. No, I am not asking you to explain. You answered the question. Thank you.

ALJ ADDISON: Thank you. From now on, if the witness does go on to explain himself, allow him to finish his answer and then you can move to strike, but we will not cut off --

MR. STOCK: All right.

ALJ ADDISON: -- the witness.

MR. STOCK: That's fine.

A. What I would like to say about that is that, in fact, at the time of my deposition, I must not have remembered or recalled one that I had designed and conducted for a wind project in Florida, many years ago, that was, in fact, a radar study. It was using NEXRAD radar to determine density and activity of nocturnally migrating over a wind project area. So I answered incorrectly in my deposition accidentally.

Q. That's interesting. Where did -- did you rent a NEXRAD radar unit and place it at the project

site?

A. No.

Q. Okay.

A. Do you want more explanation?

Q. No. Just let me ask the questions.

Let's -- let's tell the hearing officers about what NEXRAD radar is. It seems to be an apropos time. NEXRAD radar in a national system of radar facilities that collect weather radar, correct?

A. Correct.

Q. Okay. And there are 180 some -- how many -- how many are there?

A. I don't know the number off the top of my head, but that seems approximately correct.

Q. Okay. And did the Government install that system?

A. I believe so.

Q. Okay. So when you talk about, in your answer, having designed and implemented an avian radar study, what you're talking about is you, in Florida, used weather radar from an existing government NEXRAD radar instrument; is that correct?

A. That's correct.

Q. Okay. You did not rent or purchase and take any avian radar unit to a project site, correct?

A. That's correct.

Q. Okay. And we'll get into --

A. That's correct, but we did do exactly what you asked in your question which is implement an avian radar study, the purpose of which was to identify the density of nocturnally-migrating birds within a wind-turbine project area. That's precisely what we did in that study.

Q. Well, the data you used, you obtained for free, right?

A. Yes.

Q. And that's often why NEXRAD radar is used by people, because it is free, right?

A. I would say it has more to do with the fact it's useful.

Q. And free, correct?

A. Can't beat the price.

Q. Right, exactly. Okay.

Now, keep your deposition out because it appears we are going to need to use it.

You personally have never designed and implemented an avian radar study to determine the relationship between the density of migrating birds in a turbine project area and the mortality rate of such birds in an operating project area.

A. That's correct.

Q. Okay. You do not know how many birds fly through the rotor-swept zone of the proposed project during the annual spring migration of migratory birds over Lake Erie, correct?

A. That's not entirely correct.

Q. All right. Let's stick with your deposition. Let's go to page 24.

A. I'm there.

Q. Line 23. "Okay. During the annual spring migration of migratory birds over Lake Erie, how many birds migrate through the rotor-swept zone of the proposed project site?" What did you say?

A. I said, "Well, it's difficult to say with precision" and that "I could bracket the range very broadly."

Q. No, no. I am asking you to read.

A. That's what I said. My first answer is, "Well, it's difficult to say with precision."

Q. Stop there.

ALJ ADDISON: Mr. Stock, I am going to allow him to read his answer --

MR. STOCK: Okay.

ALJ ADDISON: -- into the record and then --

MR. STOCK: All right.

A. What it says here in my deposition, my answer was: "Well, it's difficult to say with precision."

Then your next question was: "Okay."

And my next answer, which is really a clarification of the original answers, was: "I could bracket the range very broadly."

Q. Okay, okay. Let's start again. The way I want to do this is I will ask what question I asked, and I want you to give the answer to -- that you gave in your deposition. If there is a follow-up question, I will read the follow-up question, okay?

A. That's all I did was read from my deposition, sir.

Q. All right. Well, let's do this. I asked: "During the annual spring migration of migratory birds over Lake Erie, how many birds migrate through the rotor-swept zone of the proposed project site?" And what was your answer to that question only?

A. "Well, it's difficult to say with precision."

Q. All right.

"Okay."

And then what do you say?

A. "I could bracket the range very broadly."

Q. And I say, "Okay. Bracket the range for me." And what do you say?

A. "Difficult to say with precision."

Q. "Question: Bracket the range for me." What do you say?

A. I'm reading here.

"Answer: Well, the best I would do would be to make a fairly broad bracket. And, in fact, I don't have a very good basis for putting specific numbers of what you asked for specifically, which is how many birds pass through the rotor-swept zone --

Q. "Question: Of this proposed project."

A. -- of this proposed project area. I don't have a good basis for putting numbers to that."

Q. "Okay. You certainly" -- and you answer?

A. "I can give you an answer in terms of relative to other environments."

Q. "No. I'm concerned about this environment." And you said?

A. "Yeah."

Q. All right. Now, let's go to page 27.

ALJ ADDISON: Mr. Stock, are you still in his deposition?

MR. STOCK: Yes.

ALJ ADDISON: No, I am going to cut it off right there. You can ask a question, and then, if his answer is contrary to what he has provided in his deposition, then you can bring in his deposition.

MR. STOCK: And that's exactly why I am doing this. He said --

ALJ ADDISON: Don't point to the page of the deposition before you ask your question. So just ask your question, and then, if his answer varies from what he has already provided in his deposition, you can raise his deposition.

MR. STOCK: I asked the question: "Do you" -- this is what started this colloquy. I asked the question: "Do you know how many birds fly through the rotor-swept zone of the proposed project during the annual spring migration?" I said -- I asked the question: "You do not know how many birds fly through the rotor-swept zone in the proposed project during the annual spring migration of migratory birds over Lake Erie." And your answer was?

THE WITNESS: My answer today?

MR. SECREST: You are asking him answer to now?

MR. STOCK: Yeah, I am asking you now.

THE WITNESS: Can we read it back from the record?

MR. STOCK: I'll repeat it.

Q. (By Mr. Stock) You do not know how many birds fly through the rotor-swept zone of the proposed project during the annual spring migration of migratory birds over Lake Erie, correct?

A. I already answered that once, right? And you didn't like my answer, but I believe my answer today would be the same as what we just reviewed in my deposition which is I couldn't tell you with precision, but I can tell you in relative terms and that's exactly what's important for doing the risk assessment we did.

Q. So you can't tell us the number, correct? The number of birds that fly through the project area.

A. That's correct.

Q. You can't tell us a range of the numbers that fly through the project area, correct?

A. That's incorrect. I can give you a broad -- a bracket very broadly.

Q. Okay. Now, we will go to page 27 of your deposition. I asked you, line 10:

"All right. We'll break it up. Spring

migration.

"To a reasonable degree of scientific certainty, what is your opinion of the number of birds that migrate through the rotor-swept zone of this project?"

And what did you answer to that question?

ALJ ADDISON: Wait. I don't believe you have asked a question regarding "within a reasonable degree of certainty." So if you would like to ask that question. I would prefer not to reference his deposition. That's what I am getting at. If you just want to ask the question outright, if he gives an inconsistent answer, then we can reference the deposition. But we're not going to go and read through his deposition answers.

MR. STOCK: That is a primary way of impeaching the witness.

ALJ ADDISON: Exactly, but you haven't asked the question that you asked in the deposition yet.

MR. STOCK: It doesn't have to be verbatim, the same question. If the gist of his answer here is inconsistent with what he said in his deposition, I'm allowed to use this to impeach.

ALJ ADDISON: If he is inconsistent. I

am not saying you can't use his deposition. I am just asking you to take a step back and ask the question as you asked it during his deposition. If he provides an inconsistent answer, then you can use the deposition to impeach him.

MR. STOCK: But that's my point. I am not required to ask verbatim the same question. If the substance of his answer, which he has now given us, is that --

ALJ ADDISON: I find that these are different questions. Please just take a step back and ask your question.

Q. (By Mr. Stock) To a reasonable degree of scientific certainty, can you tell us how many birds fly through -- you cannot tell us how many birds fly through the rotor-swept zone of the proposed project during the annual spring migration of migratory birds over Lake Erie; isn't that correct?

A. That's not entirely correct.

Q. Okay. You cannot give us a range -- you cannot give us the number, correct?

A. I can give a relative characterization which is, in fact, what's necessary to do the risk assessment that we were asked to do.

Q. What I have asked is: Can you give us

the number of birds?

A. I can bracket it broadly.

Q. You cannot give us a range, can you?

A. I can give you a very broad range.

Q. Okay. Now may I go through the deposition testimony?

Page 27, line 10.

"All right. We'll break it up. Spring migration.

"To a reasonable degree of scientific certainty, what is your opinion of the number of birds that migrate through the rotor-swept zone of this project?"

And what did you say?

A. I said, "My opinion is that the number of birds that migrate through the rotor-swept zone of this project, spring migration, is representative of the number that migrate through any region of a similar size in the Great Lakes region or below."

Q. And I asked the question: "And what's that number?" And you answered?

A. I said, "I don't know the exact number."

Q. And then I asked the question: "Okay. Do you have a range on the number?" And what did you say?

A. I said, "No."

Q. Okay. You are not an expert in the design or deployment of avian radar studies; isn't that correct?

A. That's correct.

Q. All right. You are not --

A. I would say my expertise overlaps with that, certainly, as the area of radar ornithology is certainly part of my expertise. It's not a primary technical area of my expertise, but my technical area of expertise certainly overlaps radar ornithology.

Q. And you are not an expert in NEXRAD radar, are you?

A. Again, I'm -- it has not been a primary research focus of my career. However, I have used it and I am familiar with it at the level of a practicing expert, yes.

Q. At the time of your deposition, you didn't know whether NEXRAD radar used S band radar; is that correct?

A. That's correct.

Q. Okay. And you didn't know the wavelength of X-band radar at the time of your deposition, correct?

A. Well, that's not entirely correct. I

couldn't recall it off the top of my head at that moment, but it is something I am familiar with and have reviewed and incorporated into my research and work in the past.

Q. Have you reviewed your deposition before today's testimony?

A. I did. I think the last time was a few weeks ago.

Q. Okay. And at your deposition you testified that, off the top of your head, you didn't know what the wavelength of X-band radar is, correct?

A. That's correct.

Q. Okay. NEX bad -- NEXRAD radar does not give any information about individual migrating birds, correct?

A. That's not entirely correct.

Q. Let's go to page 45 of your deposition.

A. I'm there.

Q. Line 11, I asked the question:

"And what do you mean by 'informative'? Can the NEXRAD radar data give you the altitude of a migrating bird through the rotor-swept zone?"

And what was your answer?

A. What I said was "NEXRAD does not give any information about individual migrating birds."

Q. Okay.

A. But that's not inconsistent with what I said before, because what I said before was your statement was not entirely correct, and that's true. NEXRAD does not track individual bird targets. However, it does provide information on migratory birds collectively, large groups of migratory birds and, in that sense, it does provide information on migrating birds which includes individuals.

Q. You're not testifying today that NEXRAD radar can give you altitude data on an individual migrating bird, correct?

A. It actually has been used to give altitude information on migrating birds, but not through the tracking of individual migrating birds as targets.

Q. All right.

A. It more detects large groups or aggregations of birds.

Q. Okay. Please take a look at Tab G.

ALJ ADDISON: Mr. Stock, are you going to be marking this as an exhibit?

MR. STOCK: Yes. I was looking to see if it had already been marked. If it has not, I will be.

MS. LEPPLA: Your Honor, just to clarify, did we mark the deposition as an exhibit just for clarity? Just making sure.

ALJ ADDISON: Yeah, we typically do not mark the depositions, but thank you.

MR. STOCK: It's been filed in the record. So this would be Exhibit 7?

ALJ ADDISON: 7, I believe.

MR. STOCK: 7.

ALJ ADDISON: So is it Exhibit No. 7?

MR. STOCK: Yeah.

(EXHIBIT MARKED FOR IDENTIFICATION.)

Q. Mr. Gordon, can you identify Exhibit 7 for the record, please?

A. Yes. This is a document dated February 28, 2017, containing comments by Fish and Wildlife Service and Ohio Department of Natural Resources on the metrics of pre- and post-construction monitoring options that LEEDCo had provided by e-mail on January 5, 2017.

Q. Okay. Now, if you turn to page 2, Paragraph 3, under Radar.

In the comments of ODNR and Fish and Wildlife Service, it reads, in Paragraph 3a, does it not, "NEXRAD data is not useful for assessing

bird/bat behavior within rotor swept zone, which is the data we need." Do you see that?

A. My document must be different from yours. That's not what I -- oh, you are looking inside that paragraph but okay. That was inside that paragraph. Okay. I see it now, sorry. Can you read it again?

Q. Yes. 3a on page 2. "NEXRAD data is not useful for assessing bird/bat behavior within rotor swept zone, which is the data we need." That was a comment made by ODNR and Fish and Wildlife Service with respect to pre-construction and post-construction monitoring survey protocol, correct?

A. I believe the document speaks for itself.

Q. Okay. Then if you go down to 3b, small ii. "Preferred is radar data from project area - FWS and ODNR have been requesting this information since 2008." Is that correct?

A. The document speaks for itself, and I also want to point out that there are subsequent communications from the agencies on this subject matter in which they've expressed different opinions.

Q. And what communications would those be?

A. I would have to review the record. You probably got a better handle on it than I do.

Q. Well, you just made the statement you were referring to other communications. What are they that you are referring to?

A. Statements that have acknowledged that, for example, the use of vessel-based radar may produce viable data.

Q. You've -- you sat through the testimony of Mr. Karpinski. Are you referring to the March 12, 2018, Fish and Wildlife Service letter?

A. I believe that's correct.

Q. Any other document?

A. Not that I'm aware, but I wouldn't necessarily have a complete record of the communications.

Q. Now, WEST has not obtained any data regarding the density of birds, nocturnally-migrating birds, at the 20-meter to 100-meter altitude through the rotor-swept zone at this site, correct?

A. That's an extremely misleading question because we have obtained data on nocturnally-migrating birds at the project site, including within portions of the rotor-swept zone and in the portion of airspace where most nocturnally-migrating birds are known to fly. So that's a misleading and deceptive question. The

answer to your question is no, we have not, but there's no need to.

Q. What is the rotor-swept zone -- what is the elevation of the rotor-swept zone for these turbines?

A. I believe it goes from 20 meters above the water to 146 meters.

Q. Okay. And NEXRAD data -- NEXRAD radar did not go below 114 meters at the position of the turbine proposed to be nearest to shore, correct?

A. That's correct, but I want to point out very few birds migrate in those altitudes; that's well known.

Q. So it is correct --

A. NEXRAD radar did detect birds in the chunk of the sky where birds are known to migrate which is roughly from about 200 meters to over a thousand meters. In fact, the NEXRAD data we analyze is ideally suited to detect birds in that area which is where nocturnally-migrating birds fly.

Q. Well, you have absolutely no radar data from the level of elevation of the Lake to up to 114 meters at the turbine closest to shore, correct?

A. In fact, even that is not correct because of the properties of NEXRAD radar. The beams bend

and, while we define the lower limit of the beam generally at 114 meters at this project site, in fact, the boundary is fuzzy. And it's well known that radar beams -- the energy of radar beams is diffuse. And, in fact, we probably do have some -- we certainly do have some information that came from lower elevations, but it's -- this line of questioning is besides the point, because our job was to assess risk to birds at this project site.

And what we do is we analyze NEXRAD data from the sweet spot of the zones where birds actually do migrate, and we got actually a very robust characterization of the density of migrating birds over the project site, compared with other sites, which shows that it's a migratory cold spot.

Q. Let's turn to page 66 of your deposition. Line 8.

"Okay." This is me. "So what is your data regarding the density of birds, nocturnally migrating birds, at the 20-meter to 100-meter altitude through the rotor-swept zone of this site?"

Mr. Secrest opposed -- interposed an objection. "Assumes facts not in evidence. You can answer, if you can."

And then what was your answer?

A. I said, "I guess I would say that we were never asked to collect any such data. We were asked to address risk to this group of birds, and we used information informative to that purpose. We were never asked to get the specific information to which you're referring."

And, to that, I would add that I know you've suggested that you should get such data, but you're not familiar with industry-standard practice, because that's not how these kind of risk assessments are done for this type of group of birds.

Q. I don't see that.

ALJ ADDISON: Thank you. Thank you. I will address it.

Dr. Gordon, I will direct you, from this point forward, to just simply answer Mr. Stock's questions. If there is any additional information that your counsel would like to bring up during redirect, I believe that would be the more appropriate time to raise those concerns. Thank you.

THE WITNESS: Thank you.

MR. STOCK: Thank you.

ALJ ADDISON: Thank you.

Q. (By Mr. Stock) And then my question was:

"So you do not have that information as

we sit here today; correct?"

And what was your answer?

A. "That's correct."

Q. Okay. Now, the radar that Icebreaker, the avian radar that Icebreaker intends to use for its pre-construction radar studies is not NEXRAD radar data, correct?

A. Actually, I understand the project team is considering using NEXRAD in combination with other radars.

Q. "In combination," you mean on days when the unit operating on the vessel is not providing data, to use NEXRAD from the KCLE radar station to cover those times?

A. Not entirely limited to that. My understanding would be potentially they would use NEXRAD, continuous analysis of NEXRAD for the entire migratory seasons overlapping the seasons of data collection of other radars.

Q. Okay. Now, the radar, pre-construction radar studies -- study that Icebreaker is going to implement, that radar must be able to provide -- determine flight altitude of migrants, within the entirety of the rotor-swept zone, to quantify collision risk; isn't that correct?

A. That's not correct.

Q. Okay. Let's go to the Stipulation.

MR. STOCK: And is there a copy there before the witness?

MR. SECREST: There is a copy, I believe, in the binder for Mr. Karpinski. I believe it's D.

A. If you want, I can clarify. Part of your statement was correct, but part of it was incorrect.

Q. No. I didn't ask for a clarification at this point, just your answer. Let's go to Condition 22(d) of the Stipulation, and this is the Stipulation proposed by Icebreaker. What does it say about radar?

A. It says "Radar must be able to determine flight altitude of migrants at altitudes near and entirely within the rotor-swept zone at the project site to quantify collision risk."

Q. Okay. Thank you. And WEST has not done a radar study that -- where the radar covers the entirety of the rotor-swept zone of the project, correct?

A. That's correct.

Q. All right. Your -- I want to take a look at your testimony on page 15.

A. Okay. I'm there.

Q. Down toward the bottom, it reads: "It is well-known that nocturnal migrants typically fly at altitudes well above the rotor swept zone of wind turbines, including the 146 meter-tall turbines of the Icebreaker project, under most circumstances...." Do you see that?

