





**E X H I B I T S**

<b>EXHIBIT NO.</b>	<b>D E S C R I P T I O N</b>	<b>PAGE NO.</b>
CFP 63-A	ICNIRP Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields (1 Hz - 100 kHz)	82
CFP 120	State of Connecticut Connecticut Siting Council Re: Petition 754 - Best Management Practices for Electric and Magnetic Fields (02-21-14)	92
CFP 121	EUCI Conference - Strategic Communication for Transmission Projects from Pre-Permitting to Post Construction	25
CFP 122	Chart of Agents Classified by the IARC Monographs, Volumes 1 - 118	73

[WITNESS PANEL: Bailey~Bell~Johnson]

1                                   **P R O C E E D I N G**

2                                   CHAIRMAN HONIGBERG: All right. Good  
3 morning, everyone. We're here for Day Number  
4 4. We have a new panel that's already in  
5 place.

6                                   Is there anything we need to take  
7 care of before those witnesses get sworn in?

8                                   *[No indication given.]*

9                                   CHAIRMAN HONIGBERG: All right.  
10 Sounds good. Mr. Patnaude.

11                                   (Whereupon **William Bailey,**  
12 **Douglas Bell,** and **Gary Johnson**  
13 were duly sworn by the Court  
14 Reporter.)

15                                   CHAIRMAN HONIGBERG: Mr. Walker, I  
16 understand you've wrestled the microphone from  
17 Mr. Needleman's hands today.

18                                   MR. WALKER: I have. Thank you, Mr.  
19 Chairman and members of the Committee. My name  
20 is Jeremy Walker, and I am with the McLane law  
21 firm, and here on behalf of the Applicants.

22                                   **WILLIAM BAILEY, SWORN**

23                                   **DOUGLAS BELL, SWORN**

24                                   **GARY JOHNSON, SWORN**

**DIRECT EXAMINATION**1  
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BY MR. WALKER:

Q. Dr. Bailey, I have a few preliminary questions for you. Could you please state your name and introduce yourself to the Committee and explain where you are employed.

A. (Bailey) I'm William Bailey. And I'm employed by Exponent.

Q. Have you submitted prefiled testimony in this matter?

A. (Bailey) Yes, I have.

Q. And that's prefiled testimony with regard to public health and safety, in particular EMF, is that right?

A. (Bailey) Yes.

Q. Is that prefiled testimony before you and marked as "Exhibit 25"?

A. (Bailey) Yes, it is.

Q. Do you have any changes you wish to make to the testimony?

A. (Bailey) I'd like to correct one typographical error on Page 10, Line 6. It reads -- the sentence reads "The exposure limits", and then "adults and" should be struck, and then it

[WITNESS PANEL: Bailey~Bell~Johnson]

1 continues on "children", and then, after  
2 "children", insert "and adults". So, the order  
3 of "adults" and "children" was inadvertently  
4 switched.

5 Q. Thank you. Dr. Bailey, with that change, do  
6 you adopt and swear by your prefiled testimony?

7 A. (Bailey) I do.

8 Q. Dr. Johnson, similar questions for you. Could  
9 you please introduce yourself to the Committee  
10 and tell them where you work.

11 A. (Johnson) My name is Gary -- my name is Gary  
12 Johnson. I work at Exponent as a Senior  
13 Managing Scientist.

14 Q. Dr. Johnson, you also have submitted prefiled  
15 testimony in this case with regard to public  
16 health and safety, in particular EMF and sound,  
17 is that right?

18 A. (Johnson) Yes, I have.

19 Q. Is that prefiled testimony before you as  
20 "Exhibit 26"?

21 A. (Johnson) Yes, it is.

22 Q. Do you have any changes to your prefiled  
23 testimony?

24 A. (Johnson) There is one minor typographical

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 change, on Page 14, the last page, Line 6. The  
2 line presently reads "Substation is 43 dB  
3 microvolts per meter or less in fair weather  
4 and 60 dBA or less in foul weather." The "60  
5 dBA" should actually be 60 dB microvolts per  
6 meter, the same unit. Or the changes should be  
7 from "A" to "microvolts per meter".

8 Q. Thank you. And, with that change, do adopt and  
9 swear by your testimony?

10 A. (Johnson) Yes, I do.

11 MR. IACOPINO: Could we just have  
12 that page and line again?

13 WITNESS JOHNSON: Page 14, Line 6.  
14 It's a little past halfway through.

15 MR. IACOPINO: Thank you.

16 BY MR. WALKER:

17 Q. Mr. Bell, could you introduce yourself to the  
18 Committee please.

19 A. (Bell) Yes. My name is Douglas Bell.

20 Q. And where do you work, Mr. Bell?

21 A. (Bell) Cavanaugh Tocci Associates.

22 Q. Have you also submitted prefiled testimony in  
23 this matter?

24 A. (Bell) I have.

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. And your prefiled testimony is with regard to  
2 public health and safety as it relates to sound  
3 in this case?

4 A. (Bell) That is correct.

5 Q. Is your prefiled testimony before you as  
6 "Exhibit 27"?

7 A. (Bell) It is.

8 Q. Do you have any changes to make to your  
9 testimony?

10 A. (Bell) I do not.

11 Q. Do you adopt and swear by that testimony in  
12 this matter?

13 A. (Bell) I do.

14 MR. WALKER: Thank you. No further  
15 questions.

16 CHAIRMAN HONIGBERG: All right. Is  
17 there anyone from the Business Organizations  
18 Group, Attorney Beliveau or anybody else?

19 *[No indication given.]*

20 CHAIRMAN HONIGBERG: All right. How  
21 about Cities of Franklin and Berlin?

22 *[No indication given.]*

23 CHAIRMAN HONIGBERG: Wagner Forest  
24 Management?

[WITNESS PANEL: Bailey~Bell~Johnson]

1                                    [No indication given.]

2                                   CHAIRMAN HONIGBERG: All right.

3                                   Counsel for the Public, you're up. Mr. Roth, I  
4                                   understand you are in charge of this one.

5                                   MR. ROTH: Good morning, gentlemen.  
6                                   Dr. Bailey, I'm going to start with you this  
7                                   morning. My name is Peter Roth. I'm Counsel  
8                                   for the Public in this matter. I'm with the  
9                                   Department of Justice. I was appointed by the  
10                                  Attorney General to serve as Counsel for the  
11                                  Public in this matter pursuant to the statute.

12                                  Perhaps you recall we met at the  
13                                  technical session back in September?

14                                  WITNESS BAILEY: Yes.

15                                  MR. ROTH: Good to see you again.

16                                  **CROSS-EXAMINATION**

17 BY MR. ROTH:

18 Q. I'm going to start with your background a  
19                                  little bit. And I'm looking at the resumé or  
20                                  Attachment A to your prefiled testimony and the  
21                                  list of publications and presentations and the  
22                                  like. And I wanted to start -- so, you've been  
23                                  with Exponent since 1990, is that true?

24 A. (Bailey) No.

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. No? Okay.

2 A. (Bailey) Since 2000.

3 Q. Since 2000. Okay. Ah, I see. There it is.  
4 All right. And, before that, you had your own  
5 firm, Bailey Research?

6 A. (Bailey) Before that, I was -- I had my own  
7 firm, yes.

8 Q. Okay. And, before that, you were with  
9 Environmental Research Information, between  
10 1987 to 1990?

11 A. (Bailey) I was, yes.

12 Q. Okay. And, before that, as I gather, you were  
13 with the New York Institute for Basic Research,  
14 is that correct?