A. Yes.

Q. And then you say "See attachment CEG-9."

A. Correct.

Q. What is CEG-9?

A. CEG-9 is a study that was published by the National Academy of Sciences, in 2007, that's entitled "Environmental Impacts of Wind-Energy Projects."

Q. And in that study they cite no analysis of the flight altitude of migrants over a large inland lake such as Lake Erie; is that correct?

A. You've asked -- you've narrowed it to only over freshwater inland lakes. What they have done is discussed evidence about flight altitude of nocturnal migrants. They have not done so specifically over a freshwater inland lake.

Q. Okay. Now, you also cite in your report, the Archibald letter in the Auk, and let's first take a look at your testimony here, page 15.

(As read): "This pattern was demonstrated specifically for the central Lake Erie basin in a recent peer-reviewed study published in 2007 in the leading ornithological journal, the Auk, by a team of leading radar ornithologists (See Attachment CEG-10)." Correct?

A. No, that's not correct.

Q. What -- did I read that incorrectly?

A. Yes. You said "2007." It's actually 2017.

Q. All right. Thank you. Thank you for the correction. With that correction --

A. You asked me if it was correct.

Q. All right. Okay. We'll get through it. So you cite that article, correct?

A. Yes.

Q. All right. Now, I have that article at my Tab I, and with help from --

ALJ ADDISON: I believe it's attached to your testimony as Attachment CEG-10.

MR. STOCK: You're right, you're right, so I don't need to worry about it. Thank you.

A. CEG-9 or CEG-10.

Q. CEG-10. This Auk article, the radar data that was used was the free NEXRAD radar data,

correct?

A. Correct.

Q. All right. So like the NEXRAD radar data from KCLE, it would not go below 114 meters at the closest turbine in the project site, correct?

A. That is not correct.

Q. Okay. Tell me why that's not correct.

A. Because the beam of NEXRAD radar goes up as it goes out. So the elevation that you are sampling depends on your distance from the radar.

Q. Okay.

A. So in our NEXRAD analysis of the project site and comparison sites, it was the beam generally can be characterized as going from 114 to 963 meters because it was located at about 20-some-odd kilometers from the radar station.

However, in Archibald et al.'s analysis, what they did was they looked at a whole range of different distances from radars and, in so doing, they actually got data from slightly lower elevations than that.

Q. They got lower elevations for the project site?

A. No, not the project site. But actually for the same orientation that would track the same

birds flying over the project site and they actually did use KCLE radar. So they studied 3-by-3 kilometer chunks lined up along the shoreline, both offshore and onshore, along the shoreline. So they actually did have study sites oriented directly between the KCLE radar station and the project site, studying the same birds that are, in principle, migrating over the project site. But because those sites are closer to the radar, they're actually lower elevation. And they did not look at the Icebreaker project site; they only looked at those along the shoreline sites.

Q. So, I mean, let's take a look at where they had their radar. On page 195. Do you have that?

A. Yeah.

Q. Figure 1?

A. Yes.

Q. They've got KCLE, correct?

A. Correct.

Q. All right. And you've testified from KCLE, that NEXRAD radar location, that's what, about 14 miles from the project site?

A. Which? The radar station?

Q. Yeah, KCLE.

A. That sounds about right.

Q. Okay. And the lowest that that radar beam goes is 114 meters at the closest wind turbine, right?

A. It actually includes the 2-mile buffer from the wind turbine but, yeah. Our project site area of analysis.

Q. Yeah, okay. So is that correct, at the first turbine, the lowest it goes is 114 meters?

A. That's not exactly correct, no.

Q. What's incorrect about that?

A. The 114-to-963 range encompasses our whole study area over the project site that included not only the locations of the turbines, but also a 2-mile buffer. So the 114 is actually from 2 miles closer to Cleveland than the nearest turbine.

Q. So I want to make sure the record is clear. How low did the KCLE NEXRAD radar beam go over what would be the spot of the turbine from this project closest to the shore?

A. It would be incrementally a little bit higher than 114 over -- over the turbines themselves.

Q. Okay. Thank you. Thank you.

Now, looking at this page 195 and the radar data that was used, is it your understanding that they used radar data from the KCLE radar

station?

A. As well as two others, yes.

Q. We will -- all right. KGRR.

A. Correct.

Q. All right.

A. That's one of them.

Q. Was that a NEXRAD radar?

A. Yes.

Q. And then KGRB.

A. Correct.

Q. All right. So with respect to the project site, the KGRR radar station is significantly farther away from the project site than the KCLE, right?

A. That's correct. And that's why they don't use the KGRR radar data to talk about the Lake Erie. They use that to talk about that southeastern portion of Lake Michigan which is the area it covers.

Q. Okay. So with respect to this report and any information it has regarding Lake Erie, that comes from KCLE; is that correct?

A. Right. That's correct.

Q. All right. Now I'm with you. And we are not below 114 meters.

A. Yes, we are. Yes, we are.

Q. Okay.

A. You asked earlier about what our data for our NEXRAD analysis for the project was, and that's where it was -- where I said it was incrementally higher than 114 or as low as 114 for the buffered area.

Q. Right.

A. For this study, because their study sites were actually closer to the radar than the Icebreaker project site is, it actually includes elevations a little bit lower. Because the closer you are to the NEXRAD station, the lower you are looking at, because the beams go up as they go out. All right. So if you can see in Figure 1, those thick white lines in the portion to the left?

Q. Uh-huh.

A. Those are the shoreline areas where they looked. And so you can see, some of them, the ones that are closest to KCLE are right along the shore, in fact, up to 3 kilometers inland from shore. That's much closer to the KCLE radar than the Icebreaker project site is. So, at those areas, I would have to do the calculations, but they are certainly looking below 114 meters. I don't know exactly how low.

Q. Okay. All right. But what I am trying to make the record clear on, with respect to this Auk article, does it have any data relative to the area of the project site that is below 114 meters?

A. Yes.

Q. Okay. What -- what beam of radar does it have going below 114 meters at the project site?

A. You didn't ask me that. You asked me relative to the project site. And what this project does is -- or what this paper did is they actually didn't just look at elevational distributions from one spot.

What they did was they looked at the elevational distributions of nocturnally-migrating birds by creating a giant composite. In this case, from the KCLE radar, they did it for Central Lake Erie Basin. And that composite was made from all of their little 3-by-3 kilometer study sites, dozens of them, lined up along the shorelines. So some of those are close; those ones detect the lower elevation. Some of them are further away; those detect a higher elevation.

They put them all together and they created this composite elevational distribution of migrants over the Central Lake Erie Basin, and that

is very relevant to the project site because it's the Central Lake Erie Basin, and it does include information from below 114 meters.

Q. It does not have any data -- any information at the project area below 114 meters at the project area.

A. It doesn't have any information at the project area at all.

Q. Okay.

A. But -- because the scope is broad to the whole Central Lake Erie Basin and, again, it's a composite that is meant to represent migration -- altitudinal distribution of migrants in that -- in that region.

Q. Okay. So if you take a look at page 200 of this report, first full paragraph, about halfway down, it reads "Unfortunately, low flying" --

A. Hang on. Let me find you. I see -- because you are not at the beginning of the paragraph.

Q. No.

A. I see where you are.

Q. It's the middle of the paragraph. Do you see where I am?

A. Yes.

Q. "Unfortunately, low-flying birds could not be detected far from shorelines by the radars we used, so whether most birds far from shorelines also reorient toward shorelines or not is difficult to evaluate." Did I read that correctly?

A. Yes, you did.

Q. Okay. Thank you. Now, I would like you to take a look at the report that is at Tab J.

A. I got it.

MR. STOCK: And this will be a new exhibit for us. And so, would that make it 8?

ALJ ADDISON: I believe we are on Residents' Exhibit No. 8.

MR. STOCK: Thank you.

ALJ ADDISON: It will be so marked.

(EXHIBIT MARKED FOR IDENTIFICATION.)

Q. (By Mr. Stock) I want to direct your attention to page -- oh, you're a coauthor on this report, correct?

A. Yes.

Q. Okay. I want to direct your attention to page 23. And this report that you and Chris Nations authored, this was paid for by Icebreaker, correct?

A. That's correct.

Q. All right. It was not subjected to peer

review, correct?

A. It was subjected to internal peer review.

Q. You mean internal within WEST?

A. That's correct. And it would be highly inappropriate for us to do anything else because this is confidential information for a client. We're bound by a confidentiality agreement.

Q. It's filed in this case, is it not?

A. Well, you asked me was it subjected to peer review. At the time when we produced it, this hearing was -- of course, it predates this hearing and, at that time, this is confidential project information and it would be highly inappropriate for us to submit it for peer review.

Q. Well, it's now public information, right?

A. I suppose so.

Q. Yeah. And it hasn't been put out for peer review by WEST, correct?

A. No, it has not.

Q. Okay. What is peer review?

A. Peer review, I think most scientists would acknowledge is one of the most-important practices and principles of professional science, perhaps equivalent to something to like the Bar Association for lawyers.

It is a process by which the editors of journals, to which scientists submit articles for publication, will select peers, that is, other experts within -- with knowledge in that subject matter, to review manuscripts prior to publication, to suggest -- to evaluate whether or not they are acceptable, or whether or not they need revisions. And it's that process of peer review that's considered to maintain and uphold the standards of the quality of scientific contents and objectivity. That's a primary principle of professional science.

Q. Okay. And no science -- you indicated that this report has not been peer reviewed. No scientist, not paid by Icebreaker, has opined that the analyses and conclusions in this report are scientifically valid, correct?

A. I'm not entirely certain of that. Since we produced it, so many of these documents have been reviewed by others. In fact, I don't recall, off the top of my head, if we've, for example, given this report for review to some of the other experts who have been pulled into this project. I'm not certain.

Q. You mean experts pulled into the project by Icebreaker?

A. Well, for example -- not necessarily. In

the case of Robb Diehl, he was pulled in, as Mr. Karpinski testified, as an objective neutral third party to be -- the intent was he would be paid jointly by the Fish and Wildlife Service and Icebreaker. So he was, in fact, a neutral party, not a party representing Icebreaker.

Q. That's a good example then. Has Mr. Diehl opined anywhere that the analyses and conclusions in this report are valid?

A. That's what I was wondering. I'm not certain if he has or not.

Q. As we sit here today, can you identify any document in which he's done that?

A. No.

Q. Okay. Now, you were paid by Icebreaker to prepare this report, correct?

A. That's correct.

Q. You provided a draft of the report to Icebreaker before it was finalized, correct?

A. I don't remember. This is almost two years ago now. I don't remember the exact process of drafts and revisions that we followed.

Q. Are you telling us you don't know if this report was reviewed -- you provided a copy of this report to be reviewed by Icebreaker prior to it being

submitted in the record in this case?

A. That's what I am saying. I don't recall.

MR. SECREST: Objection, mischaracterizes his testimony. That wasn't the question that was asked before.

ALJ ADDISON: Well, I think he already answered, so.

Q. Okay. Page 23 of your report.

A. Yes.

Q. Under "Caveats," would you please read that second paragraph into the record?

A. Okay. "There are several other important limitations to this analysis. It cannot distinguish individual targets, nor can it distinguish birds from bats, nor any other target that might move faster than measured wind speed. Furthermore, the velocity filter is a fairly crude tool. For instance, slow-moving targets, such as birds soaring on the wind, will be automatically removed. Also, NEXRAD cannot detect targets that are close to the ground, except at very close range. In the case of KCLE, most near range data will necessarily be over land, or close to shore over Lake Erie."

Q. Thank you.

You don't retract those conclusions of

your report; is that correct?

A. No.

Q. Okay. You do not possess any data regarding bird fatality rates at wind turbine projects in an inland lake; is that correct?

A. Again, that's a highly-misleading question. We do possess and reviewed and put great emphasis on an extensive review of bird fatality rates at wind farms within the Great Lakes region including many that are in lakeshore environments, or a handful. Because there are no wind facilities in inland lakes, it would be impossible to have fatality data from such a facility.

Q. That's correct. And an inland wind turbine project, generally how are fatality studies done?

A. With people who go out and perform periodic systematic carcass searches of the ground below the turbines and then apply various bias corrections to generate statistical estimates of fatality rates.

Q. How would you do that in Lake Erie?

A. In Lake Erie, we have been discussing how we would do that for some time now. Mr. Good will testify on the monitoring plans in prep and as

represented in the MOU with ODNR and the BBCS, as well as some of the other methods that the team is currently exploring. It has not been determined exactly the methodology yet. That was a lot of the subject of the discussion from Mr. Karpinski's testimony regarding I believe it's Condition 19, but it is -- it has not been determined yet, but clearly the same methods we use at land-based facilities, searching the ground below the turbines, are not available.

Q. Right.

A. So what I can say about it is it will rely on some form of remote sensing, either vibration sensors, cameras, or some combination thereof, and associated software, for example.

Q. But you can't do carcass searches like you do on land, correct?

A. That's correct.

Q. And carcass searches is the standard methodology for fatality studies on land-based project, correct?

A. Correct.

Q. All right. Now, because you are not aware of any existing wind turbine project in a freshwater lake, there are no studies that exist that

would correlate fatality rates at land-based wind turbine facilities with facilities in freshwater lakes, right?

A. You've asked a question where there is no possible answer except to agree, because you've defined it as whether or not a correlation has been determined between something -- one thing and something else which doesn't exist. Because the other thing doesn't exist, nobody has done a correlation yet.

However, a better question would be: Has the fatality rates of birds and bats at wind farms been characterized, and the answer to that is, yes, it has been very well characterized, and it's very consistent.

MR. STOCK: I move to strike. He is now asking himself a better question.

ALJ ADDISON: I will grant the motion to strike starting with "However, a better question."

Again, Dr. Gordon, that would be more appropriate during redirect.

THE WITNESS: I understand. I'm sorry.

ALJ ADDISON: No apologies.

Q. Let's go to Tab K.

MR. STOCK: This will now be Exhibit 9?

Exhibit 9.

ALJ ADDISON: It will be so marked.

(EXHIBIT MARKED FOR IDENTIFICATION.)

ALJ ADDISON: And just so the record is clear, it seems to be a document entitled "Icebreaker Wind: Summary of Risk to Birds and Bats" prepared by Caleb Gordon and Wallace P. Erickson.

MR. STOCK: Yes, thank you.

ALJ ADDISON: Thank you.

Q. (By Mr. Stock) Would you please identify this Exhibit 9 for the record.

A. Yes. This is what we often refer to as the risk assessment or the WEST risk assessment that was an analysis, a comprehensive analysis, of risk to all birds and bats from the Icebreaker project that we performed and finalized in November 2016.

Q. Okay. You were the primary author of this work?

A. That's correct.

Q. Okay. And Mr. Erickson worked with you on this work product; is that correct?

A. That's correct, as did many others at WEST.

Q. Okay.

ALJ ADDISON: Before we continue,

Mr. Stock, I do see that there is a line at the bottom of the cover of the document that indicates that this may be privileged or confidential information.

MR. SECREST: We filed it in the docket, your Honor. Thank you though.

ALJ ADDISON: Thank you for that clarification.

MR. SECREST: And the same is true for the prior exhibit.

ALJ ADDISON: Thank you. I just want to make sure we are able to stay in the public portion of our transcript.

MR. SECREST: Always appreciated.

ALJ ADDISON: Thank you.

Please proceed, Mr. Stock. I apologize for the interruption.

MR. STOCK: That's all right.

Q. (By Mr. Stock) Paragraph 1, about two-thirds of the way down, it reads "Nonetheless, there is still a great deal of uncertainty" --

A. Hang on. I need to find -- paragraph 1 of the Executive Summary?

Q. No. Paragraph 1, page 1, I'm sorry, Introduction. I should wait for you.

A. And you should tell me where you are.
Q. Okay.
A. Introduction, page 1.
Q. I apologize.
A. Where are you?
Q. I'm on page 1, Introduction.
A. Okay.
Q. About two-thirds of the way down.
A. "Nonetheless."
Q. "Nonetheless, there is still a great deal of uncertainty regarding the potential for offshore wind energy to create adverse impacts on birds and bats, owing partially to the newness of offshore wind energy relative to land-based wind energy development, particularly in the US, and also to the inherent difficulties in gathering data on wildlife risks and impacts in the offshore environment." That is true, is it not?
A. Yes.
Q. Okay. And on page 6, the last full paragraph down at the bottom.
A. I think I'm with you.
Q. All right. "In the offshore realm, the carcass-searching field study methodologies" that have been advanced -- "that have advanced our

scientific understanding of bird and bat fatality rates at land-based wind energy facilities are generally unavailable," and as you just testified to, that is correct, is it not?

A. Yes.

Q. Page 7.

A. Yeah.

Q. That's a carryover paragraph of -- the last sentence of that carryover paragraph. "To date, no offshore wind energy facilities in Europe or elsewhere have reported bird or bat fatality rates generated from direct observations of bird or bat collisions with operating offshore wind turbines...." That is correct, is it not?

A. Yes.

Q. Okay. And then at the beginning of the next paragraph it reads: "Although empirical validation of predicted collision fatality rates has not yet been obtained for an offshore wind energy facility...." What does that mean?

A. Well, it really encapsulates one of the great challenges of this project and the prospect of having an offshore wind energy in this country and the world which is that it's harder to measure the fatality rates offshore, not impossible but harder.

So our project team sometimes described it as a mini moon landing. That's why we are having the discussions we are having about Condition 19 because nobody's ever done this yet. We hope to be the first. But, to date, there has not been a robust estimate of bird and bat fatality rates produced at an offshore wind facility anywhere in the world.

Interesting, in light of the fact that there's already been two decades of offshore wind development in Europe, it has happened without the kind of bird and bat fatality rates we are dead set on getting in this project.

Q. So, to date, there is no empirical validation of predicted collision fatality rates; is that correct?

A. I'm sorry. Can you repeat that?

Q. Yeah. I am reading your language. So, to date, there is no empirical validation of predicted collision fatality rates at offshore wind energy facilities, correct?

A. Partially correct. Some would argue there has been some validation in some examples of some cases, but not the kind of robust bird and bat fatality rate determinations that we are hoping for.

Q. Okay. And had LEEDCo placed out at the

project site, in 2008, a radar unit using X rand -- X-band radar, a vertical radar unit, it could have collected data regarding the altitude of birds within the project area, correct?

A. Yes, that's correct.

Q. And, 10 years later, it still has not done that, has it?

A. That's correct.

Q. Okay.

A. It's not really related to the first part but that's correct.

MR. STOCK: Excuse me a second.

ALJ ADDISON: Absolutely.

Q. (By Mr. Stock) And the altitude data for birds flying through the project area that could have been collected starting as early as 2008, pursuant to Condition 22(d) of the Stipulation, that could have been used to quantify collision risk, correct?

MR. SECREST: Objection, speculation, mischaracterizes testimony.

ALJ ADDISON: I'll allow him to answer the question, but provide him the latitude if he needs to clarify based on the question posed by Mr. Stock.

THE WITNESS: Thank you.

A. Let me provide some clarification because that's a complicated question and it's an important technical issue in this case.

In fact, the standard practice in Europe is to generate predicted collision fatality rates using exposure data, however, because of the absence of available technologies to monitor it directly. However, what is widely acknowledged and consensus, understood in our industry, is that I can summarize it by saying an ounce of post-construction data is worth a pound of pre-construction.

You would much rather have actual proof-in-the-pudding results from existing projects to predict the potential fatalities at the next, rather than extrapolations based on a lot of assumptions just based on what kind of birds are in the area, what we would call exposure data, right?

So even though, as you are saying, if a radar was -- had been placed in the area and gotten that kind of elevational distribution which we would call "exposure data," a collision risk prediction could have been made; in fact, I would argue that our predicted collision risk for this project, contained in our risk assessment, is actually much more robust. It allows for the variability of the uncertainty but

all of that is within the range of extremely low risk because of -- largely because of how small the project size is. But not only because of that, because of what we know from collision fatality rates empirically from fatality studies at other projects.

So, yes, while placing a radar at the project site, like you say, could have given us some exposure data, in fact, I would say it would not have given us any better basis to predict collisions.

Q. So when Icebreaker, in its Joint Stipulation, agrees that radar must be able to determine flight altitude of migrants at altitudes near and entirely within the rotor-swept zone at the project area to quantify collision risk, that's not correct that that data will not help inform quantifying collision risk?

A. That's not entirely correct.

Q. Okay. So the -- the language of this Stipulation is not correct?

A. Well, as you know, as an attorney, language is a little bit squishy when you look real closely at it with a microscope. Part of that is correct. But, in fact, the primary intent of the pre- versus post-construction radar that's discussed in the Stipulation is not oriented towards collision

risk. It's more oriented towards characterizing behavioral avoidance and attraction offense. Do these birds fly around it when they approach it, things like that. Because it's acknowledged that for collision risk that's already been well-characterized.

And, in fact, there will be some utility in the area of collision risk. Once we have side-by-side data on exposure and fatality rates, we'll be able to understand that better. And that's one of the hopes of how this demonstration project can help serve as a platform for making good science-based decisions on future proposed projects, should they get proposed. And, in that sense, the radar data will inform collision -- our understanding of collision risk because of the direct side-by-side comparison.

However, it's not the case that this information was needed, for example, in the risk assessment. The risk assessment already has a very robust conclusion based on other data, and the radar data is not necessary for that.

Q. Are you telling me that the presence of birds -- whether or not there are birds flying around in the rotor-swept zone, knowing that data before

construction and operation of this project, is not informative of whether or not the project presents collision risks to birds?

A. Correct. That is what I am telling you.

Q. Okay. Let's go to page 6 of your report.

A. My report. Which one is that?

Q. The document we were talking about. I'm sorry, the 2016, Summary of Risks to Birds and Bats. Page 6, first full paragraph.

A. Okay.

Q. "Beyond simple rates, one of the most important patterns that has emerged from bird and bat collision fatality studies at land-based wind energy studies to date is that collision susceptibility is highly taxon- or guild-specific for both birds and bats." And you cite some people. "For many bird species, susceptibility" -- and the susceptibility we are talking about is collision fatality, correct?

A. Yes.

Q. Okay. -- "appears to be most closely related to species' overall abundance, and the amount of time a species spends flying within rotor swept altitudes...." Isn't that what you told us in this report?

A. There's more information in that

sentence, that you didn't read, that is important to understand the context.

Q. Did you not state what I just read?

A. What did you mean did I state it?

Q. Is it not stated in this report? Did I not read that correctly, that sentence, "For many bird species, susceptibility appears to be most closely related to species' overall abundance" -- I understand that, and this is your language, is it not, "and the amount of time a species spends flying within rotor swept altitudes"? Didn't you say that? Don't you say that in your report?

A. You just asked me if you read the sentence correctly.

Q. Okay.

A. And I'll say you didn't because you didn't read the whole sentence.

Q. All right. All right. Did you not say that collision fatality susceptibility, to the point that I've read, is most closely related to, one, "species' overall abundance." That's the first factor you listed, right?

A. Uh-huh.

Q. And then the second factor you listed was "the amount of time a species spends flying within

rotor swept altitudes."

A. That's part of the sentence. You've read it correctly.

Q. Okay. Thank you.

A. The other part explains the very important caveat which is essentially that it's not the whole story and that's why information on exposure cannot be taken as a direct indication of risk. Exposure, as I wrote in my testimony, is a necessary, though insufficient, condition for risk.

Q. Okay.

A. If the bird is not there, it can't be at risk, but if it is there, it may or may not be exposed to risk.

Q. So it is helpful to know whether or not birds are flying within the altitude of the rotor-swept zone out at the project site, correct?

A. It adds some value. However, imagine if you are trying to calculate the likelihood of somebody getting killed in an accident on Broad Street. You wouldn't just need to know how many cars pass by. You would also need to know something about the susceptibility of accidents. Thousands of cars might pass by in a day and there may be no accidents.

So while the passage of cars, in that

example, is informative or useful in that analysis, it's certainly not the only thing you need and, in fact, getting that data on accident rates, in one very real sense, is much more important.

And that's why I'm making the qualifier that exposure data by itself -- in fact, if you don't have a good correlation factor to link exposure data to fatality rates, then the exposure data, by itself, is not very informative to the risk assessment. And what's more informative, as I said, is actual proof-in-the-pudding results from other studies. Then you see what the suseptibility is.

Q. Well, you have told me a lot of things there, and you have used words "informative" and "not informative," but the language you used here was "most closely related," correct? Those are the two factors you identified as most closely related. That's your language, correct?

A. That's correct.

MR. SECREST: Objection, misstates evidence. Dr. Gordon has indicated there is an additional portion of that sentence that's not being read.

ALJ ADDISON: Thank you. I believe he provided enough clarification in his initial answer,

but I believe he already answered this question.

But I will urge you, Dr. Gordon, to wait for counsel to make an objection before -- before answering. Listen to your counsel.

THE WITNESS: Okay.

MR. STOCK: Excuse me a moment while I'm checking my notes.

ALJ ADDISON: Certainly.

Q. (By Mr. Stock) Let's turn back to Exhibit 8 at Tab J. This report is authored first by Chris Nations, and then you are listed as well, correct?

A. Yes.

Q. And this is the January 23, 2017, NEXRAD Assessment of Nocturnal Bird Migration Activity from Weather Radar Data, et cetera, correct?

A. That's correct.

Q. And again, that's -- that's weather radar data from the KCLE NEXRAD radar station approximately 14 miles from the site.

A. That, plus also we looked at the KBUF NEXRAD station as well.

Q. Okay. Thank you.

Now, how does NEXRAD radar work?

A. Well, I want to say, you know, first,

that I am not, first and foremost, a radar specialist. We have Mr. Mabee over here and Mr. Erickson will get into more the technical details, so you wouldn't want my explanation of all this in the record at a technical level.

I can tell you, at a conceptual level, the radar unit sends out beams, and it analyzes things like weather, precipitation, and also birds, depending on your purpose, by analyzing the patterns of reflectivity; the way those beams get bounced back to the sensors at the station.

Q. Could we stop there a second?

A. Yeah.

Q. You talked about the radar analyzing. The radar is just sending out a beam that gets reflected off of something and bounces back if it gets reflected, correct?

A. That's correct. The analysis is done by somebody else.

Q. Right. The radar doesn't do any analyzing.

A. That's correct.

Q. All right. So the radar goes out, it hits something, and it bounces back.

A. Correct.

Q. All right. Is that some sort of binary signal, that is, you either have a reflection or you don't?

A. Not necessarily. And this gets very, very complicated like sausage making and legislation, right? There -- one of the factors, for example, that's taken into account in the analysis of nocturnal migrating birds, with NEXRAD data, is the direction of the prevailing wind relative to the direction of the signals that are causing the reflection.

In fact, what we do is we try to subtract out -- there is various algorithms that are applied to subtract out the stuff that is moving in exactly the same pattern as the prevailing wind because that's just probably precipitation or floating stuff.

Whereas, bird migration is pulled out of that by looking for stuff that's actually moving against the direction of the wind or in the direction, that's self-propelled, not just floating from the wind. That's an example of one of the processes that's applied to the data to pull out relevant information.

Q. Again, you are getting ahead of me. I don't want to get to the point of analysis yet. We

are going to go through that.

A. I'm sorry. I thought I was answering your question.

Q. No, that's fine.

I'm asking what the radar equipment is recording and how it's recording it. It sends out a beam, it gets reflected off something, and so the beam comes back.

A. Right.

Q. All right. How is that recorded before any manipulation or interpretation by the radar unit?

A. I really don't know the technical specifics of how it gets recorded.

Q. Okay. And you don't know the technical specifics of taking that whatever, how it's recorded by the radar device, and getting to the point of manipulating or interpreting or applying algorithms to it to create data that is useful to analyze regarding flying birds, correct?

A. Well, I do know some things about that. I don't know it well enough to write you a recipe for it or to sit down and roll up my sleeves and do it all by myself, but I know enough about it conceptually to, for example, to work with Chris and prepare this report.

Q. All right. Let's turn to page 6 of the report that you coauthored. "Data Selection, Downloading, and Pre-Processing."

"Level II NEXRAD data were downloaded from the database maintained by the National Centers for Environmental Information (NCEI) archival website." Is that where you get the free data?

A. That's what it says here.

Q. Okay. In what form is that free data on the site?

A. What do you mean by "what form"? Like what types of files or?

Q. What types of files? What does it say? What information is contained within it?

A. Yeah, I'm not really sure.

Q. Okay. The next step, "Each download -- "downloaded compressed file containing all data for an hour were decompressed into multiple files, each representing a separate radar scan at multiple elevations; typically, weather radars conduct 5 to 10 scans per hour. The NEXRAD data in these decompressed files were extracted from the native binary format using the Weather and Climate Toolkit...."

So you infer from that that the data from

the NEXRAD radar equipment is some sort of binary information?

A. You know, again, I'm not the sausage-maker here. The technical details of this stuff is not something I have direct knowledge of, so.

Q. Okay.

A. The best I could do is read this methods description, which I think is actually fairly transparent, together with you. But as for the specific processing of specific file types, I really can't give you much more information on that other than what's presented here in the methods section.

Q. Well, if it's transparent, maybe you can help explain it to us.

It says it's "extracted from the native binary format using the Weather and Climate Toolkit, a Java program obtained from the NCEI." So what does that toolkit do to the data? How does it manipulate it?

A. I don't know.

Q. Okay. Then a little farther down it says "NetCDF files were queries using Matlab...." What's Matlab?

A. It's a program designed to do a variety

of mathematical functions.

Q. And what are those functions?

A. Oh, it can do a whole wide variety of things. People -- scientists often use it to do all kinds of different quantitative analyses.

Q. All right. So, in this case, what was it used to do to the data in your study?

A. It was used to process the data to eventually get to the point of interpreting nocturnal migrant bird data.

Q. And what processes did it apply to the data?

A. The best I could do would be to read through this methods description with you about the processes. Again, I am not the one who drove the robot on this. You know, that's not something that I know how to do in a technical perspective myself.

Q. Who -- was it Mr. Nations who drove the robot?

A. Yes.

Q. He's not testifying in this proceeding to your knowledge, is he?

A. That's correct.

Q. All right. So I count a first step of NEXRAD data in decompressed files -- or NEXRAD data

is decompressed, extracted from the native binary format using some Weather and Climate -- Climate Toolkit. So that's -- that's one processing step of the data, right?

A. I believe so.

Q. Okay. And the next processing step was querying files using Matlab. Do you understand that to mean searching to pull information out, not keep all the information in the files that are being queried?

A. I do understand that to mean that.

Q. Okay. But do you know what information was pulled out and what information was left in?

A. Well, what it says here is that we pulled out only those files representing NEXRAD operation in Clear Air Mode. We only retained those for further processing and analysis.

Q. And it says "were assumed to be dominated" -- files represented -- "Files representing operation in Precipitation Mode, that is, not in Clear Air Mode, were assumed to be dominated by precipitation...."

Was there any analysis of -- done of the data in the Precipitation Mode files, to determine if, in fact, there was usable data?

A. No, there was not. And what I can also add to this is that this follows a well-worn path of standard industry practice, from five decades of NEXRAD analysis, for looking at bird stuff. So this is noncontroversial, generally-accepted methodologies.

Q. But those aren't methodologies you actually perform yourself to take -- to go from the binary data at the radar site to converting that to usable information for analysis; is that correct?

A. Correct. I didn't do it myself.

Q. Okay. And I've just -- I want to make clear on the record that there are a number of steps involved. We are not talking -- you didn't analyze raw data from the -- the radar tower, correct?

A. I didn't myself, but Chris did.

Q. Right. Well, he went through all these steps to manipulate it, do queries, et cetera, right?

A. Following standard, well-established industry practices, yes.

Q. Right. And what I am trying to establish is your report, your analysis is not based on raw data from the NEXRAD KCLE radar station. It takes numerous steps of manipulation, and wing in and wing out, and applying algorithms and calculations to come

up with usable data, correct?

MR. SECREST: Objection, vague as to "based." It is based after the manipulation.

ALJ ADDISON: Thank you.

Do you understand the question as posed?

THE WITNESS: I do believe I understand the question.

ALJ ADDISON: Thank you. Go ahead and answer.

THE WITNESS: Answer?

A. My understanding of your question is that, you know, is your analysis based on raw data or processed data, and you are asserting it is based on process data and that is true, yes, absolutely.

Q. And in looking at this, you know, we can go through the paragraphs, but I see 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 -- if you read over onto pages 8 and 9 -- 13, 14 and counting, steps of processing. If you take a quick look at that, does all of this text relate to processing that's -- that's done to come up with your usable data for analysis?

A. Yeah. That's why you need a guy like Chris Nations who is really smart.

Q. Okay. Now, we talked about what NEXRAD data gives you. And NEXRAD is reflectivity, sending

out the beam, having it reflect against something, and then bounce back, right?

A. Yeah.

Q. All right. Now, let's look at page 10 about target density. The last sentence, "Reflectivity was not converted to bird density since such conversion is based on the important assumptions that target size is known and is uniform. Furthermore, conversion does not facilitate comparisons within this study." What does that mean?

A. Oh, essentially that means what I said earlier, which is that NEXRAD data does not track individual bird targets. It more detects -- and after all these processing steps, it detects clouds of stuff in the sky that's not moving in the direction -- the same direction as the prevailing wind and is presumed to be biological targets, but it doesn't track individual targets.

Q. So is it saying here that this cloud of stuff, moving in the sky, that NEXRAD can obtain data for, can't be processed to tell you how many birds are in that cloud?

A. What it says, strictly speaking, is that it can't be converted to bird density. Although, I will note that some authors, including Robb Diehl in

his paper that's in the record for this project, have used clever analyses to do just that, by developing calibrations with other radars.

But what this says is you can't convert NEXRAD data, by itself, to bird density. What it does give you is an index of bird abundance. You just don't know exactly how many birds it is because it would depend on how big they are, but you know it's a bunch of birds or a bunch of biological targets.

Q. Right, a bunch of biological targets. And it can't tell you, if it is birds, how many birds there are, correct?

A. Yeah, but it can tell you the level of, for example, nocturnal migrant bird activity in an area.

Q. It tells you the level of reflectivity, right, which you then interpret, correct?

A. Yeah, just like your doctor's instrument tells you some blips and he interprets it as blood pressure. I mean, the reflectivity is used to study migration, nocturnal migration bird activity, through the processing and analysis steps.

Q. And with respect to your report, you didn't try to convert reflectivity to bird density,

right?

A. That's correct. We converted reflectivity to an index of bird abundance, a nocturnal migratory bird activity abundance.

ALJ ADDISON: Can we go off the record for just a minute?

(Discussion off the record.)

(Thereupon, at 1:06 p.m., a lunch recess was taken.)

- - -

Tuesday Afternoon Session,
September 25, 2018.

- - -

ALJ ADDISON: Let's go back on the record.

And, Mr. Gordon, I will remind you you are still under oath.

THE WITNESS: Thank you.

ALJ ADDISON: Thank you.

- - -

CALEB E. GORDON, PH.D.

being previously duly sworn, as prescribed by law, was examined and testified further as follows:

CROSS-EXAMINATION (Continued)

By Mr. Stock:

Q. Mr. Gordon, over lunch, did you discuss your testimony with anyone?

A. Yes.

Q. With whom did you discuss your testimony?

A. With counsel.

Q. Were other WEST employees involved in the discussion?

A. They were in the lunchroom but not involved in the discussion.

Q. Were they sitting with you while your

testimony was being discussed?

A. Yes.

Q. And who were those sitting with you?

A. All the gentlemen over there, Rhett Good, Wally Erickson, and Todd.

Q. I'm sorry.

A. Rhett Good, Wally Erickson, and Todd Mabee.

Q. They are all witnesses yet to be called in this case, correct?

A. Correct.

Q. Okay. Did you review the exhibit binder that I had given you for the cross-examination?

A. No.

Q. Okay. Did you discuss any of the documents in the exhibit binder that I gave you for cross-examination?

A. I had a brief discussion with counsel about reviewing what some of the documents were. He had brought his binder to lunch.

Q. Counsel had?

A. Yeah.

Q. And did you look at documents that we've not yet covered in your cross-examination?

A. No.

Q. Okay. Thank you.

Let's go to Tab J, Exhibit 8, page 5.

A. Okay.

Q. We spent some time talking about the altitude coverage of the NEXRAD radar beams. There's more than one beam, correct?

A. Right.

Q. Okay. Now, you mentioned a buffer zone about 2 miles out off the lakeshore. Did I understand that correctly?

A. Not exactly. It's a buffer zone around the project site of 2 miles.

Q. Oh, okay. All right. Thank you. Now, if you look at Table 1, it reads "Sampling heights of the radar beam from the KCLE station above the proposed Icebreaker Wind Energy Facility." And the Near column, 114.4 meters, when it references "Near," is that not a reference to the nearest turbine, but the closest border or terminus, if you will, of the project site to the shore?