15 A. (Bailey) Yes.

16 Q. Is that a state agency or was that an academic  
17 institution?

18 A. (Bailey) It's a state research agency.

19 Q. Okay. And, then, prior to that, it appears you  
20 were an assistant professor at Rockefeller  
21 College or University?

22 A. (Bailey) The Rockefeller University.

23 Q. Okay. And, so, it looks from what I gather you  
24 were in academics between, say, 1968 and

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 roughly 1983, is that correct?

2 A. (Bailey) Yes.

3 Q. And, since then, you've been largely in private  
4 practice, although I do see that you've done  
5 some teaching appointments, adjunct, continuing  
6 education, lecturing and that sort of thing  
7 between -- in the '90s, is that fair to say?

8 A. (Bailey) Yes.

9 Q. Now, I also notice that you describe yourself  
10 as a "Visiting Fellow" at the Cornell Medical  
11 School. What does that mean?

12 A. (Bailey) When I concluded my laboratory  
13 research, I had been collaborating with members  
14 of the faculty in the Department of  
15 Pharmacology, and transferred my laboratory  
16 equipment there. And this enabled them to have  
17 the technology to measure neurotransmitters  
18 that they did not have previously.

19 Q. Okay.

20 A. (Bailey) And, so, I have been continually  
21 available to them and consulting about taking  
22 measurements with this equipment, and also I  
23 work with them as they prepare grant  
24 applications for submission to the National

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Institute of Health. They call upon me for  
2 review and consultation on those --

3 Q. Okay. Do you maintain -- I'm sorry, go ahead.

4 A. (Bailey) -- on those applications.

5 Q. Okay. Do you maintain an office or a telephone  
6 number at Cornell?

7 A. (Bailey) No, I do not.

8 Q. Okay. Because when I went to the Cornell  
9 Directory, the Cornell Medical School  
10 Directory, when I searched for you online, I  
11 couldn't find you either described as your name  
12 or on a list of "visiting fellows". Do you  
13 know why that would be the case?

14 A. (Bailey) I believe it's because my appointment  
15 is through the Department --

16 Q. So, --

17 A. (Bailey) -- the Department of Pharmacology.

18 Q. Okay. But wouldn't -- is the Department of  
19 Pharmacology part of Cornell Medical School?

20 A. (Bailey) It is.

21 Q. Okay.

22 A. (Bailey) But, to my knowledge, from the day  
23 that I was appointed, it has not appeared on  
24 the website.

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. Okay. Thank you. Now, I notice from your list  
2 of publications that you've done a number of  
3 works for EPRI. Is that the Electric Power  
4 Research Institute?

5 A. (Bailey) Yes.

6 Q. Okay. And is that an industry-funded  
7 organization?

8 A. (Bailey) It's a research institute that members  
9 of the electric utility institute -- industry  
10 contribute to fund research projects of  
11 interest.

12 Q. Okay. So, the answer to my question is "yes"?

13 A. (Bailey) Yes.

14 Q. That's an industry-funded organization, okay.  
15 And, since 1983, is it fair to say that your  
16 primary business has been as an expert witness  
17 or an expert on these matters?

18 A. (Bailey) I would say that most of the work has  
19 been in consultation, and that includes, from  
20 time to time, appearing as an expert witness in  
21 hearings like this.

22 Q. Okay. And is that mostly for the utility  
23 industry, for utility companies?

24 A. (Bailey) I would say mostly, but I've also

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 appeared on behalf of government agencies from  
2 time to time.

3 Q. Okay. And I also discovered that you did a  
4 presentation for EUCI. What is that?

5 A. (Bailey) It's a group, as I understand it, that  
6 puts on conferences on various topics. And I  
7 have spoken at one of their conferences.

8 Q. So, only the one?

9 A. (Bailey) I think the same conference was held  
10 in a different city where I spoke for it. But  
11 it was basically the same organization.

12 Q. Okay. And is that an electric utility  
13 organization? That is that it primarily serves  
14 members of the electric -- or, you know,  
15 officials, I don't know what's the word,  
16 business people from the electric utility  
17 industry?

18 A. (Bailey) It could be. They may offer  
19 conferences on other topics as well. But I'm  
20 not that familiar with them.

21 Q. And do you know what "EUCI" stands for?

22 A. (Bailey) To tell you the truth, at the moment,  
23 I'm not sure.

24 Q. Would it refresh your recollection if I told

[WITNESS PANEL: Bailey~Bell~Johnson]

1 you it was the "Electric Utility Communication  
2 Institute" or "Conference Institute"? Maybe I  
3 don't even know, so --

4 A. (Bailey) Maybe "Conference Institute" sounds  
5 right.

6 Q. Okay. So, now I'm going to turn to -- well,  
7 before I do that, you didn't list your EUCI  
8 work in your resumé, either under publications  
9 or presentations or anything like that. Why is  
10 that?

11 A. (Bailey) Because it wasn't to a scientific  
12 audience.

13 Q. Okay. Thank you. Now, turning to Page 3 of  
14 your testimony, and we're going to start with  
15 your purposes. And you describe the purpose of  
16 your testimony is to "summarize [your] human  
17 health and safety assessment of the EMF  
18 associated with the operation of the Northern  
19 Pass Transmission Project". Is that -- and  
20 that is still your testimony?

21 A. (Bailey) Yes.

22 Q. Okay. And then have you ever had to render  
23 that opinion before, about whether a project  
24 would have an unreasonable adverse effect on

[WITNESS PANEL: Bailey~Bell~Johnson]

1 public health and safety?

2 A. (Bailey) Yes.

3 Q. And in what context? In the State of New  
4 Hampshire?

5 A. (Bailey) It could have been, or similar wording  
6 in other venues.

7 Q. But you don't know for sure whether it was  
8 precisely that wording or something else?

9 A. (Bailey) I couldn't be sure.

10 Q. Okay. Now, under "scope", you said your  
11 "assessment including an analysis of the entire  
12 Project", correct?

13 A. (Bailey) Yes.

14 Q. And you relied on Dr. Johnson's modeling and  
15 his report and his opinion for the EMF  
16 calculations and the like. Is that correct?

17 A. (Bailey) Yes.

18 Q. Okay. And are you -- did you look at plans and  
19 designs from the Northern Pass Team? Or was  
20 that Dr. Johnson's thing?

21 A. (Bailey) I was involved in reviewing what the  
22 different cross sections were, and then Dr.  
23 Johnson would have taken that information and  
24 used that in his calculations.

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. So, you --

2 A. (Bailey) So, the answer is "yes".

3 Q. So, you reviewed the Applicant's plans?

4 A. (Bailey) Yes.

5 Q. Okay. And do you know whether those plans have  
6 been modified since the time you looked at  
7 them?

8 A. (Bailey) There have been modifications as the  
9 project has gone along, yes.

10 Q. Okay. And, since you gave your testimony in  
11 October of 2015, have you looked at other -- at  
12 other iterations of those plans?

13 A. (Bailey) I have not.

14 Q. Okay. And do you know whether they're going to  
15 be modified again as the Project comes closer  
16 to final completion -- or, final design and  
17 construction?

18 A. (Bailey) I don't have any knowledge about what  
19 changes may or may not be made.

20 Q. Okay. But, based on the plans that you saw, do  
21 you believe that those -- that the design is  
22 final and constructible, based on what you saw?

23 A. (Bailey) Whether the Project is constructible  
24 is something to be asking of, I believe,

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 another panel. But the materials that I  
2 reviewed are described and presented in our  
3 testimony.

4 Q. Okay. And were the plans described as  
5 "preliminary - not for construction"?

6 A. (Bailey) I think that "draft" is probably  
7 appended to those.

8 Q. Okay. I wasn't trying to play a trick on you  
9 to get you to opine about whether the Project  
10 was constructible. That's not what I meant.  
11 I'm sorry --

12 A. (Bailey) Okay.

13 Q. -- if you had that impression. All right.  
14 Now, I'm going into the adventures of modern  
15 technology. And, hopefully, the electric  
16 magnetic force from this machine doesn't make  
17 me sick, right?

18 MR. WHITLEY: Could you bring the  
19 microphone with you, Peter.

20 CHAIRMAN HONIGBERG: Off the record.

21 *[Brief off-the-record discussion*  
22 *ensued.]*

23 BY MR. ROTH:

24 Q. All right. Dr. Bailey, I gather from the

[WITNESS PANEL: Bailey~Bell~Johnson]

1 things that you've written over the years, and  
2 I've read a couple of them, although there's a  
3 very impressive list of things, that you see  
4 yourself as kind of a, you know, a guardian of  
5 the communication of this sort of thing, of EMF  
6 and its health effects, correct?

7 A. (Bailey) I wouldn't agree with that. It seems  
8 rather an inflated goal.

9 Q. Well, I don't mean to, you know, cause your  
10 head to explode or anything. But it seems  
11 you've had -- some of the focus of your work  
12 has been with respect to communication about  
13 EMF and its effects, is that correct?

14 A. (Bailey) That is correct.

15 Q. Okay. Now, I'm showing you on the screen --  
16 has everybody got that? -- an article that --  
17 or, I guess this is an editorial that you  
18 authored, along with another person, that was  
19 published in the Journal of Exposure Science  
20 and Environmental Epidemiology. Do you  
21 remember this article or this --

22 A. (Bailey) Yes. Yes, I do.

23 Q. Okay. And I want you to read the -- you see  
24 there's two columns, the column on the left

[WITNESS PANEL: Bailey~Bell~Johnson]

1 you'll see some highlighted material there.

2 A. (Bailey) Yes.

3 Q. Which it starts "On the basis of our  
4 experience". And can you read that for us  
5 please?

6 A. (Bailey) "On the basis of our experience,  
7 there's a lack of understanding by the public  
8 and sometimes even" --

9 CHAIRMAN HONIGBERG: Dr. Bailey, just  
10 slow down just a little.

11 WITNESS BAILEY: Okay.

12 CHAIRMAN HONIGBERG: The stenographer  
13 needs to try and keep up with you.

14 WITNESS BAILEY: Thank you, sir.

15 **BY THE WITNESS:**

16 A. (Bailey) "On the basis of our experience,  
17 there's a lack of understanding by the public,  
18 and sometimes even scientists outside this area  
19 of research, of the magnetic field exposure  
20 metric referenced by 0.4 microtesla."

21 That's -- I'm not sure that's been  
22 correctly represented in the printout there.  
23 It should read "microtesla".

24 "How this value relates to everyday

[WITNESS PANEL: Bailey~Bell~Johnson]

1 exposures and whether it is a common exposure.  
2 Specifically, the public has difficulty in  
3 understanding why this number cannot be  
4 directly compared to a single spot 50-60 hertz  
5 magnetic field measurement, taken at a school  
6 playground or residence or to a calculation  
7 made to estimate a magnetic field level at a  
8 particular distance from an electrical  
9 facility."

10 Q. Okay. And, so, what I gather from that, and  
11 you can correct me if I'm wrong, is that you're  
12 saying that there's sort of a gap in  
13 communication, I think you used that in the  
14 next column, between the epidemiologists who  
15 refer to exposures in terms of microteslas, and  
16 others, sometimes the scientists and the public  
17 and those making measurements who use this spot  
18 measurement technique. Am I reading that  
19 correctly?

20 A. (Bailey) Yes. But it wasn't -- it didn't have  
21 to do with the fact that the measurements were  
22 expressed in microteslas or whether expressed  
23 in milligauss, it has to do with what that 0.4  
24 microtesla or 4 milligauss value refers to as

[WITNESS PANEL: Bailey~Bell~Johnson]

1 to how to interpret it.

2 Q. Okay. And I think you're expressing in here a  
3 concern that the public is getting two sets of  
4 metrics, and they don't understand how they  
5 correlate. Is that fair to say?

6 A. (Bailey) Yes.

7 Q. Okay. And, then, on the next column there, you  
8 say "The purpose of this editorial is to remedy  
9 this gap in communication." Correct?

10 A. (Bailey) Yes.

11 Q. And, then, the second column there, again that  
12 larger paragraph, can you read that one there,  
13 too, "The public is most familiar"?

14 A. (Bailey) Okay. "The public is most familiar  
15 with spot measurements of magnetic fields,  
16 because they are either measured by power  
17 companies at their properties upon request, or  
18 calculated as to characterize future magnetic  
19 field levels as part of a permitting process  
20 for an electrical facility. However, these  
21 single values are not the same metrics that  
22 have been used by epidemiologists to describe  
23 population exposures."

24 Q. Okay. And this makes more clear, I think, that

[WITNESS PANEL: Bailey~Bell~Johnson]

1 what you're seeing in proceedings, perhaps like  
2 this one, that power companies come in and  
3 present information that is expressed in  
4 milligauss, right, and not in the microteslas.  
5 And so that this is creating some of this  
6 miscommunication, correct?

7 A. (Bailey) No, that is not correct. If I may  
8 explain?

9 Q. Well, let me try it again. What you said here  
10 is that you have spot measurements that are  
11 done by power companies as part of permitting  
12 proceedings, correct?

13 A. (Bailey) Yes.

14 Q. Okay. And so that those spot measurements are  
15 where an expert, such as Dr. Bailey, may go out  
16 and set up some equipment and determine what  
17 the magnetic -- the electromagnetic field is  
18 right there at that point, correct?

19 A. (Bailey) That would be for taking a spot  
20 measurement, yes.

21 Q. Yes. Or, if he does a model and he does it the  
22 same way, with a spot measurement. And I'm not  
23 saying that he's done that in this case. But  
24 I'm just saying that, in terms of what you're

[WITNESS PANEL: Bailey~Bell~Johnson]

1 talking about here, isn't that what you're  
2 talking about?

3 A. (Bailey) With regard to measurements, yes.

4 Q. Yes. But what the epidemiologists are doing is  
5 they're looking at this at a different measure,  
6 the microtesla, correct?

7 A. (Bailey) It doesn't have to do with being a  
8 different measure. It has to do with what that  
9 measure represents.

10 Q. You're getting ahead of me. So, it's  
11 expressed -- the epidemiologists express it in  
12 microtesla, and they're talking about a  
13 time-weighted average, correct?

14 A. (Bailey) Yes. The time-weighted average is the  
15 critical aspect of the difference.

16 Q. Okay. And, so, further down you point out that  
17 there is a percentage of people, of children,  
18 who receive measured exposures at residences  
19 greater than 0.4 microtesla even when  
20 transmission lines are nearby.

21 And, so, then it goes over to the next  
22 page. And you'll see some percentages of  
23 children that are exposed in Denmark and United  
24 Kingdom, and then you say -- then you quote

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Greenland for this, "two and a half percent of  
2 residences in the United States had  
3 measurements greater than 0.4 microteslas."  
4 Now, is that a time-weighted average or is that  
5 a spot measurement?

6 A. (Bailey) That is an estimate of exposure based  
7 upon the epidemiology studies that were  
8 reviewed.

9 Q. Okay.

10 A. (Bailey) And, in those studies, it could be  
11 a -- the goal was to attempt to estimate the  
12 long-term average exposure of participants in  
13 the study.