A. What it is is the nearest edge of the study area that we used for the analysis which consisted of the project area buffered by 2 miles all around.

Q. So in Mr. Karpinski's

cross-examination -- excuse me. If I can find it. Yeah, I am looking for the exhibits. I'm sorry. Do you have his exhibits up there on the -- are they up there, his binder?

THE WITNESS: Is that what this is?

Q. Does it say "Karpinski" down -- last line?

A. Yes, "Exhibits for Cross-Examination of David Karpinski."

Q. Take a look at Tab A which is Exhibit 1, please.

A. Okay.

Q. So there's a depiction on the front of that exhibit of the -- well, there are six turbines and then one that's not in yellow, a possible seventh that was considered at one time, correct?

A. Right.

Q. So the 114.4 meter altitude of the lower beam, would that be at a point that is 2 miles closer to shore than the project area?

A. That's correct.

Q. So do you know what the height of the radar beam would be 2 miles farther out at the project area?

A. I can't tell you with precision, but if

you look at Exhibit J, page 5, Figure 3, you can actually see that right on there, represented by the lower dotted blue line. Do you see that?

Q. Yes.

A. So that -- see how that lower dotted blue line goes slightly up as it goes from left to right?

Q. Uh-huh.

A. It goes up such a slow slope you almost can't even see it, but that is -- that represents the bottom of the lower radar beam at different -- different distances from the KCLE NEXRAD radar. And the grayed area represents the distances from the radar covered by our study site area of analysis which is actually the study site buffered by 2 miles all around.

Q. Okay.

A. So what you can see, the furthest lift of that gray beam, the blue -- the blue line is at -- well, it's at 114.4, and I only know that because of Table 1, but you can see how it's just a hair above 100? So if you move 2 miles to the right, you can see that it would be incrementally higher than that but very -- so small you can't even see it on this graph. So if I were to ballpark it, I would say probably the elevation -- the minimum elevation that

the -- of the radar beam at the actual closest turbine location would probably be on the order of 115 or 116 meters.

Q. Okay. And then if you look at Figure 1 there for the farthest --

A. Figure 1?

Q. Table 1, excuse me.

A. Oh.

Q. The farthest reference point, the farthest turbine would be in a little closer than that, right?

A. Exactly.

Q. So it might be 122 meters, something like that?

A. No. Oh, you mean the minimum elevation.

Q. Right, right.

A. Yes, yes, exactly, right. So that's exactly right.

Q. Okay. So somewhere for the turbine area, ballpark 115 to 116 meters at the closest one, and 120 meters at the farthest.

A. Correct.

Q. All right.

A. But, again, the bottom of these NEXRAD radar beams is fuzzy. We represent it as a -- as a

line for simplicity, but what the beam actually detects is a little more fuzzy than that so.

Q. Okay. If you go to Tab O --

A. Did you want to look at Mr. Karpinski's -- oh, we are done with that.

Q. Tab O in yours, I'm sorry.

MR. STOCK: And I guess this would be Exhibit 10?

ALJ ADDISON: It will be marked as Bratenahl Residents Exhibit 10.

(EXHIBIT MARKED FOR IDENTIFICATION.)

MR. STOCK: Thank you.

A. Yes. Got it.

Q. This is a depiction of the turbines that I got -- I think it's Exhibit P from the Application and I've tried to measure approximately 114 meters. Does that look about right?

A. I'm not sure. It falls in between the lines of 105 and 140. But it falls -- seems to fall close to halfway which would be 120-something. So I think you may have drawn it a little bit high on here actually.

Q. Midway point would be 122, right?

A. Uh-huh.

Q. And we were talking about at the nearest

turbine being 115 or 116, right?

A. Right.

Q. So it's not too far off, is it?

A. No, not too far off.

Q. Okay. So allowing for a little bit of margin error on the line, the radar -- lowest radar beam would cover the portion above that line, correct?

A. That's correct.

Q. All right. Now, 146 meters, 479 feet, I think that is. Just for purposes of comparison, how tall a building is that? Can you -- do you know how many stories?

A. I'm not sure. Somebody else here could get a good number. I don't know how tall a building that is.

Q. Okay. It's a pretty good sized -- pretty tall building, right?

A. Oh, yeah.

Q. Okay. And then if you look at the next page, I tried to depict 124.6 as best I could, and with a little bit of, you know, margin of error, is that somewhat of an approximation of what would be covered at the farthest turbine?

A. Well, as we discussed, the number is

right -- again, it looks -- that line looks awfully close to the 140 line to my eye but, with a margin, approximately right.

Q. Okay. All right. Now, let's go back to your NEXRAD study.

A. Exhibit -- it's J here. I forget which number.

Q. It is No. 8. Exhibit Tab J, right. Page 4.

A. I'm with you.

Q. The left-hand side, this is -- it states about five lines up -- eight lines up from the bottom, "Note, for instance," do you see that?

A. Hang on. Gotcha.

Q. It says "Note, for instance, that the lower minus 3 decibel point ranged from 114.4 to 124.6 meters directly above the turbine locations." That's a reference to that lower beam that's depicted in the blue dashed -- dashed line on Figure 3, correct?

A. Correct.

Q. Okay. "Birds flying within the overlap region," that's the region of the turbines that cut into or above those levels, "would likely be detected by the KCLE NEXRAD, though more detailed inference

about target heights is not possible." Do you see that?

A. Yes.

Q. That's an accurate statement, correct?

A. I understand that to be accurate.

Q. Okay. Now, when it says that those birds in the overlap zone "would likely be depicted," that's not -- that does not meet a reasonable degree of scientific certainty as a conclusion that they will be detected, correct?

A. I'm not sure I understand the standard. Reasonable degree of scientific certainty that birds in the overlap zone would be detected?

Q. Yes.

A. I believe they would be detected and, in fact, the next sentence indicates that according to some other authors, in fact, birds at considerably lower elevations may well have been detected by those beams.

Q. But what you state is "would likely be detected." You did not render that opinion to a reasonable degree of scientific certainty, correct?

A. Well, I think what there is is a high degree of scientific certainty on the use of this data to understand nocturnal bird migration, but I

think what that sentence explains is that, as with any radar sensor, or any sensor for that matter, depiction is not perfect. There's a certain false negative rate and certain false positive rate. So whether or not any particular bird, or in this case it would have to be a cluster of bids, was actually successfully detected, it only does so with a certain level of accuracy as with any sensor. That's what I understand that sentence to mean.

Q. All right. So as we sit here today, can you tell me how many birds this NEXRAD radar detected within the rotor-swept zone?

A. Like we've talked about before, I can bracket it broadly, and I can tell you in relative terms which is what's most important for doing our analysis, but I couldn't put a precise number to it.

Q. Okay. Now, turn to page 2. It -- or excuse me, page 3. What is the Figure (a) at the top on -- in Figure 2 on page 3?

A. Well, that is a map figure that shows the location of our study areas for the NEXRAD analysis.

Q. Okay.

A. So what you can see is that the upper area that -- those study areas are in gray and they are doughnut sections, right? I don't know how you

describe that in geometric terms, but they're a section of the doughnut. What you can see in the one called "Project Area" is you can see the six turbines, but you can see that red oval. That's the 2-mile buffer.

Q. Okay. Thank you.

A. And, in fact, the rest of that polygon there is -- accommodates essentially the properties of the radar beams. That's the only thing you can do is take a section defined by the radius that it emanates from the antenna, over a certain set of distances. So you are -- it's going to be a slice of a doughnut.

So that shows the study area that we used to represent the project area, and it also shows Comparison Areas 1, 2, and 3 relative to the Lake Erie shoreline near Cleveland. So you can see that Comparison Areas 1 and 2 overlap the shoreline, on the east and west side of the project area, equidistant from the radar antenna.

Comparison Area 3 is an inland site basically straight south of the KCLE radar, also equidistant from the radar antenna. And, of course, we picked the equidistant areas because that's what you have to do to get the apples-to-apples

comparison. So you are looking at the same elevational range for the relative comparisons that we do.

Q. Okay. And the KCLE with the red circle there, that is where the NEXRAD radar apparatus, tower, whatever you want to call it, NEXRAD tower is located, correct?

A. Yes.

Q. Relative to the blue line which is the shoreline, correct?

A. Correct.

Q. All right. Now, let's turn to page 12. And Figure 4, if you look in the upper right-hand corner, it says KL -- "KCLE - Spring, 0.5 degrees." That's the reference to the lowest radar beam emanating from the KCLE NEXRAD tower, correct?

A. Correct.

Q. All right. That's the beam that was at the 114 to 124, give or take, that we were discussing before, correct?

A. That's the beam whose -- whose bottom range is --

Q. Yeah.

A. -- is that --

Q. Yes.

A. -- over the project site, yes.

Q. All right. Thank you. And these blue wedges, what do they show?

A. Those represent the preponderance of the direction of the biological targets that were extracted, the flight direction of the biological targets that were extracted from the data. And what you can see in the spring, from KCLE, most of the biological targets were flying in a north-northeasterly direction, which indicates, it's kind of a ground truth that shows we are indeed getting migrating birds because that's the direction we know that birds migrate, predominant prevailing direction that birds migrate in the spring in that area.

Q. So why is one -- let's look at the wedges that go north and northeast. Why is that one wedge larger than the others?

A. Well, it's because for the actual point location of the NEXRAD, and this is important, this does not reflect patterns over broad space and time. This only reflects targets that are detected from that one point location. That was the -- that was the wedge that had the most birds in it --

Q. Okay.

A. -- at that -- in that season.

Q. Okay. Now, if you go to Tab P, this would be Exhibit 11.

ALJ ADDISON: It will be so marked.

(EXHIBIT MARKED FOR IDENTIFICATION.)

MR. STOCK: Exhibit 11.

Q. And we went through this at your deposition, so you've seen this before.

A. I remember.

Q. Tab P is your Figure 2 with the shoreline and the quadrants, your Figure 2; and your Figure 4, with the wedges for the direction and density of migration during the spring; superimposed over one another. Do you see that?

A. I do.

Q. And that's what you understand that to be, correct?

A. Yes.

Q. All right. And the wedge that you indicated is the greatest number of birds migrating north and northeast that is captured in your figures from your report is headed right into the project area, correct?

A. That's correct.

Q. Okay.

A. And what that means is not that most birds fly straight to the project area. What that means is that most birds that pass directly over the KCLE radar station fly exactly in that direction. So what that means is that the KCLE radar station is the perfect data source to look at the project area. It is not reflective of the density -- relative densities of birds more broadly. It only reflects relative densities of birds flying over that particular point. And it just shows that the KCLE radar station is looking right at the birds who are flying right over this project area. It doesn't mean that more birds fly over there than anywhere else.

Q. But all the data that you used and analyzed from this report was from the KCLE radar, correct?

A. And the KBUF.

Q. Right, right. You're right, but in talking about Lake Erie. So that was the data you were analyzing that you were saying --

A. Right.

Q. -- is appropriate to take -- perform analyses of migration in and over the Lake, correct?

A. Yes.

Q. Okay. And your own data, the data you

say that is valid to do that, shows, when you overlap these charts, that on this particular date the greatest number of birds were migrating directly into the direction of the project site, correct?

A. No, that is not correct. You are mis -- misinterpreting this information. I can explain it to you if you want.

Q. No. Let me ask this: This chart depicts data that you have analyzed for your report, correct?

A. Yes.

Q. And of the data that is depicted on this chart, what you have depicted from the data you've analyzed for this chart is that the greatest number of birds are going out over the project area.

A. No. You didn't get that right.

Q. Okay.

A. They are flying in that direction. So, for example, let's look at that figure in the right-hand quadrant and I can help you understand this better. If there is a bird that starts directly over the KCLE radar station, then the predominant thing that it will do, as indicated by these directions and this rose plot, is fly right over the project site.

Q. Okay.

A. However, if there is a bird -- and our data included -- most of it is such birds who did not fly right over the KCLE point. Let's say you have a bird that started right where the word "Ohio" is printed in that quadrant. Do you see that down in the bottom left?

Q. Yes.

A. It says the word "Ohio." Okay. A bird that started there, what this rose plot shows is that the prevailing direction would be the same. So it would fly up to essentially in the same direction to cross over the area called CA2, for example. Do you see that? And do you understand? So, in other words, the rose plot represents directions. It does not represent birds flying over the project area. It represents the prevailing direction.

So birds that started in different points, would wind up in different points. They would not all fly over the project area. If you want to know the density of birds in the project area relative to other areas, you got to look at our table that compares that.

Q. Well, you don't -- this rose plot does not have any data for a bird flying from the Ohio point --

A. Yes, it does.

Q. Where is that on this rose plot?

A. All of it is in there because what a rose plot like this is, it's not spatially-explicit data. It's not all birds are mapped to that one point. What it does is it represents the directionality of all the birds that started from all the points directed by the radar.

Q. Okay.

A. Do you understand?

Q. I do. So what it tells you is, with a broad-front migration, based upon this directional data, the greatest density of birds on this particular evening were flying --

A. It's a whole season.

Q. Oh, this is the whole season?

A. All season.

Q. Oh, okay. So for the whole season, the birds were flying in -- the greatest density of them were flying in that direction that is depicted as being out over the project area, correct? That's the right direction.

A. Only if you started from the point of the KCLE radar. If you start from any other point and you fly in that same direction, it takes you to a

different point.

Q. Well, right. So if you --

A. They fly in that direction. Let's put a number to it. If straight north would be 0 degrees, it looks like it's something like, I don't know, 10 degrees. So what it shows is that for all the biological targets we tracked the prevailing direction in the springtime season was 10 degrees.

Q. Okay.

A. So if they started right over the KCLE radar station, they would fly right over the project site and that's what your figure depicts. But if they start from anywhere else and they fly at 10 degrees, they will end up somewhere else.

Q. Well, wait, wait, wait a second. How -- how broad there is the project site?

A. How broad is the project site?

Q. Right. In this map, from the northwestern-most point to the southeastern-most point, how broad is that project area?

A. The project area, just the turbine itself or the study area?

Q. The study area.

A. It looks like it covers maybe about -- is that about 5 degrees or 15 degrees? I can't tell

exactly, but it covers that chunk of doughnut.

Q. So what would the distance be? How --

A. I think it's approximately 4 or 5 miles.

Q. Oh, okay.

A. Maybe 3 to 4, something like that.

Q. So 3 to 4 miles. So if the greatest density of birds over the entire migration season is flying in that direction for a 3- to 4-mile swath, the greatest density of birds would be flying in the direction of the project zone.

A. I think your problem is you are using the word "density." This plot doesn't depict density. It depicts directionality. It does not depict density, so I think that's where you are getting hung up.

Q. It predicts more than directionality.

MR. SECREST: Your Honor, I would like the witness to be able to finish his response.

ALJ ADDISON: Thank you.

Please allow the witness to finish.

MR. SECREST: Thank you, your Honor.

A. So I will try to describe it more clearly. So this picture is a rose plot which depicts the directionality of all birds that were tracked during the spring season from the KCLE radar.

And what it shows is that the prevailing direction was about, if I'm correct on this, 10 degrees. I can't really read that very well, but it's north-northeast, right?

Now, it doesn't mean that there was a greatest density of birds flying over the project area. In fact, we showed that the project area was a cold spot. It was actually a lower abundance of migrant birds compared with all six of the other comparison areas and that's shown in the other figures in our report. What this shows is only the directionality. So birds -- any of the targets we were tracking, what was the prevailing direction they flew. Whether or not they flew over the project site, depends on their starting point.

In this case, as your figure shows, birds that happen to start out and fly right over the radar station would wind up flying right over the project site, and that indicates we had a great source of data to do this analysis.

But as I said, birds starting out anywhere else, who flew in 10 degrees the prevailing direction, would fly over somewhere else.

So you're misinterpreting it if you think this means it shows a high density of birds flying

over the project site. That's not what it shows. In fact, it doesn't represent bird density at all.

Q. It shows more than just directionality. What does the bigger wedge show?

A. It shows the prevailing directionality. It shows the heaviest of all the directional slices where birds were flying.

Q. I'm sorry. The heaviest what?

A. The preponderance of directionality of the biological targets that were tracked, what direction were they flying.

Q. What do you mean "preponderance"? What does that mean? Greatest number?

A. The most birds.

Q. Okay. The most birds flying in this direction, right?

A. That's correct, but they weren't flying over the project site.

Q. Well --

A. Only the ones who started right over the radar beam would have flown over the project site. The ones that started in the Ohio, where it's written, for example, would have flown over Comparison Area 2.

Q. Right. And a bird that flew 1 mile west,

a bird that was following the prevailing, that is, greatest number direction, that was 1 mile west of the CLE site, traveling in that direction, that prevailing preponderant direction would come over the project site.

A. Yes, I believe it would.

Q. All right. And 2 miles over, a bird flying in the preponderant, that is, where most -- the direction that most of the birds were using over the entire season, would fly over the project area.

A. Are you asking me if that's correct?

Q. Correct.

A. No. You're wrong.

Q. Why?

A. Well, because the KCLE station is actually located slightly to the west of the project area, so. And I think that study area, maximum, is about 3-miles wide, so. I think that a bird who flew -- did you say 2 miles to the west of the KCLE radar? I think it would go to the west of the project site.

Q. All right. So how far to the west of the KCLE radar would a bird that's flying, where the predominant direction is, how far west of that would the bird -- would that put the bird over the project

site?

A. It would be the equivalent of the length of the project site, displaced to the amount west that the KCLE station is west of the project site.

Q. So give me your estimate. How far?

A. Mile, mile and a half.

Q. Okay. So birds within a mile or mile and a half to the west.

Now, how about to the east? How far to the east would birds that are flying in the predominant direction, that is, where most of the birds were flying over the entire season, how far to the east would birds that are flying in that predominant direction fly over the project site?

A. That would be equivalent to the remainder of the total width of the project site, after you subtracted the distance to the west of the KCLE; maybe a couple of miles.

Q. Okay. So within 3 miles, 1 mile east and 2 miles to the west, birds flying during that migration season in the predominant direction, that is, where most of the -- the direction that most of the birds flew, would be over the project site.