14 Q. So, if I recall my question correctly, is the  
15 answer "yes", that's a time-weighted average?

16 A. (Bailey) It's an estimate of the time-weighted  
17 average.

18 Q. Okay. All right. Thank you.

19 *[Short pause.]*

20 CHAIRMAN HONIGBERG: Off the record.

21 *[Brief off-the-record discussion*  
22 *ensued.]*

23 BY MR. ROTH:

24 Q. Okay. Now we're looking at Exhibit 121. Do

[WITNESS PANEL: Bailey~Bell~Johnson]

1 you recognize this, Dr. Bailey?

2 A. (Bailey) Yes.

3 Q. So, this is the conference that you spoke about  
4 that you attended and spoke to, correct?

5 A. (Bailey) Yes.

6 Q. And did they pay you like an honoraria or a fee  
7 for attending that conference and speaking?

8 A. (Bailey) No.

9 Q. No?

10 A. (Bailey) They paid my travel expenses, like for  
11 the hotel, I think.

12 Q. Okay. And, so, they paid for your travel and  
13 your hotel?

14 A. (Bailey) Yes.

15 Q. And did you speak -- did you attend the entire  
16 conference at The Roosevelt Hotel, both the  
17 Strategic Communication for Transmission  
18 Projects, and then the Post-Conference Workshop  
19 on Utilizing Mediation and Negotiation Skills  
20 to Diffuse Project Opposition?

21 A. (Bailey) I believe that I stayed over to hear  
22 that workshop, yes.

23 Q. Okay. So, you attended both sessions?

24 A. (Bailey) Yes.

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. Page 2. Now, this is in furtherance of your  
2 communication practice, so to speak, if I can  
3 call it that. And, in the overview, in the  
4 second paragraph it says "It's imperative that  
5 utilities and other project proponents gain the  
6 support and understanding of these stakeholders  
7 through proactive education and outreach at  
8 each step. The conference will provide  
9 attendees with strategic communication  
10 management tools that can be used from project  
11 design to delivery. Utility practitioners and  
12 other industry experts will share case studies  
13 on how they have successfully engaged  
14 stakeholders and built relationships to  
15 optimize the outcomes of their projects."

16 So, is that what you understood to be the  
17 purpose of this conference that you attended?

18 A. (Bailey) It seems like a general description  
19 that they offer, yes.

20 Q. Okay. And then further down in the "Learning  
21 Outcomes", there's a bullet there that says  
22 you're going to "practice getting the science  
23 right in your public outreach messages about  
24 EMF". And that sounds like your part, correct?

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Bailey) It does.

2 Q. Okay. Now we're going to turn to Page 5. And  
3 I'm just going to read the next to the last  
4 sentence here. This is the portion of the  
5 seminar agenda which describes your role and  
6 what folks -- what participants in the  
7 conference could learn from you. And did you  
8 write this? Did you do this write-up?

9 A. (Bailey) Yes, I did.

10 Q. Okay. And you wrote "Sharing the results of  
11 experimental and epidemiology research studies  
12 and perspectives of national and international  
13 health and scientific agencies is an effective  
14 method to assuage public concern." And those  
15 are your words?

16 A. (Bailey) Yes.

17 Q. Okay. So, you attended this conference and  
18 participated in the conference, as I understand  
19 it, to teach strategic communication to  
20 optimize outcomes of electric utility projects  
21 by assuaging public concern about EMF. Is that  
22 a fair summary of what we just went through?

23 A. (Bailey) I think that's a incomplete and  
24 misleading characterization of it. I appeared

[WITNESS PANEL: Bailey~Bell~Johnson]

1 at the conference to educate people about the  
2 types of scientific information that needed to  
3 be presented, so that people could understand  
4 issues relating to EMF in projects. And my  
5 concern is that the communication of scientific  
6 information is not often available to projects,  
7 because they don't have a scientist assisting  
8 them in making sure that the information is  
9 fully presented and clearly presented and up to  
10 date.

11 Q. Okay. Dr. Bailey, did I misquote anything that  
12 I just said? Was this a "Strategic  
13 Communication for Transmission Projects",  
14 correct?

15 A. (Bailey) That was the purpose of the  
16 conference.

17 Q. Okay.

18 A. (Bailey) I'm talking about my purposes --

19 Q. Okay.

20 A. (Bailey) -- in my presentation.

21 Q. All right. And it was designed to optimize  
22 outcomes of utility projects, is that correct?

23 A. (Bailey) That's what the goal of the conference  
24 was.

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. Okay. And your presentation was designed to  
2 provide effective methods to assuage public  
3 concerns, correct?

4 A. (Bailey) Yes.

5 Q. Okay.

6 A. (Bailey) And the title of it was, if I can  
7 continue, "What the Public Wants to Know and  
8 Why It Matters to Your Project".

9 Q. According to you?

10 A. (Bailey) Yes.

11 Q. Okay. Going to go back to the ELMO. All  
12 right. Dr. Bailey, on your CV you describe  
13 that you had also participated with the WHO in  
14 writing the paper that I'm showing just a  
15 certain -- just a very small portion of it, on  
16 "EMF: Risk Perception and Communication", and  
17 this was in 1999. Do you remember this?

18 A. (Bailey) Yes.

19 Q. Okay. And, if I may, this is the panel of  
20 speakers and chairpersons. And you are the  
21 second person listed, and this was while you  
22 were at Bailey Research Associates, in New  
23 York?

24 A. (Bailey) Yes.

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. All right. Now I'm going to show you the  
2 forward of this paper, which is Page viii, and  
3 ask you to -- see if I have my own -- yes, I'm  
4 going to ask you to read that, and the  
5 highlighted portion. And I will ask you, did  
6 you write this part?

7 A. (Bailey) I don't believe so.

8 Q. Okay. But you did -- when a paper like this is  
9 published with your name on it, do you  
10 essentially take ownership of the things that  
11 are in it, unless you somehow exclude yourself?

12 A. (Bailey) If I contribute a chapter to a book or  
13 a paper to a conference, I do not necessarily  
14 take responsibility for anything other than my  
15 own contribution.

16 Q. Okay. And is there something about -- that was  
17 in this paper that would allow a reader to  
18 understand whether you took ownership of a  
19 particular portion of it only or just -- or all  
20 of it?

21 A. (Bailey) I'm not sure. Could you rephrase  
22 that? I'm not sure --

23 Q. Well, let's just -- let's proceed with the  
24 questioning about this part here. Did you

[WITNESS PANEL: Bailey~Bell~Johnson]

1 participate in writing the forward?

2 A. (Bailey) I have no recollection that I did.

3 Q. Okay. And what it says here is "Possible  
4 health effects of exposure to EMF have led to  
5 concerns among the general public and workers  
6 that appear to go well beyond those that are  
7 attributed to well-established risks." I  
8 assume you would agree with that, that  
9 proposition?

10 A. (Bailey) Yes.

11 Q. Okay. And then it says --

12 CHAIRMAN HONIGBERG: Slower.

13 BY MR. ROTH:

14 Q. -- "People have the right to access reliable,  
15 credible, and accurate information about any  
16 health risks from EMF exposure." Would you  
17 agree with that?

18 A. (Bailey) Yes.

19 Q. Okay. "However, recent history has shown that  
20 communication among scientists, governments,  
21 industry, and the public has often been  
22 ineffective." Now, this was written in 1999.  
23 Do you think that's still true?

24 A. (Bailey) Not to the degree that it was present

[WITNESS PANEL: Bailey~Bell~Johnson]

1 in 1999.

2 Q. Okay. But it is still more or less true then?

3 A. (Bailey) There still is a communication gap  
4 between what scientists and health agencies  
5 know and what the public knows.

6 Q. Okay. So, then, I guess, based on what you  
7 just said, you would agree with that last  
8 sentence, "There continues to be a divergence  
9 of views because of this failure to communicate  
10 effectively"?

11 A. (Bailey) Yes.

12 Q. Okay. And, then, the last bit, this is in the  
13 preface, can you read that paragraph that I've  
14 highlighted there for me please?

15 A. (Bailey) "Gone are the days when scientists  
16 could assess a risky situation and the public  
17 would accept this analysis without question.  
18 Unfortunately, there has been a decline in  
19 respect of expert opinion. Research has shown  
20 that effective communication depends upon the  
21 establishment of trust and credibility of the  
22 expert and the sources of information."

23 Q. Okay. And do you agree with that statement  
24 that you just read?

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Bailey) Yes.

2 Q. Okay. So, that's still true, too. Now, I take  
3 it from the '99 paper that we just -- that you  
4 just read from, and the 2008 editorial that you  
5 wrote for the Journal that we looked at a  
6 minute ago, that you believe, and believed  
7 anyway, that honesty, clarity, and trust were  
8 essential for communication between the  
9 industry, the scientists, the regulators, and  
10 the public, is that correct?

11 A. (Bailey) Yes.

12 Q. All right. But, by 2014, when you were working  
13 for EUCI, it seems that the concern there was  
14 strategic communication for optimal outcomes.  
15 Has your view changed?

16 A. (Bailey) No. As I said before, I was not  
17 working for EUCI. I was asked to give a paper  
18 as -- that would help people understand the  
19 status of research on EMF.

20 Q. Okay. Yes. Which role are you serving here  
21 today? Strategic communication for optimal  
22 outcomes or sort of the honest broker for the  
23 science and regulators and the public?

24 A. (Bailey) I would say that it covers the range

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 of both of those.

2 Q. Okay.

3 A. (Bailey) The difficulty is that science is, in  
4 this area, is very esoteric and technical.  
5 There have been thousands of papers written on  
6 this topic. And the ability of someone from  
7 outside the field to understand what are the  
8 status of research on this topic is very  
9 difficult. And, so, my goal, as a scientist,  
10 is to make sure that this information is  
11 accessible to people to -- whether they're  
12 project developers or regulators or the public.

13 Q. Thank you. I want to turn now to your report.  
14 And I'm looking, in particular, at Page 131.  
15 And it's I think -- can you pull up Applicant's  
16 Exhibit 25. Twenty-five.

17 A. (Bailey) Excuse me, sir. I couldn't hear the  
18 page number?

19 Q. She didn't either. 131.

20 A. (Bailey) One --

21 Q. 131.

22 CHAIRMAN HONIGBERG: Off the record.

23 *[Brief off-the-record discussion*  
24 *ensued.]*

[WITNESS PANEL: Bailey~Bell~Johnson]

1 BY MR. ROTH:

2 Q. We're looking at -- Dr. Bailey, we're looking  
3 at Appendix 37, which is your report that  
4 accompanied your testimony, correct?

5 A. (Bailey) Correct.

6 Q. And I want to turn your attention to Page 131  
7 of your report.

8 A. (Bailey) Sir, I only have 79 pages in my  
9 report, in my printout.

10 Q. Well, where's the rest of it?

11 A. (Bailey) Apparently, it was not added to this  
12 volume. So, we'll go by your electronic page.

13 Q. All right. So, there's a large block paragraph  
14 there. And the next to last sentence in it you  
15 quote, it says "As the WHO" -- do people call  
16 them "Who", by the way?

17 A. (Bailey) I think -- I prefer "W-H-O".

18 Q. Yes. That sounds more correct to me. But "As  
19 the WHO currently states on its website, based  
20 on a recent in-depth review of the scientific  
21 literature, the WHO concluded that current  
22 evidence does not confirm the existence of any  
23 health consequences from exposure to low level  
24 electromagnetic fields." Correct?

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Bailey) Yes.

2 Q. And you believe that that quote is correct?

3 A. (Bailey) Yes.

4 Q. Okay. And, as I recall, and I think you quoted  
5 that when you appeared at the public meeting in  
6 Holderness on March 14th of last year, and  
7 that, in the transcript, you said "the  
8 evidence" -- "that the evidence does not  
9 confirm the existence of any health  
10 consequences of exposure to low level  
11 electromagnetic fields." Correct?

12 A. Yes.

13 Q. All right. Now, I'm going to show you the WHO  
14 webpage that you got that from.

15 A. (Bailey) Okay.

16 Q. All right. When I pulled this up the other  
17 day, which was April 15th, there was a link  
18 there or a page on the WHO website for  
19 electromagnetic fields, "What are  
20 electromagnetic fields?" Do you --

21 A. (Bailey) Yes.

22 Q. Does this look familiar to you?

23 A. (Bailey) Yes.

24 Q. Okay. And this was the first part of that

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 page. And, then, when it prints out, it's one  
2 of five. So, that's the first one. And then I  
3 had to search a little bit, but I found what  
4 you quoted.

5 A. (Bailey) Yes.

6 Q. And there's your quote. "Based on a recent  
7 in-depth review of the scientific literature,  
8 the Who concluded" -- "the WHO concluded that  
9 current evidence does not confirm the existence  
10 of any health consequences from exposure to low  
11 level electromagnetic fields."

12 But then it says "However, some gaps in  
13 knowledge about biological effects exist and  
14 need further research." Is that correct?

15 A. (Bailey) That's correct.

16 Q. So, was your statement that you put in your  
17 report and that you gave to people in  
18 Holderness necessarily complete about that  
19 particular idea?

20 A. (Bailey) It stated the position of the World  
21 Health Organization. And, on any scientific  
22 topic of research, there's always gaps in  
23 things, more information that we would like to  
24 find out. But I don't see that as limiting

[WITNESS PANEL: Bailey~Bell~Johnson]

1 their opinion about what they have concluded  
2 from their review of the research.

3 Q. Okay. So, let's look at further down, and  
4 further down in that webpage, where it's under  
5 the category "Electromagnetic Fields and  
6 Cancer", where it says "A number of  
7 epidemiological studies suggest small increases  
8 in risk of childhood leukemia with exposure to  
9 low frequency magnetic fields in the home."

10 Now, you didn't quote that in your  
11 testimony or provide that to the people in  
12 Holderness, did you?

13 A. (Bailey) The information that I have  
14 provided --

15 Q. Can you please answer the question? Did you  
16 provide that --

17 A. (Bailey) I gave that summary quote from the  
18 World Health Organization. And additional  
19 information is laid out in my testimony, --

20 Q. Dr. Bailey, --

21 A. -- including a discussion of those epidemiology  
22 studies.

23 Q. Dr. Bailey, did you include that information,  
24 that quote, in your report -- or, at the public

[WITNESS PANEL: Bailey~Bell~Johnson]

1 meeting in Holderness?

2 A. (Bailey) The reference to those studies are  
3 included in my reports.

4 Q. Is the answer to my question "no", you did  
5 not --

6 A. (Bailey) Not in Holderness. Not in Holderness.

7 Q. Okay. Thank you. And this is the last part of  
8 the webpage, says, in 6 and 7, "Despite  
9 extensive research to date, there is no  
10 evidence to conclude that exposure to low level  
11 electromagnetic fields is harmful to human  
12 health." Now, I think you would agree with  
13 that. That supports what you said, right?