A. Are you asking me if that's correct?

Q. Correct.

A. No.

Q. Why not?

A. Because the 3 miles is our study area. The actual project site, represented by the turbines, I think that's only about a mile in width, you know, when you talk about the east-west direction. So as birds are coming in that direction, the plane that they would have to cross, to cross directly over the project site, would actually probably be -- I'd have to do the math, but it looks like on the order of a mile or so, maybe less.

Q. Okay. So it's not just from one point. We're talking at least a mile, or better, of birds would fly over the project site if they were in the -- flying in the predominant direction.

MR. SECREST: Objection, vague.

ALJ ADDISON: I'll allow him to answer the question.

A. Yeah, I think that's -- the birds that would fly over the project site, who were flying in the prevailing direction during that season, would be those birds that started out 180 degrees different from that direction, on a plane equivalent to the width of the project site, maybe roughly a mile to the south.

Q. Fair enough.

I want to direct your attention to Tab M. This is an October 4, 2017, letter from the Fish and Wildlife Service to the U.S. Department of Energy. I'm look --

MR. STOCK: I do not think we've marked this before, have we? So this will be Intervenor's Exhibit 12.

ALJ ADDISON: We'll mark it Bratenahl Residents Exhibit No. 12. Thank you very much.

MR. STOCK: Thank you.

(EXHIBIT MARKED FOR IDENTIFICATION.)

Q. (By Mr. Stock) Mr. Gordon, I want to have you identify this October 4, 2017, letter from the U.S -- from the Fish and Wildlife Service to the U.S. Department of Energy. You've seen this letter before, correct?

A. Yes.

Q. Okay.

A. Do you want me to identify it further?

Q. No. That's sufficient. You were asked to prepare comments in response to this letter, correct?

A. That is correct.

Q. Asked by Icebreaker, correct?

A. Yes.

Q. Okay. I want to take you to page 3. Down at the bottom, five, six lines from the bottom, Fish and Wildlife Service states "During the actual nocturnal migration, however, migrants commonly cross Lake Erie and all of the other Great Lakes. Additional evidence for migrants crossing over Lake Erie is included in the NEXRAD weather radar analysis appendix (Nation and Gordon 2017)." Do you see that?

A. Yes, I do.

Q. Okay. That's a reference to your report, correct?

A. Correct.

Q. You don't dispute that statement by Fish and Wildlife Service, do you?

A. No.

Q. Okay. "In the spring, the predominant migration movement direction (Figure 4. Appendix J)" -- that's the Figure 4 from your report.

A. Uh-huh.

Q. -- "was to the north-northeast from Cleveland, indicating migrants are heading out to cross over the lake." You don't disagree with that, do you?

A. No, I do not.

Q. Okay. Next page on 4, "The NEXRAD radar analysis primarily provides data on migrating birds and bats located over the rotor-swept zone, thus most of these migrants would not be at risk from turbine operation." You don't disagree with that statement, do you?

A. No, I do not.

Q. Okay. "There was, however, some overlap between the rotor-swept zone of the turbine and the area included in the NEXRAD radar analysis (Nations and Gordon 2017)." You don't disagree with that statement, right?

A. No, I do not.

Q. Okay. Fish and Wildlife Service next quotes from, I think it was that page 4 where we already went over this "'...at the 0.5 degree elevation the height of the lower minus 3 decibel point range from 105 to 135 meters above the Project Area. Thus, there was some overlap of the radar beam and the rotor-swept zone for the proposed turbines, which have a maximum blade tip heighth of 146 meters.'" That's an accurate quote from your report, correct?

MR. SECREST: Objection to characterization. That's not his report. He's

reading an interpretation of the report.

ALJ ADDISON: Thank you.

MR. SECREST: I just want it made clear.

ALJ ADDISON: Thank you for making that clear.

With that clarification, you can answer.

MR. STOCK: Wait, wait. I am reading a quotation from the report. This was not Fish and Wildlife Services' characterization of it.

ALJ ADDISON: Is this an exact quote from the report?

THE WITNESS: I would have to go back to the report to double-check, but.

Q. Take a look, page 4 on Exhibit -- Tab J.

A. Page 4. If we find it is not an exact quote, that will be interesting.

Okay. "...at the 0.5 degree elevation and from...." You have seen this spot where that quote begins? I haven't found it yet.

MR. SECREST: It's about halfway on the second page.

THE WITNESS: Okay. I see.

Q. Yes. Do you see it there?

A. "...at the 0.5 degree elevation, the height of the lower minus 3 decibel ranged from 105

to 135 meters above the project area. Thus, there was some overlap...." It appears to be a correct quote.

Q. Okay. Thank you.

Now, they quote again, and maybe we should run this down if there is some concern that --

A. I don't mind if you want to assume it's correct.

Q. All right. Thank you.

A. I hope they got it right.

Q. I have seen them in there. They then quote from the report, your report, "'Differences in migration intensity with radar elevation indicate that, at the Project Area, there are more than twice as many birds at the lower 0.5 degree elevation (Figure 6c and Table 5). While the airspace sampled at this elevation does overlap with the rotor-swept zone, the extent of the overlap is small....'" Do you agree with those two sentences so far?

A. Yes.

Q. "'Thus the migrant bird activity detected by this lower beam primarily comes from altitudes immediately above the rotor-swept zone of the turbines'"; that's correct as well, right?

A. That's correct.

Q. "'Given the limitations of NEXRAD resolution, it is not possible to determine the precise flight altitudes of birds within the radar beam.'" That's an accurate quote from your report, correct?

A. That's true.

Q. Okay. And then back to the Fish and Wildlife Services' own language, "Thus, due to the coarse resolution of NEXRAD data, it is impossible to use this data to determine if birds and bats are flying within the rotor-swept zone or above it." That was the position taken by Fish and Wildlife Service, correct?

MR. SECREST: Objection to the characterization of "position." You can answer.

Sorry.

ALJ ADDISON: Overruled.

A. I'll just say the document speaks for itself.

Q. Okay.

A. You're reading from the document.

Q. And you had seen this document before, correct?

A. Yes.

Q. And you understood, in reading that, that

you -- that this was Fish and Wildlife Service's position with respect to the NEXRAD data, correct?

A. Uh-huh.

Q. All right.

A. Yes.

Q. You were a part of what was sometimes referred to by Icebreaker as the VBR crew, correct?

A. "VBR crew." I'm not familiar with that term.

Q. You've never seen that term before?

A. I've heard "VBR" used in the project team to refer to a vessel-based radar, but I don't know what "VBR crew" means.

Q. Okay. Let's go to -- you're familiar with the Diehl Report that has been discussed --

A. Yes.

Q. -- by other witnesses? All right. Let's go to Tab S.

MR. STOCK: And we'll mark this Bratenahl Residents Exhibit 12.

ALJ ADDISON: I believe we're on 13.

MR. STOCK: 13?

ALJ ADDISON: Yeah.

MR. STOCK: 12 was -- thank you.

ALJ ADDISON: It will be so marked.

(EXHIBIT MARKED FOR IDENTIFICATION.)

Q. (By Mr. Stock) Now, let's go back to the beginning of the e-mail chain here, the first e-mail was "Dear VBR crew." And if you look on the left hand --

A. Wait. In mine it says "Jeff." Apparently we do have very different --

Q. No. I asked you to go back to the first e-mail in the --

A. It's on the last page?

Q. Yes. That's how it works when you print out a chain.

A. Okay.

Q. It prints the last one.

A. I want to look carefully here at the dates.

Q. Friday, December 15, 2017, "Dear VBR crew," from Beth Nagusky at Lake Erie Energy Development. And the next e-mail is a reply all from Jeff Gosse at Fish and Wildlife Service. And on the Cc's, Caleb Gordon, that's you, correct?

A. I see myself on the Cc list of Jeff Gosse's e-mail. I do not see myself on -- listed or any addressees listed on Beth Nagusky's e-mail.

MR. STOCK: I will supply the initial

e-mail independently because this is a reply all. He was included on the first e-mail. I will supplement the record, and hopefully I can get someone to bring it over while he's still on the stand. I guess I could do it for redirect.

A. I'm not saying I wasn't. I don't remember it, but just for the record, this exhibit you've put here doesn't show the addressees of the December 15 e-mail from Beth Nagusky.

Q. No. What it shows is an e-mail back, or in response, from Jeff Gosse, and you're Cc'ed on that, correct?

A. Right. But there's no reason to assume it's a reply all. He may have added other.

MR. STOCK: Okay. I will get that for you. I will also make the representation, on the record, that it was a reply all. But anyway --

ALJ ADDISON: But you don't have a copy of that original e-mail at this time?

MR. STOCK: Pardon?

ALJ ADDISON: You don't have a copy of the original at this time?

MR. STOCK: I will see. I originally had it pulled and then, to save time, just did the entire e-mail string. Hold on a second and I will.

Q. Well, on this reply, where you are copied, whether or not you were originally on this, you would have seen both Mr. Gosse's e-mail and the "Dear VBR crew" e-mail, correct?

A. That's true.

Q. All right.

MR. STOCK: And I do -- I will get the original for the record.

Q. And so, you did see Ms. Gosse's December 15 e-mail?

A. Mr. -- Ms. Nagusky's?

Q. Ms. Nagusky's. Thank you. Thank you.

A. I believe that's correct.

Q. Okay. And you don't know if you were addressed as the "Dear VBR crew" but you're not positively denying that as we sit here, are you?

A. That's correct. I don't necessarily recall it, but I won't deny it.

Q. Okay.

A. They will --

Q. And I am not trying to trick you on anything. I will get a copy of the e-mail.

It reads:

"Dear VBR crew:

"I hope you are all well. Early

yesterday, Robb issued his draft report on the viability and use of vessel based radar at the Icebreaker project site pre-construction, as he had promised. It is our understanding that, pursuant to our agreement to bring Robb in as the third-party neutral and to defer to his opinion on this matter, we all now have time to get Robb any comments we have on the draft report. We propose that by COB," close of business, "on Tuesday 12/19 all comments be given to Robb. Robb will then consider all comments received from us and his peer reviewers, and issue his final report on 12/21, as previously agreed upon, so that it can be filed with the OPSB. This process is consistent with our agreement to bring Robb in as the ultimate decider of the radar issue, and with our monitoring protocol and MOU."

Did I read that correctly?

A. I won't make a big deal over a few minor typos.

Q. Okay.

A. Wordos.

Q. Substantively?

A. Yeah.

Q. Thank you. And do you recall reading that e-mail?

A. Honestly, I don't recall reading this particular e-mail, but the general events associated with Dr. Diehl submitting his report and producing comments on it, I do recall.

Q. Okay. And you don't deny, as it indicates here, that, at the very least, you were copied on Jeff Gosse's Fish and Wildlife Services response, correct?

A. Yes.

Q. Okay. And then the next paragraph reads:

"We also understand that USFWS has expressed a desire or intent to amend its comments to Robb's report, or to file its comments separately, expressing a difference of opinion with certain aspects of Robb's report or its conclusions. We believe that would be inconsistent with our agreement regarding this process; we would like confirmation that FWS will respect that agreement and accept Robb's final report without dissent. Accordingly, once Robb's report is finalized, LEEDCo will prepare the filing for the OPSB, and we propose that it be a joint filing except -- signed," excuse me, "by both LEEDCo and the USFWS to be confirmed for the OPSB that the parties have followed and accept the outcome of the agreed-upon process.

"Please confirm that this process is consistent with your understanding of the process at this point and your agreement to accept Robb's final report on the record."

Did I read that correctly?

A. Yes.

Q. Do you recall that LEEDCo was trying to tell Fish and Wildlife Service that the parties had an agreement that Mr. Robb's report would be submitted to the Power Siting Board without dissent by any of the parties?

MR. SECREST: Objection to the characterization. The document speaks for itself.

ALJ ADDISON: Mr. Stock?

MR. STOCK: I am allowed to ask him what his recollection of events is.

ALJ ADDISON: I will allow this one question.

A. My -- my understanding of this communication is that Ms. Nagusky was asking the parties to confirm the agreement that Dr. Diehl's report was to be taken as the ultimate authority on the radar issue; and, in fact, we've talked about the change in position of the Fish and Wildlife Service between December 2017 and March 2018. And, in fact,

the Diehl Report, issued in December 2017, I don't want to characterize the Fish and Wildlife Service's position, but this was a turning point for the project team in our understanding of the agreement between the agencies and the -- and LEEDCo about what the radar protocol would be.

We were -- this -- Dr. Diehl's report was long-awaited by us and by the agencies. And once it was issued, we understood that it was to be taken as the independent expert opinion and the final word; as Beth said, the ultimate decider on the issues.

I would -- I concur with what Beth expressed in this e-mail that the understanding -- prior understanding of Dr. Diehl's report was to render that independent decision. It would be the final decision.

So I agree that the comment -- or the suggestion by the Service that they were dissenting from the opinion and wanted to supplement the report with additional comments expressing dissent, was not in the spirit of the original agreement to follow Dr. Diehl's recommendations.

Q. Okay. And, now, let's look at Jeff Gosse's e-mail in response, to which you were copied.

"Beth,

"Your understanding and description is vastly different than ours. LEEDCo suggested Robb as an independent reviewer for the radar study and we said that we would be willing to explore that concept (April 23, 2017). Robb expressed his preference to have both LEEDCo and the agencies" -- and the "agencies," did you understand those to be Fish and Wildlife Service and ODNR?

A. Yes.

Q. Okay. -- "each fund half of his requested stipend (Phone call between the Service and Robb, May 3, 2017; email between Dr. Diehl and Beth Nagusky et al,. May 2, 2017). The radar section of the Service agreed that we would provide half of the cost provided that we could develop a mutually agreeable written agreement which is required before our contracting division would allow for any payment."

Now, did you understand that Jeff Gosse was with the Radar Section of the Fish and Wildlife Service?

A. Yes.

Q. Okay. "We spent months, beginning this summer, in discussions with Robb and exchanging study and report specifications (emails May 3, 2017, May 3,

2017" -- excuse me -- "call May 3, 2017, email June 13, 2017, email June 25, 2017, call October 19, 2017). During all this time in discussions with Robb, he consistently stated his position that the Service and LEEDCo were free to disagree with his recommendations (email between Dr. Diehl and Beth Nagusky et al., May 2, 2017)."

Do you recall if Mr. Diehl had said that the Service and LEEDCo were free to disagree with his recommendations?

MR. SECREST: Objection, hearsay.

A. I don't have any information -- oh, sorry.

ALJ ADDISON: Sorry. There is a pending objection.

Mr. Stock.

MR. STOCK: I'm not asking him -- I'm not seeking to prove the truth of the statement. I am asking him if he agrees whether or not that happened. He was copied on this e-mail.

MR. SECREST: Which would go to the truth of the statement that it was made.

ALJ ADDISON: Thank you. Sustained.

MR. SECREST: Thank you, your Honor.

MR. STOCK: He can say whether or not he

has any knowledge of it. I am asking whether he is aware the position was taken. I am not stating the position was taken.

ALJ ADDISON: I've made my ruling. You can move on.

Q. (By Mr. Stock) "The concept that he and we both envisioned was that the report would at least note where an entity had disagreement" and then -- "and they would then be free to provide a more complete explanation of their concerns. The written agreement that we had envisioned was never consummated so our position is that there is not and never has been any agreement on this report."

Are you aware as to whether or not Fish and Wildlife Service ever signed any agreement with respect to paying any of the fees of Dr. Diehl for his report?

A. My understanding, and I should say I was -- I certainly believe you, I was copied on this e-mail and probably the earlier one in the chain, but most of these communications that Mr. Gosse refers to in this e-mail, I was not on, so I certainly was not involved in all of the communications.

However, I will also say that it is my understanding that a final contractual agreement

between the parties, including Dr. Diehl, was never reached, and so Mr. Gosse's assertion is correct that there was no agreement, there was no contractual agreement, but there was a verbal agreement, and that's all there ever was because no contract was ever finalized.

Q. Was a contract drafted?

A. I don't know.

Q. Okay. It reads in the last paragraph:

"The Service has not ever agreed to abide by whatever Robb recommends and as late as December 14, 2017, he both understood that and said that he welcomed it. Given that the written agreement we had sought was never developed and that some of our long-standing considerations have not been included in the report, the Service will not be a signatory to the report."

Did you have any discussions with Mr. Gosse about whether or not the Fish and Wildlife Service would be putting together written comments regarding the Diehl Report?

A. To make sure I understand your question, you are asking did I have discussions with Mr. Gosse about? I did not.

Q. Okay. Did you have discussions with

anyone at Icebreaker as to whether or not it had an agreement -- Icebreaker believed it had an agreement with Fish and Wildlife Service that Fish and Wildlife Service would accept Mr. Diehl's report without dissent?

A. I did understand, from discussions with the project team, that they had a verbal agreement with ODNR, and Fish and Wildlife Service, and Dr. Diehl, about his role to be the ultimate expert and independent arbiter of the radar protocol issue.

The fine point you asked about, specifically, about whether or not there was an agreement for the Service to be able to provide a written dissent if they didn't agree with part of his report, I don't recall any discussion about that specific part of the agreement. And, for better or worse, I think that's the unfortunate part about not having a written agreement. I think the hope was that the verbal agreement would be sufficient for everybody to abide by the mutual understanding. But clearly, without any written agreement, as Mr. Gosse expresses in this e-mail, they had different understandings of what the agreement was.

Q. Okay.

A. Particularly on fine points like that.

Q. Okay. Now, Ms. Nagusky's e-mail in response, on December 19, you are copied on that as well.

A. Yes.

Q. You read this e-mail, correct?

A. I believe so, yes.

Q. Yeah. Okay. And the first paragraph she states to Jeff, Jeff Gosse, "Apparently we do have very different understandings of the role Robb" -- that's Robb Diehl, correct?

A. Correct.

Q. -- "was to play in deciding the pre-construction Icebreaker Wind radar issues; our understanding was that Robb's report would be the final word on the issue of the viability of" red -- "vessel based radar to collect the data the agencies sought, and we believe that understanding is reflected in our Avian and Bat Monitoring Protocol and MOU with ODNR."

Now, down to the last paragraph.

"Since we envisioned Robb's report as the final word on this subject, we strongly object to anyone attaching comments to the report itself."

Were you aware that LEEDCo did not want Fish and Wildlife Service to attach its comments

concerning the Robb Report, to the Robb Report, when it was submitted to the Power Siting Board?

A. Yes.

Q. Okay. And you were aware of that by letter dated December 21 of 2017, the Fish and Wildlife Service did, in fact, send written comments to the Diehl Report to Mr. Diehl, correct?