14 A. *(No verbal response)*.

15 Q. And then it says "The focus of international  
16 reference is on the investigation of possible  
17 links between cancer and electromagnetic fields  
18 at power line and radio frequencies."

19 So, isn't it true that the WHO's approach  
20 isn't, you know, "the book is closed", "the  
21 case is over" on this issue, but that there are  
22 still remaining questions, there's still a link  
23 to childhood leukemia, and more research is  
24 required about that. Isn't that correct?

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

- 1 A. (Bailey) And, since that was written in 2007 --
- 2 Q. Can you answer the question please? Isn't that
- 3 correct?
- 4 A. (Bailey) The answer is "yes".
- 5 Q. Okay. Because that webpage I printed off three
- 6 or four days ago.
- 7 A. (Bailey) Yes.
- 8 Q. All right. Thank you.
- 9 A. (Bailey) And the purpose of their calling
- 10 attention to this was to have gaps in the
- 11 research completed. And, since the WHO
- 12 completed their review, there have been many
- 13 studies that have filled in those gaps.
- 14 Q. Is it fair to say that the statement that you
- 15 quoted is not as certain and final as it
- 16 sounded in your report and at the public
- 17 hearing?
- 18 A. (Bailey) I believe that correctly summarizes
- 19 the WHO's conclusion of research completed to
- 20 date.
- 21 Q. However, is it fair to say it was not a
- 22 complete statement about what WHO believes
- 23 about the connection between electromagnetic
- 24 fields and childhood leukemia?

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Bailey) Sir, it is not a complete statement,  
2 because the WHO has written hundreds of pages  
3 about EMF and --

4 Q. And we're going to get into that.

5 A. (Bailey) -- scientific research.

6 Q. Thank you.

7 (Short pause.)

8 BY MR. ROTH:

9 Q. Okay. Now, on your screen, Dr. Bailey, is a  
10 report that was written by -- or published by,  
11 anyway, the WHO Regional Office for Europe.  
12 Are you familiar with this report?

13 A. (Bailey) I would have to see the entire report  
14 to know whether I've seen this before. On the  
15 face of -- the cover page, it doesn't look  
16 familiar to me, but I would have to review it.

17 Q. I'm going to show you a different cover page,  
18 because this was the inside cover page. I was  
19 trying to be cheap about printing.

20 MR. ROTH: May I approach the  
21 witness?

22 CHAIRMAN HONIGBERG: Sure.

23 BY MR. ROTH:

24 Q. Does that look more like it?

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Bailey) I don't think I have seen this.

2 Q. Okay. Well, I'm sorry you haven't seen it. I  
3 thought this was within your cabin. But I'm  
4 going to ask you some questions about it  
5 anyway.

6 Exhibit 61 is, as it says on its title,  
7 "Children's health and the environment: A  
8 review of evidence". And this is dated in  
9 2002, correct?

10 A. (Bailey) I don't see a date on the cover page.

11 Q. All right. Can I see the second page?

12 A. (Bailey) I see that on the second page, yes.

13 Q. Okay. Thank you.

14 MR. ROTH: And now can you get me  
15 Page 31. All right. Let's go to 89.

16 CHAIRMAN HONIGBERG: Mr. Roth, as I'm  
17 scanning through the exhibit that we're talking  
18 about, it appears to jump from Page 28 --

19 MR. ROTH: Yes. And the next --

20 CHAIRMAN HONIGBERG: -- to Page 89.

21 MR. ROTH: And then we're going to  
22 turn to 89. I did not provide a complete copy  
23 of the report for the purposes of the exhibit.  
24 There's a lot in this report that does not have

[WITNESS PANEL: Bailey~Bell~Johnson]

1 to do with electromagnetic fields. It has to  
2 do with childhood health in Europe in general.

3 CHAIRMAN HONIGBERG: Oh, okay. So,  
4 the pages you've left out are, in your view,  
5 irrelevant to what we're talking about?

6 MR. ROTH: Yes.

7 CHAIRMAN HONIGBERG: Yes.

8 MR. ROTH: And I'd be happy to  
9 provide a full copy of the report, if you  
10 wished?

11 CHAIRMAN HONIGBERG: Just we've  
12 established that it was intentional, what you  
13 did?

14 MR. ROTH: Yes. That's correct.

15 CHAIRMAN HONIGBERG: Okay. All  
16 right.

17 MR. ROTH: Thank you.

18 BY MR. ROTH:

19 Q. All right. Now, on Page 89 of this report,  
20 which I will offer to you, Dr. Bailey, that  
21 it -- that the paper is intended to be an  
22 analysis of issues facing children's health,  
23 and, I suppose, primarily in Europe. But I  
24 think it would probably have applicability

[WITNESS PANEL: Bailey~Bell~Johnson]

1 anywhere. But they have specific chapters on  
2 different types of environmental and exposures  
3 of things by children that affects their  
4 health.

5 Page 89 we begin to look at what this  
6 report analyzed about cancer and  
7 electromagnetic fields. Do you see at the top  
8 of the page it refers -- it says "Cancer", and  
9 it says "Electromagnetic fields". And here it  
10 says "The association of exposure to these  
11 fields with childhood cancer, particularly  
12 leukemia, has been investigated in multiple  
13 countries using cohort and case study" --  
14 "case-control study designs." Is that correct?  
15 You agree with that?

16 A. (Bailey) Yes.

17 Q. All right. And "Ahlbom and Greenland addressed  
18 to the association between extremely low fields  
19 and childhood leukemia estimated significantly  
20 increased risks (relative risks between 1.7 and  
21 2.0) for children with measured or estimated  
22 exposures higher than 0.3 or 0.4 milliteslas  
23 [*sic*], is that --

24 A. (Bailey) No. Microtesla.

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. Microteslas, I'm sorry. At least I got the  
2 little "µ" thing correct. Is that correct?

3 A. (Bailey) Yes.

4 Q. Okay. All right. So, in terms of identifying  
5 cancer, this report in 2002 identified this  
6 risk link of 1.7 and 2.0 for children exposed  
7 to 0.3 an 0.4 microteslas of electromagnetic  
8 field, correct?

9 A. (Bailey) Yes.

10 Q. Okay.

11 A. (Bailey) I was a member of that committee --

12 Q. Okay.

13 A. (Bailey) -- in 2002 that focused on those. And  
14 I think it's important to understand that risk  
15 is not a conclusion in this sentence and  
16 elsewhere. It is a descriptor. And by that I  
17 mean that the types of studies that we reviewed  
18 and are referenced here, that are summarized by  
19 Ahlbom and Greenland, are case-control studies,  
20 in which you compare the --

21 Q. I'm sorry to interrupt your monologue. But it  
22 does say here "relative risks between 1.7 and  
23 2.0". Now, "relative risk" means that,  
24 compared to other children, those exposed to

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 0.3 and 0.4 have an -- because 1.0 is parity or  
2 normality, right? So, if it's 1.7 and 2.0,  
3 that's greater than simply chance, correct?

4 A. (Bailey) That is not correct. Let me continue  
5 my explanation. I think it will be clear.

6 Q. Can you just answer the questions please?

7 A. (Bailey) I am trying to answer the first  
8 question, and you posed me a second question.

9 Q. Right. But I'm asking you questions, not  
10 looking for your monologue.

11 A. (Bailey) I am trying to explain why -- what the  
12 meaning is of the word "risk" in these  
13 sentences, and it is not clear from the  
14 context. And, so, I would like to explain that  
15 what these studies do are to compare --

16 MR. ROTH: I would like to move on to  
17 another question. Thank you.

18 CHAIRMAN HONIGBERG: Mr. Roth, I  
19 don't really know what Dr. Bailey was going to  
20 say. I don't, at this point, remember the  
21 first of the two questions you asked that  
22 launched him into what you described as a  
23 "monologue".

24 What I do recall is thinking that

[WITNESS PANEL: Bailey~Bell~Johnson]

1 what he was about to say sounded relevant to  
2 what you had asked. And since, as I'm sitting  
3 here, I don't remember the question, I'm kind  
4 of disabled. Do you remember the question --  
5 the first of two questions you asked that  
6 started this?

7 MR. ROTH: I believe the question,  
8 you know, we can pull it back, but what I'm  
9 trying to establish --

10 CHAIRMAN HONIGBERG: I know what  
11 you're trying to establish. I want to see if  
12 we can -- if you could help me out as to  
13 whether I should let him finish what he  
14 perceived to be an answer that you called a  
15 "monologue". What was the question?

16 MR. ROTH: The question was "Did  
17 these studies report a relative risk of 1.7 and  
18 2.0 for children exposed to 0.3 and 0.4, if I'm  
19 remembering the numbers correctly, microteslas  
20 of electromagnetic field?"

21 CHAIRMAN HONIGBERG: All right. And,  
22 Dr. Bailey, what is your answer to that  
23 question?

24 WITNESS BAILEY: They reported odds

[WITNESS PANEL: Bailey~Bell~Johnson]

1 ratios that can be used to estimate relative  
2 risks. The odds ratios compare the likelihood  
3 that a child with cancer is exposed to magnetic  
4 fields compared to the odds that a control  
5 child was exposed to fields at that level. So,  
6 it's a comparison of exposures. And that's why  
7 these estimates are called "odds ratios".

8 If there is a causal relationship --

9 MR. ROTH: We're not talking about  
10 casual --

11 CHAIRMAN HONIGBERG: Yes. I think  
12 now you're moving on. And I'm sure --

13 WITNESS BAILEY: -- then the  
14 association is a relative risk.

15 CHAIRMAN HONIGBERG: Right. I am  
16 confident --

17 MR. ROTH: Okay.

18 CHAIRMAN HONIGBERG: -- that either  
19 Mr. Roth or your counsel is going to give you  
20 an opportunity to talk all about associations  
21 versus causation.

22 WITNESS BAILEY: Okay.

23 CHAIRMAN HONIGBERG: But I did want  
24 to understand what it was you wanted to say

[WITNESS PANEL: Bailey~Bell~Johnson]

1 about that phrase "relative risk" --

2 WITNESS BAILEY: Okay.

3 CHAIRMAN HONIGBERG: -- in this  
4 context. So, thank you for that.

5 WITNESS BAILEY: Thank you,  
6 Mr. Chairman.

7 CHAIRMAN HONIGBERG: Mr. Roth, you  
8 may move on.

9 BY MR. ROTH:

10 Q. Okay. I'm going to move on to, further back in  
11 the paper, there's a chapter devoted to  
12 electromagnetic fields under this general  
13 analysis of this report on children's health  
14 and the environment. And that starts on Page  
15 172.

16 CHAIRMAN HONIGBERG: What page of the  
17 PDF is it?

18 MS. MERRIGAN: It's Counsel for the  
19 Public's 002034 is the Bates number, and  
20 Page 37 of the PDF.

21 MR. ROTH: Okay. Appears we're  
22 there. Everybody ready?

23 BY MR. ROTH:

24 Q. Now I'm looking at the column on the left, the

[WITNESS PANEL: Bailey~Bell~Johnson]

1 last sentence -- or, the next to the last  
2 sentence says "One priority issue was the  
3 association between power-frequency fields and  
4 childhood leukemia. All reviews noted that  
5 more than 20 years of research have not  
6 resolved scientific questions about the  
7 possible adverse health effects of EMF exposure  
8 and that evaluations of exposure assessment and  
9 epidemiological studies were made more  
10 difficult because of the lack of knowledge of  
11 what, if any, is the biologically relevant  
12 exposure and the lack of a biological  
13 mechanism."

14 Is that your understanding of the current  
15 state of the science?

16 A. (Bailey) Yes.

17 Q. Okay. So that, as I understand that, while  
18 they're finding an association between EMF and  
19 childhood leukemia, they can't figure out why  
20 there would be one. Is that a layman's way of  
21 characterizing that?

22 A. (Bailey) That's correct. And we do not have an  
23 explanation for the associations that have been  
24 reported in some of these earlier studies.

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. Okay. And then I'm going to turn to Page 174,  
2 which is two more pages of PDF. And, in the  
3 column on the left, I want to draw your  
4 attention to the last full paragraph there.  
5 Where it says "Typical magnetic field exposures  
6 directly under transmission lines are: 40  
7 microteslas under a 400-kilovolt line, 22  
8 microteslas under a 275-kilovolt line, and 7  
9 microteslas under a 132-kilovolt line.  
10 Exposures 25 meters away from these same lines  
11 typically are 8, 4, and 0.5 microteslas."

12 Do you know what size the -- how many  
13 kilovolts are in the AC line that Northern Pass  
14 is proposing?

15 A. (Bailey) How many kilovolts?

16 Q. Yes. How many kilovolt line is that?

17 A. (Bailey) 345.

18 Q. 345. So, that's somewhere near the  
19 400-kilovolt line, certainly between the 275  
20 and the 400. So, if it's -- if a 40 -- if you  
21 find 40 microteslas under a 400 and 22 under a  
22 275, would you expect to find something between  
23 22 and 40 under a 375 -- or, a 345 rather?

24 A. (Bailey) It could be. But it would depend upon

[WITNESS PANEL: Bailey~Bell~Johnson]

1 the loading on the lines.

2 Q. Okay. They're just talking here about typical,  
3 correct?

4 A. (Bailey) For whatever data that they  
5 referenced.

6 Q. Okay. Now I'm going to move to 177. On the  
7 left column --

8 MR. ROTH: Are you there?

9 MS. MERRIGAN: Yes.

10 BY MR. ROTH:

11 Q. Yes. On the left column, on 177, in the middle  
12 of the middle paragraph, it says "IARC and US  
13 NIEHS" -- you guys should come up with shorter  
14 acronyms --

15 *[Court reporter interruption.]*

16 BY MR. ROTH:

17 Q. "IARC and US NIEHS concluded that the  
18 scientific evidence, in particular the evidence  
19 as it relates to childhood leukemia, suggests  
20 that power-frequency EMF is possibly  
21 carcinogen" -- carcinogenic to humans (category  
22 2B)." Is that correct?

23 A. (Bailey) That's correct.

24 Q. Is that still the case today?

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Bailey) It is.

2 Q. Okay. And, if you look down the right column,  
3 at the last paragraph at the bottom there, it  
4 says "The NIEHS stated that 'although the  
5 exposure metrics used as surrogates for  
6 exposure to magnetic fields are of varying  
7 precision, it is difficult to find an  
8 explanation other than exposure to magnetic  
9 fields for the consistency of the reported  
10 excess risks for childhood leukemia in studies  
11 conducted in different countries under  
12 different conditions, with different study  
13 designs'."

14 I'm not a gambling man, but I'll bet you  
15 don't agree with that statement?

16 A. (Bailey) That was what they wrote in 1998.

17 Q. Okay. Do you agree with that statement today?

18 A. (Bailey) I believe that a great deal of  
19 research has been conducted since then that is  
20 inconsistent with that conclusion in 1998-99.