A. I would want to be refreshed on the details of those communications. Is that an exhibit in here?

Q. Yeah. If you look at -- it's not an exhibit -- have we marked -- we have marked this as an exhibit.

MR. STOCK: It's Staff Exhibit 2?

MR. JONES: 2.

MR. STOCK: Thank you.

Q. Yes, it has already been marked.

A. This is the letter from the Service in December --

Q. Yeah. If you take a look at your Tab V in your binder.

A. V as in Victor?

Q. V as in Victor. It's the same exhibit.

A. What I have in Tab V is e-mails -- an e-mail from Beth to Robb Diehl. Am I looking at the

right thing? It must be a different tab.

Q. Tab V, you first have an e-mail dated -- I'm sorry. It's Tab U.

A. Tab U.

ALJ WALSTRA: Second page. Yes.

A. Yes, got it.

Q. I'm sorry. Mine is messed up. Tab U is a December 22 e-mail from Jeff Gosse to Beth Nagusky, reading "Attached is a letter sent to Dr. Diehl."

And then if you turn the page, and these are Bates stamps with the document numbers provided, the documents provided by Icebreaker in this case. So the e-mail, the first page is 570. The second page is 571. And the letter is 572, -73, -74, and -75. So you've seen that letter, correct?

ALJ ADDISON: Mr. Stock, sorry to interrupt. Are you making this e-mail exchange as an exhibit? I believe the letter has been marked already as Staff Exhibit 2, but this e-mail exchange is something --

MR. STOCK: Thank you. No. That's a valid point. We will mark this and it will become Exhibit 14; is that right?

ALJ ADDISON: And you are just marking the e-mail exchange as Exhibit 14.

MR. STOCK: No. I am marking the e-mail exchange with the letter.

THE WITNESS: The letter is already an exhibit, right?

MR. STOCK: But this is now --

ALJ ADDISON: Yes. Just for references, to make things easier, we will go ahead and mark the e-mail exchange and the letter, in combination with one another, as Bratenahl Residents Exhibit 14.

MR. STOCK: Right, because with the e-mail it makes it a different exhibit.

(EXHIBIT MARKED FOR IDENTIFICATION.)

ALJ ADDISON: Thank you.

MR. STOCK: Thank you.

Q. So you've seen these -- you've seen this letter before, from Fish and Wildlife Service to Dr. Robert Diehl, commenting on his report, correct?

A. You're talking about the letter --

Q. The letter --

A. -- not the e-mails --

Q. Yes.

A. -- in this exhibit. Yes.

Q. Okay. Thank you. Now, I want to direct your attention to Tab T. Do you have Tab T?

A. Yes, I'm there.

Q. Is that an e-mail, dated December 27, 2017, from Beth Nagusky to Alana Duerr and others at the DOE, with CC to Lorry Wagner, Dave Karpinski, and others?

A. Yes.

Q. Okay.

ALJ ADDISON: Mr. Stock, are you also marking this as an exhibit?

MR. STOCK: I'm not certain yet. We'll find out.

ALJ ADDISON: If you are going to ask questions on it, I think it would be best to have it marked.

MR. STOCK: Well, the first question is has he seen it. If he hasn't, I am not going to mark it.

ALJ ADDISON: Fair enough. Ask your question.

Q. (By Mr. Stock) It bears Bates stamp Nos. 1587, 1588 from the production. Have you seen this before?

A. What are the Bates stamp numbers?

Q. The lower right-hand corner.

A. I don't see any numbers.

Q. Okay. I'm sorry. It's a different copy

that's included. It does not have Bates numbers. Is it the same e-mail? December 27, 2017, at 5:18 and 33 seconds p.m.?

A. Yes, I see that time stamp.

Q. Okay. Do you recall having seen this e-mail before? Take a look at it.

A. I believe I have not seen this e-mail before.

Q. Okay. It says in the second paragraph: "I am attaching both the final" Robert -- "Robb Diehl report as well as the comments Fish and Wildlife Service sent to him on his draft report."

Did you have any discussions with anyone within -- with Ms. Nagusky or anyone within Icebreaker about Icebreaker sending both the Diehl Report, and Fish and Wildlife Services' comments, to DOE?

MR. SECREST: Your Honor, I'm fine with the question about whether there were any discussions, but not in reference to an exhibit that he has never seen or at least testified he hasn't seen.

ALJ ADDISON: Thank you. I agree. The question itself is fine, but any references, especially reading directly from the text, I'm not

going to allow.

MR. STOCK: Okay.

ALJ ADDISON: So if you could just rephrase your question.

MR. SECREST: Thank you, your Honor.

ALJ ADDISON: Thank you.

Q. (By Mr. Stock) Were you aware of any discussions or did you have any discussions with Beth Nagusky or anyone at LEEDCo regarding whether -- or with respect to LEEDCo submitting to DOE both a final Robb Report and the comments submitted by Fish and Wildlife Service?

A. I honestly don't remember if I was involved in any discussions about that.

Q. All right. Were you involved in any discussions with Beth Nagusky or anyone at LEEDCo regarding LEEDCo having an understanding that the Fish and Wildlife Service would not file its comments regarding the Diehl Report with the Power Siting Board?

MR. SECREST: Asked and answered.

MR. STOCK: It's a completely different question.

ALJ ADDISON: I will allow the question.

You may answer.

A. That rings a vague bell.

Q. So there was discussion about LEEDCo having an agreement with the Fish and Wildlife Service that it would not file its comments regarding the Diehl Report with the Power Siting Board; is that correct?

A. I do recall some discussions about, again, how the Diehl Report was supposed to be taken as his word, from one of the world's foremost experts on radar ornithology, and that attaching additional comments to his report was not in the spirit of the agreement.

Q. And LEEDCo did not want Fish and Wildlife Service filing its comments concerning the Diehl Report with the Power Siting Board, correct?

A. I don't really want to characterize what LEEDCo wants or wanted, but that's my understanding. And as Beth expressed in the e-mail we reviewed before, she expressed the opinion that that was inappropriate according to -- not in the spirit of the verbal agreement as they understood it.

MR. STOCK: I have no further questions.

ALJ ADDISON: Thank you, Mr. Stock.

Mr. Jones.

MR. JONES: Mr. Simmons is going to take

the witness.

ALJ ADDISON: I apologize. Please proceed.

- - -

CROSS-EXAMINATION

By Mr. Simmons:

Q. Good afternoon. My name is Cameron Simmons. I'm with the Ohio Attorney General's Office, and I represent Staff. I have a few questions for you about your testimony. Dr. Gordon, are you offering testimony in support of the stipulated conditions which I believe has been referenced as Joint Exhibit 1?

A. Yes.

Q. In particular, you are offering testimony in support of Stipulated Conditions 19, 22, and 24?

A. Let me just say that the primary purpose of my testimony is to address the risk assessment, not the stipulated conditions, or the Stipulation. That is going to fall primarily under the testimony of Mr. Good, Mr. Erickson, and Mr. Mabee who will speak to specific technical points about the specific stipulations. I do reference the stipulated agreement in my testimony; however, I am not really the primary person responsible for neither

negotiating or developing or agreeing on the stipulated conditions, if that makes sense.

Q. Do you have a copy of your prefiled testimony in front of you?

A. Yes.

Q. Could you please turn to page 3 of that prefiled testimony.

A. Yes.

Q. I would like to turn your attention to Question No. 7. "Please state the purpose of your testimony." About halfway through that could you read, it begins with "My testimony"? Could you read that -- the remainder of that answer?

A. Uh-huh. "My testimony, together with the other Icebreaker witnesses testifying in this case, will confirm that the Joint Stipulation and Recommendation ('Stipulation'), which was filed in the docket on September 4, 2018, and is being offered in this proceeding as Joint Exhibit 1, supports a finding by the Ohio Power Siting Board ('Board') that the Stipulation represents the minimum adverse environmental impact, considering the state of available technology, and is in the public interest."

Q. And could you please turn your attention to page 12 of your testimony. And specifically --

A. I'm there.

Q. And specifically Question 20. Could you please read the first line -- first sentence of your answer to Question 20.

A. Okay. "The Stipulation supports a finding of minimum adverse environmental impact because it includes a number of Applicant committed measures to further reduce the already-low level of risk to birds and bats from the project." Should I continue?

Q. Yes. If you could read the next sentence, please.

A. Okay. "These measures are described in detail among the 35 recommended conditions in the Stipulation, and are further described in the project's Bird and Bat Conservation Strategy which is included in Mr. Good's testimony as Attachment REG-2." Is that enough?

Q. Yes. That's sufficient.

So are you here today offering testimony in support of the 35 recommended conditions in the Stipulation which has been identified as Joint Exhibit 1?

A. Yes. And as I said, I am offering testimony in support of the stipulated agreement;

but, again, the primary purpose of my testimony is focused on the risk assessment which was when I was the project manager for the project. And the current project manager, Mr. Good, is the one who's taken primary responsibility for the negotiations beginning in January 2018, which is when most of the substance of the Stipulation, especially as distinct from the Staff Report and all that business, has been developed.

Q. Are you familiar with the differences between the Joint Stipulation and the Staff Report?

A. I have -- yes, in general terms, although, again, I don't have the most intimate technical knowledge of all the specifics or the conversations that led to the development of the draft language, but I am familiar with them. I've read them.

Q. And you understand there are differences.

A. Yes.

Q. Would you agree that the Staff Report represents the minimum adverse environmental impact, including its conditions?

MR. SECREST: Objection.

ALJ ADDISON: Grounds?

MR. SECREST: Outside the scope of

testimony. He just indicated he is -- he is generally familiar with the differences but not intimately familiar with the differences obviously.

ALJ ADDISON: Mr. Simmons?

MR. SIMMONS: Your Honor, he is offering testimony in support of the 35 conditions in the Stipulation. I think I have a right to ask him what the differences are between those conditions and the Staff Report itself.

ALJ ADDISON: I'll allow the question to the extent that you know.

A. Yeah. Can you repeat the question, please?

Q. Yes. Does -- do you agree that the Staff Report, and the conditions contained therein, represent the minimum adverse environmental impact?

MS. LEPPLA: Your Honor, if I can just object. The witness says in here that he's testifying about "how these conditions," but it's clear, from his testimony, he is here to talk about specifics, and I am not sure that asking him about every single one of the conditions, if he can make that conclusion, is an appropriate question for this witness.

ALJ ADDISON: If he has an opinion on the

matter, he can express that opinion. If he doesn't, he can say that as well.

A. What I will say is that you're asking me specifically about whether the Staff Report represents minimum adverse impact. My understanding is that minimum adverse impact, in this sense, is a legal term.

First of all, I don't have an opinion on the legal term or I don't understand the precedence for how the Ohio Power Siting Board has applied the standard of minimum adverse impact. In English language, that sounds like a fairly general kind of term. I could reference my intuitive understanding of it. From a legal and regulatory standpoint, which is what I think is important here, I don't have the legal or regulatory background to understand what that -- how that standard has been applied at the finest levels.

And in this case what I can talk about, in terms of the differences between the Staff Report and the stipulated agreement, are what are the technical specifics, what are the differences in the protocols, what does that mean from a biology standpoint.

As to how do those subtle differences --

how were those viewed through the lens of the minimum adverse impact standard, that's where I don't have a firm opinion.

Q. But in your testimony, you affirmatively state that the stipulated conditions represent the minimum adverse environmental impact, correct?

A. That's correct. And that's based on my understanding. Again, all of this involves linkages between biology and law and regulation. You know, at the boundaries of science and Ohio regulation, I quickly get out of my pay grade.

My understanding of minimum adverse impact, particularly in the intuitive sense about what it means to me, I believe in what I said in my testimony which is that the stipulated agreement represents the minimum adverse impact. I would also be perfectly willing to say that the Staff condition might also represent minimum adverse impact. Again, that would depend on the specific way that that standard was applied.

Q. Let's try it a little bit differently.

Using the same standard that you use in your testimony, whether that's regulatory perspective or biological perspective or a combination thereof, the same threshold that you used in your testimony

when you testified that the Stipulation supports a finding of minimum adverse impact; applying that same standard, does the Staff Report represent the minimum adverse impact?

MR. SECREST: Just note an objection because obviously a number of the Staff Report conditions are the same as the stipulated conditions. So are you asking it in total, each one, even the ones there is agreement on, or just the conditions for which there is a dispute?

ALJ ADDISON: Mr. Simmons.

MR. SIMMONS: I think the question was: Does the Staff Report, in totality, represent minimum adverse environmental impact.

A. I don't have a firm opinion on that.

Q. Could you please turn to -- do you have a copy of the Stipulation in front of you, Joint Exhibit 1?

A. Yes.

Q. Could you please turn to page 6 of the Stipulation.

A. I'm there.

Q. And particularly, Condition 19.

A. I see it.

Q. Are you familiar with this condition?

A. Yes.

Q. And do you have a copy of the Staff Report in front of you?

A. I'm not sure. Is that also in this one?

Q. No. It should be Staff Exhibit 1.

A. That's not in Karpinski's.

MR. SECREST: That's a loose. It is not in a folder.

A. Maybe it's -- let's see, we got the -- this is Karpinski's testimony. This is the letter. Staff Report, got it.

Q. And I would like to direct your attention to pages 47 and 48 of the Staff Report.

A. I see it.

Q. And I would specifically like to direct your attention to Condition 19 of the Staff Report. Are you familiar with that?

A. Yes and no. It was not my primary responsibility to respond or digest this at the time it came out. At that time I had already -- I was no longer the project manager and I had left WEST and I was functioning as a technical expert on the project. So I believe I have reviewed this, but it was not -- I don't have the greatest level of familiarity with this on our team as I mentioned. But I'm generally

familiar with it.

Q. And to clarify though, you had left WEST at the time the Joint Stipulation was filed on the docket of this matter, correct?

A. Absolutely. I left WEST in January 2018.

Q. I would like to go through some of the differences between Staff Report Condition 19 and the Stipulation Condition 19.

Does the Stipulation Condition 19 allow for the post-construction avian and bat collision monitoring plan to be demonstrated prior to construction?

A. Does it allow for that post-construction collision monitoring to be demonstrated prior to construction?

Q. Yes.

A. I understand that it does; either prior to construction or subsequent to construction.

Q. Because, at this time, Icebreaker has not selected its particular collision monitoring technology; is that correct?

A. That's correct, according to my understanding. Again, I am not involved in the latest discussions on the selection of the post-construction collision monitoring technology.

So my knowledge on this is a little bit dated, but what I understand is that what you said is correct.

Q. And are you familiar with the prefiled testimony of Erin Hazelton in this matter?

A. Yes.

Q. And you've read that?

A. Yes, I have.

Q. Based on the clarifications to Condition 19 contained in Ms. Hazelton's testimony, does Condition 19 of the Staff Report allow for the post-construction avian and bat collision monitoring plan to be demonstrated prior to construction?

MR. SECREST: Objection, misstates testimony. Mr. Siegfried's testimony indicated there would be a revision of 19, and in Ms. Hazelton's testimony there was no revision to Staff 19 in Ms. Hazelton testimony.

ALJ ADDISON: Mr. Simmons?

MR. SIMMONS: I didn't ask him about Mr. Siegfried's testimony. I asked him about Ms. Hazelton's testimony and whether he was familiar with it.

ALJ ADDISON: I'll allow the question if he knows.

A. I would feel more comfortable honestly

answering if I had that in front of me. Is there an exhibit that shows the revised -- shows Ms. Hazelton's testimony that I can refer to?

MR. SIMMONS: May I approach?

ALJ ADDISON: You may.

MR. SIMMONS: I believe this may have been on the stand from yesterday. I don't know if there is a copy already up there of Ms. Hazelton's testimony.

THE WITNESS: Has that already been marked as an exhibit?

ALJ ADDISON: It has not.

THE WITNESS: Does the direct testimony get marked as an exhibit?

ALJ WALSTRA: It will.

ALJ ADDISON: It will be when she's on the stand.

MR. SECREST: Mr. Simmons, I have just a revised 24 but that's the only portion I have, at least not in the giant binder.

THE WITNESS: This is Ms. Hazelton's testimony?

MR. SIMMONS: Yes.

ALJ ADDISON: Thank you.

Mr. Simmons, just to keep the record as

clear as possible, are you going to be marking this exhibit at this point in time?

MR. SIMMONS: We can. We can. Would this be Staff Exhibit 3?

ALJ ADDISON: Thank you. So marked.

(EXHIBIT MARKED FOR IDENTIFICATION.)

Q. And can you please turn to page 9 of Ms. Hazelton's testimony.

A. I'm there.

Q. And could you please read the sentence that begins at line 18.

A. Okay. "The Applicant may demonstrate that the plan and technology is sufficient either prior to construction or during operation through lab and field testing."

Q. So would you agree, in these respects, Staff Condition 19 and Stipulation Condition 19 are the same in that they both allow for the technology -- or the plan to be demonstrated prior to construction?

A. I want to make sure I understand correctly because what we just read from is Ms. Hazelton's testimony, and you asked me about the difference between Staff Condition 19 and Stipulation Condition 19. Is there a modification to Staff

Condition 19 that's pending that's contained within Ms. Hazelton's testimony that's not yet in the Staff Report? Or I'm a little confused about the difference between Condition 19 as stated in the Staff Report and that language we just read from Ms. Hazelton's testimony.

Q. The language I read from Ms. Hazelton's testimony is her -- is a clarification of Condition 19 in the Staff Report.

A. And so, does that legally, in all respects, modify the Staff Report effectively, condition 19, for sort of purposes of the record? I am just trying to make sure I understand.

Q. Ms. Hazelton has been identified as a witness in this -- this is her prefiled direct testimony. So this is her testimony. And I'm asking you if Staff Report Condition 19, as clarified through that testimony, is the same as Condition 19 in the Joint Stipulation, as far as the being able to demonstrate the project prior to construction.

A. Assuming that this statement from Ms. Hazelton's testimony effectively replaces the existing Staff Condition 19, then, yes, I believe they are identical in allowing for demonstration of the technology either prior to or -- prior to

construction or during operations.

Q. To clarify, there's no -- there's no replacement. It's a clarification. So Staff -- this clarifies what's in Staff 19. It doesn't replace it.

ALJ ADDISON: Is that a question, Mr. Simmons?

MR. SECREST: Yeah. Move to strike.

ALJ ADDISON: I think that --

MR. SECREST: Counsel's testifying.

ALJ ADDISON: Yeah. If you are going to ask a question, ask a question, but you cannot speak on Ms. Hazelton's behalf.

MR. SIMMONS: Your Honor, I was moving to clarify his construction of the question.

ALJ ADDISON: I think he's given the answer that he is going to give, so let's move on.

THE WITNESS: Actually, I don't mind providing a little clarification, if that's all right.

ALJ ADDISON: Be my guest.

A. I think this distinction is important because looking at Staff Condition 19, as written in the Staff Report, which is what you asked me about, I don't actually see that language about the allowance for pre -- the demonstration either pre-construction

or during operation. I only see that in Ms. Hazelton's testimony.

So that's why I just want to qualify my statement by saying assuming this qual -- this clarification in Ms. Hazelton's testimony about Staff Condition 19 supplants the existing Staff Report in modifying Condition 19, then I agree with what you said that, they both allow for demonstration of the technology either prior to construction or during operation.

Q. Could you please read Staff Report Condition 19.

A. Okay. It says "Turbines shall be feathered completely from dusk to dawn from March 1 through January 1 until the Applicant has demonstrated that post-construction avian and bat collision monitoring plan is sufficient, as determined by the ODNR in consultation with Staff. The ODNR may approve modifications to turbine operation for testing purposes."

Q. Is there any language in Condition 19 in the Staff Report that would preclude that demonstration prior to construction?

A. There is no language in there that would preclude it, but it --

Q. Thank you.

A. The Staff condition, as written in the Staff Report, is mute on the issue. There is no language about when the demonstration will occur.

Q. Doesn't the demonstration have to occur prior to the feathering restrictions being removed?

A. I believe that's correct how -- how Condition 19 is written. It says "Until the Applicant has demonstrated that the post-construction avian and bat monitoring plan is sufficient" that the feathering will occur.

Q. So, in theory, on October 1, 2018, that demonstration can be made.

A. Correct. As written, it does not preclude that.

Q. I would like to turn your attention back to Joint Stipulation Condition 19.

A. Okay.

Q. I would like to focus your attention on the final prong of that, and I believe this goes to the feathering portion. Could you please read the language beginning with "Because this project is the first of its kind in Lake Erie...."

A. Okay. "Because this project is the first of its kind in Lake Erie, if the ODNR and Staff find

that the plan is not sufficient, the ODNR and Staff may require turbines be feathered up to 30 minutes prior to sunset to 30 minutes after sunrise during peak spring and fall migration periods when cloud ceilings are low."

Q. And that language says "up to 30 minutes prior to sunset to 30 minutes after sunrise." Who would make that determination about what percentage of that time feathering would be necessary?

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

Q. Do you have any knowledge about this statement "when cloud ceilings are low," how that would affect the feathering condition?

A. I have knowledge of, I think, why it was included or how it relates to bird biology and risk considerations.

Q. Do you know how it would be implemented as proposed in Condition 19 to the Joint Stipulation?

A. That I don't know.

Q. So how can you make the conclusion, as you've testified, that this will present the minimum adverse environmental impact?

A. Oh, as with any agreement of its kind or any kind of certificate with conditions, the conditions only specify, to a certain level of

precision, the -- the requirements. They don't give a full-blown protocol of so-and-so calls so-and-so, and so-and-so presses this button. I don't believe that's the intent for scope of a document like this. So that detail is lacking in here naturally and that's what you're asking me about is how would it be implemented by whom.

Even absent those details, I believe it represents minimum adverse impact because I believe that the essence of the requirement is included in this condition as it relates to the key risk issue.

Q. Why don't you explain what your understanding of the dynamic there is between when this condition would be triggered. Is it the entire hours from 30 minutes prior to sunset to 30 minutes after sunrise but only when cloud ceilings are low?

A. That's my understanding is that it could be -- the maximum that it would be triggered would be during that entire period. Potentially it could be a smaller period and only when cloud ceilings are low and only during the peak migration seasons.

Q. Do you know what height that would be to trigger the low cloud ceilings?

A. I don't believe that's been determined.

Q. So it could be anywhere from 10 meters to

10,000 meters?

A. Well, that's a sort of extreme range. It certainly wouldn't be that high. But the precise number hasn't been determined yet, but presumably it would be -- it would correspond to the types of conditions when nocturnally-migrating birds are known to fly at lower-than-normal altitudes.

Q. And do you have any idea what that height is?

A. Roughly or in crude terms. I'm actually not very familiar with cloud ceiling -- typical cloud ceiling heights, but. So I actually can't tell you what a normal cloud ceiling height is.

I only know when cloud ceilings are below normal, for example, foggy or storm conditions, sometimes nocturnally-migrating birds are known to fly lower. I don't know exactly how low that cloud ceiling has to be to elicit that kind of response.

Q. And what percentage of cloud cover would necessitate that condition?

A. I'm also not familiar with exactly what that cloud cover percentage would be.

Q. Would it need to be 100-percent cloud coverage?

A. I don't know.

Q. Practically speaking, how would this condition work? For example, let me pose a hypothetical. It's Saturday evening, during the migration time frame, 2:00 in the morning, no clouds, a storm rolls in, how would the condition be feathered? Would that be an automatic process or would somebody have to go out there and initiate feathering on the turbines?

A. You know, again, unfortunately, I'm not going to be able to give you too much insight there because you are asking me about the specifics of how this particular condition could be implemented, who would call who, it's 2:00 a.m., how would it get shut down. Those details have not been specified or determined yet.

What is determined is what's in the condition, which is when the cloud ceilings are low, the feathering will occur up to all night long, during the high-risk period or during the migration period. That's as far as it's been determined to date, as far as I understand.

Q. And that could change hour by hour.

A. The weather conditions and migration conditions?

Q. The cloud ceilings.

A. I believe it could.

Q. So, in one given night, you could have an hour of feathering, an hour of full operation, an hour of feathering, an hour of full operation.

A. Unfortunately, I am not going to be able to give us much insight on this. It would depend on the implementation. Sometimes a system like that, I could imagine, hypothetically, it might take a while to trigger the response. Somebody might need to call somebody. They might be asleep. Somebody might need to call somebody else. It might take a while to trigger the feathering in the SCADA system. That's all purely hypothetical. But it just hasn't been determined yet and we don't know.

Q. Is the feathering, as described in Stipulation Condition 19, critical to your opinion that the project represents the minimum adverse environment impact?

A. No, it is not.

Q. So you believe that the project represents the minimum adverse environment impact without any feathering in Condition 19?

A. I do.

Q. And that would be without the post-collision monitoring technology being

demonstrated, correct?

A. I believe it's important to conduct robust post-construction collision monitoring on this project. I've provided that input all along, and I think that's been incorporated into all the commitments and agreements for this project. I do believe that's important. I think this demonstration project has to be used as a platform to learn and advance knowledge frontiers for it to serve its purpose as a demonstration project.

Of course, monitoring, by itself, doesn't affect impacts, but it will affect our learning and it will affect our understanding of impacts, and it may -- it will affect our decision-making about future projects and air impacts.

The reason for my feeling about minimum adverse impact on this project is largely based on the fact we know, with a high degree of certainty, as is written in my testimony, that under the worst-case-scenario assumptions we looked at, this project is likely to kill the equivalent of a number of birds that are killed by three outdoor cats. That's how small it is. And that's with -- that's with no curtailment or mitigation.

In fact, to me, it seems honestly

preposterous to be talking about mitigation on a project this small with predicted likely impacts so vanishingly small.

Q. Do you believe -- so you believe that the project operating without the post-collision monitoring technology still represents the minimum adverse environmental impacts?

A. As I said, I believe without the most -- I believe that it is very important for this project, as a demonstration project, to pioneer the implementation of new technologies to detect collisions of birds and bats with wind-turbine rotors in an offshore environment. I do believe that's an important condition for this project, in the spirit of the demonstration project, even though it actually doesn't impact -- it doesn't affect the level of impact, right? It's just a monitoring element.

Q. But does the project without operating, without the post -- excuse me, post-construction and collision monitoring equipment still represent the minimum adverse environmental impact?

A. You know, again --

MR. SECREST: I believe that's asked and answer, so objection.

MR. SIMMONS: Your Honor, he didn't

answer the question. He said at some point the collision monitoring technology is going to be important. He didn't answer the question.

ALJ ADDISON: I'll allow the question.

A. My answer to that question would again depend on the fine points of the application of the minimum adverse impact standard.

What I can say is from my understanding, not as a legal or regulatory expert, it would, because this project has such a vanishingly-small risk of any impact to begin with and because the post-construction monitoring protocol by itself is only a monitoring protocol. It actually doesn't affect the level of impact. So, based on that, I would say that it does satisfy that.

Q. Are you familiar with Condition 22 of the Joint Stipulation that was filed in the docket in this matter?

A. Yes.

Q. In particular, I would like to direct your attention to 22(c) of the Joint Stipulation on page 7.

A. I see it.

Q. And could you please read the final portion of that beginning with "(80 percent or

greater...."

A. "(80 percent or greater of survey time producing viable data, unless precluded by heavy precipitation or high sea events)."

Q. And that essentially is an exception for both precipitation events and high sea events, correct?

A. That's my understanding.

Q. What is a high sea event?

A. As I understand it, it's when waves are high. That's what's referred to by high seas, wavy conditions.

Q. And how would high sea events affect radar?

A. Well, in this case, the radar referred to in Condition 22 is the vessel-based radar we've been talking about, so that -- that radar will be deployed on a floating vessel. That's a barge. And high sea events, among other things, as discussed in Mr. Karpinski's testimony, could cause the barge operator to call the barge back to port because of safety concerns. So it could affect it that way.

Q. So is your testimony that the hours that the barge would be off of the Lake, would that be excepted from the 80-percent requirement due to high

seas?

A. That's how I understand this language from the Stipulated Condition 22(c), yes.

Q. Are you familiar with wave clutter and its effect on radar?

A. Only on a conceptual letter -- level. I am not the person that looks at the clutter maps and does the clutter analysis, but I understand the concept of it as relates to radar analysis data on birds.

Q. Do the height of the waves of the high sea level, would that affect wave clutter?

A. As I understand, it could do so, particularly at the -- the directions close to the horizon, they are the most impacted by wave clutter. The part that's least affective is when you are looking straight up to the sky and, of course, that's the most important for us because one of the primary objectives of the vessel-based radar is to look up and get the altitudinal distribution of birds.

So the least-important part of the data could be compromised in there's excessive wave clutter and that would be the part right around the horizon.

Q. So Condition 22(c) in the Stipulation,

could wave clutter be an additional exception, due to high seas, from the 80 percent?

A. Yes. I understand that's how this condition reads.

Q. And the -- you indicated that the -- that Icebreaker is considering the vessel-based radar system, correct?

A. That's my understanding.

Q. Could there be times when the vessel-based radar system is deployed on the Lake that it could be affected by wave action?

A. Well, first of all, I want to -- I really want to defer this question to the primary radar expert which is Mr. Mabee. He has much greater familiarity than I do about whether or not certain level wave action might affect the radar monitoring in a certain way. I don't have a strong opinion on that or detailed technical knowledge.

Q. Do you know if wave action can affect the reliability of data on the vessel-based radar operation?

A. Again, my conceptual understanding is there can be an effect, yes.

Q. And would that be an additional exception due to high sea events, unreliable data from rocking

of the barge on the Lake?

A. Again, this is not my main area. I can only comment on a conceptual-level understanding.

However, one of the other things I do understand as, Dr. Diehl mentioned in his report, there are mechanisms -- there's essentially technical remedies to wave action to some degree. So I understand that it potentially can affect it, but I also understand that it can potentially be remedied. Even -- again, more specific than that, I can't comment.

Q. Okay. Assume the barge is out on the Lake and there's no mechanism to correct the wave action and it results in unreliable data. Could that be -- due to high seas and the wave action -- could that be further excepted from the 80-percent standard?

MR. SECREST: Objection, speculation on speculation.

MR. SIMMONS: Your Honor, he is testifying in support of these conditions, that they represent the minimum adverse environmental impact of the project. I am asking him his understanding of those conditions as they relate to his opinion.

ALJ ADDISON: Thank you. I think he's

already alluded to the fact that he is passing the buck to their radar specialist, but I will allow him to answer the question to the extent that he has an opinion.

A. The only thing I will say on that is I don't think it's fair to pose a hypothetical that "assume there is no remedy for wave action" because there may well be a remedy for wave action in this deployment, so. I think that the hypothetical you imposed is actually misleading and kind of mischaracterizes the likelihood of additional data outages, for example.

Q. If there are data outages, though, would that be an exception to the 80-percent requirement as 22(c) is written in the Joint Stipulation?

A. Well, 22(c) says, as written in the Joint Stipulation, is that the additional exceptions, beyond 80 percent, can be for heavy precipitation or high sea events. I think it's actually fairly clear and fairly simple as written in that language. It's only heavy precipitation or high sea events.

Q. And if those high sea events rock the barge, creating unreliable data, is that an exception?

A. I believe that is, as the document

language speaks for itself.

Q. So, to summarize, we could have the barge being removed from the Lake, the barge rocking on the Lake, producing unreliable data, and sea clutter; all those things independently could be excepted from the 80-percent requirement as drafted in the Joint Stipulation 22(c); is that accurate?

MR. SECREST: I am going to object to the characterization as "independently." Essentially, that's all he sees.

ALJ ADDISON: I will allow him some latitude to clarify if he feels the need.

A. I feel that you've added language there that's not specified in Joint Stipulation 22(c). You are asking me about what does 22(c) provide for. And you've -- in your question you've added a lot more than what's in there. What it says here is heavy precipitation and high sea events. And I think that's -- that's all we can say because that's what the language says.

Q. But I've asked you your understanding of what high seas events are, and you indicated those three items, correct?

A. Which three items?

Q. Wave clutter, removing the barge from the

Lake, and the rocking of the barge, creating unreliable data.

A. That's not correct.

Q. Which part of that is not correct?

A. Wave clutter is not in addition to those other two. Wave clutter is something that happens in the case you have those other two, right? It's like saying -- well, it's not three things. What you -- you listed three things as if it were three different conditions that could lead to data loss. In fact, the first one is not a separate thing. The first one is something that can happen to the data when the other things happen. It's not a separate event. Does that make sense?

Q. So wave clutter could happen when the barge is off the Lake?

A. Wave clutter can happen during a high sea event with the rocking. Obviously if the barge is off the Lake, it's not collecting data. You wouldn't have wave clutter. Wave clutter can also happen even not in a high sea event. It's a normal phenomenon, of any radar-data gathering, is some sea clutter or land clutter for that matter. Signals reflected from stuff near the horizon that's not flying birds.

Q. But those three items could happen

independently, correct?

A. They are not -- but they are not really three items is what I am saying. At most, they are two items. One, the barge is removed from the Lake. Two, there is some wave clutter caused by the waves in the Lake when the barge is out there. Does that make sense? There is only two items.

Q. So wave clutter, just so we understand your testimony, wave clutter, would that occur to the waves immediately under the barge or would that be off on the horizon?

A. This is really approaching the edges of my technical understanding. What I understand wave clutter to be is reflectivity back -- of the radar signal, back to the radar sensor, from waves. Exactly where the waves are, how close they are, that I don't know, but I know it can interfere with the ability to look at birds from the data.

Q. And then you're testifying that's the same as the physical rocking of the barge?

A. It's the thing that happens because of waves, which might be exacerbated with the rocking of the barge. It's not a separate type of event, right?

It's like one thing is me drinking too much and another thing is me having a headache.

Those aren't two separate things. One is a thing that happens as a result of the other, right?

Wave clutter is something that happens as a result of waves that can be exacerbated when there is rocking of the -- or when there is high waves, high sea events. Does that make sense? Really what you are talking about is it's just a semantics difference almost. It's only two things, not three things. One is high seas that could cause some amount of wave clutter, and two is removal of the barge.

Q. So does the radar equipment, moving on the barge, does that affect the data reliability?

A. Well, it depends.

Q. Could it?

A. It could, but as I said, and as Dr. Diehl points out in his testimony, there are remedies. It can be corrected.

Q. And is that movement of the radar equipment different from the issue of wave clutter?

A. Yes.

Q. Thank you.

A. But not in a different type of event. It's different --

Q. They could both occur during high sea

events.

A. Fair enough.

Q. Did Fish and Wildlife Service direct the company to use vessel-based radar?

A. No.

Q. Did any Ohio agency direct the company to use vessel-based radar?

A. No.

Q. In fact, it was the company's choice to use vessel-based radar, correct?

A. I would say the company has explored vessel-based radar as a way to get the kind of data that the agencies have been requesting. The company certainly did take the initiative in pursuing vendor proposals to conduct vessel-based radar, for example, in evaluating those proposals.

Q. The company could have selected a platform-based radar system, correct?

A. I suppose they could have.

Q. Is there anything in Staff Condition 22 or Stipulated Condition 22 that directs the company do use vessel-based radar or platform-based radar?

A. I'll need to review those two conditions. You are asking me is there anything in Stipulation Condition 22 or Staff Report Condition 22 that

directs the applicant to use vessel-based radar?

Q. Correct.

ALJ ADDISON: Let's go off the record for a minute.

(Discussion off the record.)

ALJ ADDISON: Let's go back on the record.

A. I don't see anything in the Stipulated Condition 25 that directs the Applicant to use vessel-based radar. Nor do I see anything that precludes it. It doesn't specify the vehicle or the platform.

I can also say that Staff Condition -- Staff Report Condition 22 also does not direct the Applicant to use a vessel, nor does it -- it is also mute about the specific platform or vehicle on which the radar needs to be deployed.

ALJ ADDISON: Thank you. I believe, at this time, we'll take a short break. Let's reconvene around 4:25. Off the record.

(Recess taken.)

ALJ ADDISON: Let's go back on the record. Mr. Simmons.

Q. (By Mr. Simmons) Dr. Gordon, during the break, did you talk -- discuss any of the matters

that you testified to with anyone other than counsel?

A. Not really. Kind of checked in a little bit, how things are going, but nothing about the substantive testimony.

Q. You didn't -- nothing that was discussed during your testimony?

A. We had a little bit of exchange on the testimony, how things are going.

Q. And who did you talk with?

A. I think I talked with maybe about half the members of the -- of the project team here, legal counsel, and some of my fellow witnesses.

Q. Was counsel present during all of those discussions?

A. I believe they were, yes. It was nothing substantive, it was just breaktime banter.

Q. I would like to direct your attention to the Joint Stipulation and, in particular, Condition 35. It's Joint Exhibit 1.

A. Yes, I have it. I have it. Condition 35. That "Signatory Parties to this Stipulation"? Okay.

Q. Are you familiar with that condition?

A. Yes.

Q. And do you believe that condition is

necessary to support your earlier opinion that this project represents the minimum adverse environmental impact?

A. I believe it helps. It supports a collaborative spirit and ongoing collaborations among the signatories. I don't believe it's critical to my determination of minimum adverse impact.

Q. Is the advis -- or is the potential advisory input from signatory parties more important than a post-collision monitoring plan, in relation to the project, representing the minimum adverse environmental impact?

MR. SECREST: Objection to the characterization.

MR. SIMMONS: Your Honor --

ALJ ADDISON: I will allow the question, and I'll provide Dr. Gordon significant latitude in his answer.

A. I don't have -- it's hard for me to determine which is more important, which provides more benefit. I think they both provide benefits. Which is more critical? They are two very different things, right? One is a monitoring program to help us get data to understand impacts that actually affect impact itself, but it helps us understand for

the future.

The other is a mechanism for collaboration between signatory parties that I think will also foster the advancement of not only scientific but regulatory and government pioneering efforts to develop an offshore-wind industry. They are both valuable. I have a hard time saying which is more valuable.

Q. In regard to Stipulation 35, what is the nature of the "advisory input throughout discussion with the identified agencies"? Would that pertain to e-mail communications?

A. I think I'm going to have to also just give you a short answer here. This language, as it occurs in Stipulation Condition 35, only existed as written here. As for how it will be interpreted, implemented, elaborated, I could only speculate. The condition, I think, needs to be evaluated just with the language that's provided. It doesn't specify those things.

Q. If the Board were to adopt Condition 35, and someone from Icebreaker was to have a commun -- an e-mail communication with the Ohio Department of Natural Resources about one of these items listed, and they failed to copy the Indiana/Kentucky/Ohio

Regional Chamber -- Regional Council of Carpenters on that e-mail, would they be in violation of that stip -- that Stipulation 35?

A. That would be for somebody familiar with the enforcement of these kinds of conditions to evaluate. I don't know how that would be interpreted.

Q. What's your interpretation of it?

MS. LEPPLA: Objection, your Honor, speculative.

ALJ ADDISON: Sustained.

Q. So you don't have knowledge of Condition 35?

A. I can only evaluate Condition 35 as it's written, and it's really quite simple, it's only three lines. What it says is that "Signatory Parties to this Stipulation shall be invited to participate in and provide advisory input throughout discussion with the identified agencies and Staff during efforts to finalize the programs and plans referenced in conditions" numbered. That's all it says. I could only speculate on how that would be implemented, enforced, interpreted in a regulatory context.

Q. Why is that limited only to signatory parties?

A. I think those are the only parties to -- parties to this agreement. Again, I am not a regulatory expert, but I believe this only -- I believe that's a natural result of this agreement being an agreement between the signatory parties. I also don't think it precludes invitation to allow other stakeholders to participate, if that's what you're suggesting.

Q. Are you suggesting that other parties, for example, the Bratenahl residents, be included in Stipulation 35?

A. No. I'm suggesting that Stipulation 35, as I read it, does not preclude input from other stakeholders.

Q. Does it elevate the position of the stakeholders above other members of the community?

A. You mean the signatories?

Q. The signatories, excuse me. Thank you.

MR. SECREST: Objection, vague, "other members of the community."

ALJ ADDISON: Yeah. Please elaborate on that.

Q. Other stakeholders.

A. I can't offer a comment on that. I don't know.

Q. What about the -- are you familiar with the Black Swamp Bird Conservancy?

A. The Black Swamp Bird Observatory.

Q. Observatory. Excuse me.

A. Yes, I am.

Q. Would they be invited to these discussions as envisioned by Condition 35?

MR. SECREST: Objection, speculation.

ALJ ADDISON: I'll allow the question, but if he provides the same answer as he has provided before, we are left with that.

Dr. Gordon, you may answer.

A. I believe Condition 35, as written, does not mention anything. It's mute about stakeholders other than the signatory parties, but it doesn't preclude accepting input from other stakeholders such as Black Swamp Bird Observatory.

Q. Do you have a copy -- you still have your prefiled testimony in front of you?

A. Yes.

Q. I would like to direct your attention to page 4 of that prefiled testimony.

A. Page 4?

Q. Yes, page 4.

A. I have it.

Q. And could you read the last full sentence in your answer to Question No. 11. It begins "Even under these very conservative assumptions...."

A. Yes. Just that sentence?

Q. Yes, please.

A. Or the whole end of the answer?

Q. Just that sentence.

A. "Even under these very conservative assumptions, the bird and bat fatality levels that the project could generate would not be likely to generate population-level impacts on any species."

Q. I would now like to direct your attention to Condition 24 in the Joint Stipulation. And is it correct that the --

A. Hang on a minute. Let me please get there.

Q. I apologize.

A. Condition 24?

Q. 24 in the Joint Stipulation.

A. I've got it.

Q. And in the Joint Stipulation is -- how is "significant adverse impact" defined?

A. Do you want me to read that?

Q. Yes, the parenthetical.

A. Yeah, yeah. The way it's defined here in

Stipulation Condition 24 is "biologically significant impact on the population level of any species or the occurrence of a large mortality event as defined in the impact mitigation plan."

Q. And you've indicated that a population-level impact is not likely from this project, correct?

A. That is correct.

Q. So it's not likely that this condition would be triggered, correct, that definition?

A. That is correct.

Q. And how would you define a population-level impact?

A. I define it as an impact that results not only in adverse impacts to some individuals, but actually affects the overall population size of a particular species.

Q. And for population size, is that geographically limited?

A. Yes, it is.

Q. And is there a certain number of miles or something for that limitation?

A. Yes. This is actually a concept that it's kind of a multi-scaled concept in biology science. You can think of it as a set of Russian

dolls. One can speak of populations at many different spatial scales, but the geographical delineation is a key part of it.

So you may speak of global populations for a species. Population is a species-specific concept. It always refers to one species, the number of individuals of one species, but it can be defined in different ways. It could be a global population, it could be the regional population, it could be the national population, the state population, or a population defined by a more-ecological delineation such as a biome or a watershed or something like that.

Q. And first I'll ask you if they are consistent. Is the -- would you define that term, "population-level impact," the same on page 4 of your testimony as in Condition 24, would you have the same definition for that term, "population-level impact"?

A. Yes, I would.

Q. And how would you define that as it's presented in your testimony?

A. Beyond what I just explained or what?

Q. Well, you explained there's multiple different -- I think you explained the Russian dolls, but how would you explain it for this project?

A. Right, right. Well, it's not specified. It doesn't -- in neither place is it specified. We're talking about the global population, or the regional population, the state population, the local population. It's actually not specified. So that hasn't been defined here.

I don't think -- I don't want to pick an arbitrary definition because I don't know how that would be defined, again, in the regulatory context. It could be defined in different ways.

Q. And is there a certain percentage decline that would be required to trigger population-level impacts?

A. As written, the answer is no. It only says the presence of a population-level impact, right? So, in principle, any population-level impact could trigger this.

Q. So if you lost one member of the species, would that trigger it?

A. No. And that's the distinction I want to make between population-level impacts and individual impacts. Just because of birth and death rates in populations in nature, loss of one individual does not necessarily present a population-level impact, because of natural replenishment through birth rates,

right?

So population -- so loss of one individual would not represent a population-level impact, generally speaking. It is possible that a loss of a single individual could have a population-level impact for a very, very small population. That would be the only case in which one -- loss of one individual could represent a population-level impact.

Q. Is it a percentage, like a loss of 10 percent or loss of 20 percent, is that how that's interpreted, population-level impact?

A. No. And for better or for worse, unfortunately, this is a concept that, at least in the science of biology, really has a fairly qualitative-type definition. So there's not a certain percentage or a certain number or a certain threshold that corresponds to the population impact. It would depend on the geographical-definition of that population and on -- in principle, it should also depend on a demographic analysis of the population. What are the birth rates? What are the death rates? What's the population size? And how does a given impact potentially affect the population.

Q. And in terms of birds, in the context of your testimony on page 4, approximately how many numbers would you expect in a population?

A. Again, it would depend on how you define that population. It might help, I could give you maybe a more concrete example if you want to pick a certain kind of bird, or if you want me to.

Q. A Goldfinch.

A. A Goldfinch. The American Goldfinch, that's a species that, you know, their global population probably numbers in the billions. I don't have the exact numbers off the top of my head, but it would be a number with a lot of zeros. That's a very common, widespread species, with a very large population size.

Now again, we could also talk about the regional or ecologically-defined subpopulation as, for example, the regional population or local population that might be smaller. However, any level that we define would be regarded as a population, even a local population would be a very large number. I couldn't put an exact number to it, but it would be a number with a lot of zeros in it.

Q. At least in the thousands?

A. I would say so.

Q. How would population-level impacts be attributed to the facility, versus strikes by airplanes, boats, cats, any other issue? How would that reduction be attributed to the facility?

A. Well, it would certainly come from fatality monitoring at the facility. That's part of the reason for the importance of the post-construction collision fatality monitoring system or protocol. That would be part of it.

As for what the thresholds for determining population-level impact would be, and for disentangling the influences of project-related fatalities from other fatality sources such as you mentioned, that would require a detailed scientific analysis by an expert.

Q. And what would the time frame of that analysis be, the scientific analysis by an expert?

A. I don't know. That would depend on the scope of the analysis.

Q. Could take some time though?

A. Could.

Q. Do you still have Erin Hazelton's testimony in front of you?

A. Yes.

Q. I would like to turn your attention to

page 14.

A. Okay.

Q. Are you familiar with the single-spaced text at the top of page 14 that represent the -- the revision to the Staff Report Condition 24?

A. I have seen this before, yes.

Q. And as presented in her testimony, the revision to Staff Report Condition 24, does that allow for the company to submit a mitigation strategy if a significant adverse impact is determined?

A. Yes.

Q. And then the process envisions the ODNR and Staff reviewing that plan and potentially approving that plan, correct?

A. Confirming compliance with the condition, yes.

Q. And if the plan works, then the company's obligations are over under Condition 24, correct?

A. I believe that's what this says.

Q. And if the company's plan does not work, then the language envisions prescribed adaptive management, correct?

A. Yes.

Q. But, again, that prescribed adaptive management would only occur if the company's plan, as

approved, did not alleviate the significant adverse impact, correct?

MR. SECREST: Objection, misstates his testimony.

MR. SIMMONS: I'm asking for his opinion.

ALJ ADDISON: Thank you. I will allow the question to the extent he has an opinion on the matter.

You may answer.

A. Can you repeat the question? I'm sorry. It's getting late in the day.

Q. Sure. And let me rephrase it. Let me rephrase it. Maybe this will help.

The adaptive management only occurs if the mitigation strategy, offered by the company, doesn't alleviate the significant adverse impact, correct?

A. I believe that's correct.

Q. I would like to turn your attention to the Stipulation Condition 24.

A. Got it. 24 you said?

Q. Yes. So the Stipulation Condition.

A. Yeah.

Q. And I'm going to summarize and please let me know if you disagree with this summary, but

essentially Stipulation Condition 24 envisions the company submitting a plan and if the -- strike that.

What happens, under Condition 24 of the Joint Stipulation, if the plan does not alleviate the significant adverse impact?

A. What it says here is that "if the significant adverse impact persists," and that's after the implementation of the Applicant's plan, "the Applicant will request a meeting with Staff and the ODNR to jointly develop a revised mitigation or adaptive management strategy."

Q. And during that time, this significant adverse impact could be ongoing, correct?

A. Presumably, yes.

Q. And what happens if the revised mitigation and adaptive management strategy doesn't alleviate the significant adverse impact?

A. My read of this condition is that that scenario is not addressed in here.

Q. So, under that circumstance, the significant adverse impact could be allowed to persist?

A. The one thing I'll say on this, you'd be better off examining some of the other witnesses on this. Because this Stipulation agreement does have a

contingency for actions to be taken if the significant adverse impact persists, then I think all of that is covered already. That's my read of this, right, is then if the revised plan is implemented and the significant adverse impact still persists, that satisfies this condition here of "if the significant adverse impact persists."

In other words, it could trigger the response, again, of requesting a meeting with Staff and ODNR to jointly develop a revised mitigation or adaptive management strategy. And that's essentially the heart and soul of what adaptive management is. It's an experimental approach to management, based on data review and response. If what you're doing isn't working, you try something else. That's what adaptive management, in essence, is.

Q. So the cycle would just repeat until it's finally figured out?

A. In principle, yeah.

Q. And, during that time, the significant adverse impact would be allowed to continue.

A. That's my understanding.

ALJ ADDISON: Who are the other witnesses that you referenced in your answer? That we should inquire as to the interpretation of this condition?

THE WITNESS: I think the best one would be Mr. Good, who is the current project manager. He's been the one representing Icebreaker Wind Project in the discussions, with agencies, of these agreements.

ALJ ADDISON: Thank you.

Q. (By Mr. Simmons) Could you please turn to the Staff Report, Staff Exhibit 1.

A. I have it.

Q. And Staff Condition 19 envisions a feathering requirement if the company begins operation of the facility without having its post-construction avian and bat collision monitoring plan being deemed sufficient, correct?

A. Hang on. I just got there. Let me just review. Can you repeat your question?

Q. Sure. Are you there?

A. I'm there. I am there.

Q. Staff Condition 19 calls for the turbines to be completely feathered, from March 1st to January 1st, until the Applicant has demonstrated that the post-construction avian and bat collision monitoring plan is sufficient. Is that accurate?

A. Almost. You left out the part about "from dusk to dawn." Other than that, it's accurate.

Q. Thank you for that clarification.

In your opinion, is that more protective than the language in the Joint Stipulation Condition 19 that we discussed earlier in your testimony?

MR. SECREST: Objection, asked and answered. He was asked this question earlier in the testimony with regard to the impact and he testified as to the limited nature of it, given the risk assessment.

ALJ ADDISON: Mr. Simmons.

MR. SIMMONS: Your Honor, I asked him of his opinion of Staff's -- or excuse me. I asked him his opinion of Stipulation Condition 19. I am now asking him if Staff Condition 19 is more protective than the Joint Stipulation 19.

MR. SECREST: That was the question that was asked before with regard to the Joint Stipulation, whether complete feathering would be more protective.

ALJ ADDISON: I do recall, somewhat, a similar line of questioning, but I am going to allow the question.

You may answer.

A. Condition 19, in the Staff Report, includes a much, much greater extent of curtailment

of operation of the project than does Condition 19 in the Stipulation Agreement. However, my opinion is this is hitting a watch with a sledgehammer. It's an excessive and unnecessary amount of additional curtailment relative to Stipulation Condition 19 given the vanishingly small level of impact that this project is certain to generate.

Q. But it's more protective.

A. It is more protective, yes.

Q. Could you please turn to your prefiled testimony on page 13.

A. I'm there.

Q. And in particular the last paragraph on the page, you indicate, and I'll quote "The atmosphere of the sky is the same regardless of the substrate in which the turbine bases are mounted." And I believe this is in the overall context of your risk assessment; is that correct?

A. That's correct.

Q. Does that statement factor in attraction that may be caused by the turbine themselves?

A. That statement -- the context for that statement is it refers to the reasons why we have predicted very low risks to birds and bats, collision risks from the project.

And more specifically, it refers to why it's reasonable to look at fatality rates of birds and bats that have been very well characterized at land-based wind projects in the Great Lakes region. 42 studies in the case of birds; 55 studies in the case of bats. And assume only that fatality rates of this project may -- are likely to fall within the range of that large number of studies that have been conducted.

And the fact that those are on the land and, this one, the turbines will be mounted in the water, is -- is not enough of a difference to imagine that it doesn't disqualify the relevance of that very wide range of robust data on actual fatality rates to be considered in predicting the fatality rates for this project just because the turbine bases are in the water because, as this testimony states, the phenomena of interest is happening in the sky and the sky environment is no different.

Now, there is, as you mentioned, the possibility for attraction effects, but I'll note that, in fact, some attraction effects occur in land-based wind farms as well. And, in fact, the beauty of using the actual proof-in-the-pudding results that we did, to predict fatality rates, is

that it doesn't require assumptions like that. It takes the natural conditions of bird and bat exposure attraction behavior in nature and says, okay, now, what's the fatality rates. It doesn't make any assumptions about that.

So I think it is appropriate -- I stand by the statement just that because the atmosphere of the sky is similar, whether you are talking about a land-based or water-based turbine, that it's a valid frame of reference to look at the extensive characterization of bird and bat fatality rates at land-based wind facilities in the region as a basis to make a general prediction.

And again, about this one -- and again, we applied that with a high degree of caution. We didn't say, well, it's most likely exactly this. We said it could be anywhere within the range of what's been documented at land, which allows for some degree of difference, you know, of a new site.

Q. Are there attraction issues that are different with a facility being sited in the middle of Lake Erie as opposed to on land?

A. We don't know. We don't know. Could be.

Q. For example, could birds try to use the turbines as a perch, to break up their transit over

the Lake?

A. Yes, they could.

MR. SIMMONS: Your Honor, if I could just have one minute. I think I am about wrapped up, but I want to go over my notes.

ALJ ADDISON: Certainly.

MR. SIMMONS: Your Honor, I don't have any more questions at this time.

ALJ ADDISON: Thank you very much.

As Dr. Gordon did reference earlier in his statement, it is getting quite late. I believe we are close to the cutoff time that we were trying to stick to at the beginning of the hearing, so we will break for this evening and reconvene tomorrow, at 9:00 a.m., beginning with the redirect, if there is any, of Dr. Gordon. So thank you all.

(Thereupon, at 5:04 p.m., the hearing was adjourned.)

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CERTIFICATE

I do hereby certify that the foregoing is a true and correct transcript of the proceedings taken by me in this matter on Tuesday, September 25, 2018, and carefully compared with my original stenographic notes.

_____
Karen Sue Gibson, Registered Merit Reporter.

_____
Carolyn M. Burke, Registered Professional Reporter.

(KSG-6619)

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Summary: Transcript in the matter of the Icebreaker Windpower, Inc. hearing held on 09/25/18 - Volume II electronically filed by Mr. Ken Spencer on behalf of Armstrong & Okey, Inc. and Gibson, Karen Sue Mrs.