21 Q. So, you don't believe that statement is true  
22 today?

23 A. (Bailey) I believe -- what I just said I  
24 believe answers the question. That research

[WITNESS PANEL: Bailey~Bell~Johnson]

1 has continued on. And, as I indicated in my  
2 reports and testimony, there have been studies  
3 of populations living adjacent to high voltage  
4 transmission lines which have not found  
5 reliable evidence --

6 Q. Dr. Bailey, I'm sorry.

7 A. (Bailey) -- for exposure.

8 Q. But you don't -- just the simple answer is, you  
9 don't agree with that statement -- you don't  
10 believe that Statement is true to today, is  
11 that fair to say?

12 A. (Bailey) Could you read back the statement  
13 again?

14 Q. No. That's okay. We can move on. The next  
15 page, 178. There's a big long paragraph there  
16 in the left column. And I think this is a  
17 discussion of the Ahlbom and Greenland studies.  
18 And the last -- the last sentence there I think  
19 is kind of interesting. And this is --  
20 obviously, this is -- somebody else is opining  
21 about Greenland and Ahlbom. And it says "The  
22 authors pointed out that the results mean that  
23 the 99.2 percent of children residing in homes  
24 with exposure levels of greater than 0.4

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 microteslas had estimates compatible with no  
2 increased risk, while the 0.8 percent of  
3 children with exposures" -- I guess I had that  
4 backwards -- "less than 0.4", "0.8 percent of  
5 children with exposures greater than 0.4 had a  
6 relative risk estimate of about two. This  
7 increased risk is unlikely to be due to random  
8 variability."

9 Is that -- did I correctly read that?

10 A. (Bailey) Yes, you did.

11 Q. And do you agree with that analysis by the  
12 author of this?

13 A. (Bailey) Yes. That was their estimate.

14 Q. Okay. Thank you. And then the next page.

15 MS. MERRIGAN: Page 179?

16 MR. ROTH: No, 180.

17 BY MR. ROTH:

18 Q. On Page 180 of the report that your looking at,  
19 you see where it's got a headline there titled  
20 "Protection against ELF"?

21 A. (Bailey) Yes.

22 Q. And it talks about the -- I'm going to attempt  
23 this, the "ICNIRP" guidelines. Is that the way  
24 they say that particular acronym?

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Bailey) Yes. ICNIRP.

2 Q. Okay. So, the ICNIRP guidelines "are based on  
3 shock hazards, not cancer or other health  
4 effects." Do you believe that is the case?

5 A. (Bailey) Yes. Because that's what they found  
6 to be which there was evidence for an adverse  
7 effect.

8 Q. Okay. And we'll get into that in a minute or  
9 two. But, then, at the end here, on the next  
10 column, "The NIEHS report concluded that: 'In  
11 summary, the NIEHS believes that there is weak  
12 evidence", and I know you agree with that, "for  
13 possible health effects from ELF/EMF exposure,  
14 and until stronger evidence changes this  
15 opinion, inexpensive and safe reductions in  
16 exposure should be encouraged." Do you agree  
17 with that, with that conclusion and assessment?

18 A. (Bailey) I do.

19 Q. Okay. And it says here "These are 'no regrets'  
20 options that are inexpensive, safe and easy to  
21 implement. Further research is needed", of  
22 course. And do you agree with that? These are  
23 "inexpensive, safe, easy", "no regrets" type of  
24 precautions?

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Bailey) Yes. That's what they recommend.

2 Q. Okay. Now on the screen you will see the WHO  
3 "Environmental Health Criteria 238 Extremely  
4 Low Frequency Fields" report. Are you familiar  
5 with this report, Dr. Bailey?

6 A. (Bailey) Yes, I am.

7 Q. Okay. And this was published in 2007, correct?

8 A. (Bailey) Yes.

9 Q. All right. Now, there's a lot in this report  
10 that I'm sure you've read and understand, and  
11 I'm going to skip quickly through it to only a  
12 couple of things I want to focus on.

13 MR. ROTH: Can you go to, and this is  
14 a Bates number, 001436.

15 BY MR. ROTH:

16 Q. Okay. Now, in this report, I've turned you to  
17 Chapter 11, which is called -- entitled  
18 "Cancer". And, in the middle of the first  
19 paragraph, well, I guess it's towards the end,  
20 after they talk about the Wertheimer & Leeper  
21 study, it says that that "led to the  
22 classification of ELF magnetic fields by IARC  
23 as a "possible human carcinogen"," in 2002. Is  
24 that correct?

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Bailey) Yes.

2 Q. And, as we discussed a minute ago, I think  
3 that's still so classified, is it not?

4 A. (Bailey) IARC has not -- yes. IARC has not  
5 convened another panel to review that  
6 conclusion.

7 Q. And, so, the answer is "yes", it's still so  
8 classified?

9 A. (Bailey) Yes. As I said.

10 Q. Thank you. And, if we go to the next page,  
11 001437, the second paragraph: "The association  
12 between childhood leukemia and estimates of  
13 time-weighted average exposures to magnetic  
14 fields is unlikely to be due to chance, but  
15 bias may explain some of the association." Do  
16 you agree with that statement?

17 A. (Bailey) Yes.

18 Q. Okay. Thank you. And, then, on 001438. Now,  
19 you'll notice on 001438, which is Page 257 of  
20 this report, there's a series of bullet points.  
21 And in it they say "taking this information  
22 into consideration, the IARC evaluation for  
23 EMF's carcinogenicity [carcinogenicity?] is",  
24 first, "there is limited evidence...in relation

[WITNESS PANEL: Bailey~Bell~Johnson]

1 to childhood leukemia", correct?

2 A. (Bailey) Yes.

3 Q. Okay. And is that still true?

4 A. (Bailey) Yes.

5 Q. Okay. And, then, if you look at the next one,  
6 it says "there's inadequate evidence...in  
7 relation to all other cancers." And is that  
8 still true?

9 A. (Bailey) Yes.

10 Q. So, clearly, the WHO is placing some weight  
11 even on limited evidence, is it not?

12 A. (Bailey) Yes.

13 Q. Okay. Thank you. And, then, 001443. Okay.  
14 And, at the top of this page, you will see it  
15 says the term "limited evidence", for IARC, and  
16 I'm not reading it, I'm just summarizing here,  
17 and I want you, if I'm screwing this up, let me  
18 know, "has been observed", and now I'm quoting,  
19 for which a causal interpretation is considered  
20 credible, but that chance, bias or confounding  
21 could not be ruled out with reasonable  
22 confidence." Is that still what "limited  
23 evidence of carcinogenicity" [carcinogenicity?]  
24 means for purposes of IARC?

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Bailey) Yes. That is their description of  
2 limited evidence that they applied to all  
3 exposures.

4 Q. Okay. And then go to 001544. Okay. Here they  
5 describe, and I think on the previous page they  
6 describe -- can you go back one? All right.  
7 001543. All right. Part 13.4.1 is titled  
8 "Existing Precautionary ELF Policies". And  
9 then the next page. You're there. And then  
10 the first one that they describe is "Prudent  
11 avoidance", is that correct?

12 A. (Bailey) Yes.

13 Q. And they describe that as "taking steps to  
14 lower human exposure by redirecting facilities  
15 and redesigning electrical systems and  
16 appliances at low to modest costs." Do you  
17 agree with that philosophy?

18 A. (Bailey) Yes.

19 Q. Okay. Thank you. And does it also say  
20 "Low-cost measures that can be taken include  
21 routing new lines away from schools, phasing  
22 and configuring power line conductors to reduce  
23 magnetic fields near rights-of-way." Do you  
24 agree with that, that approach?

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Bailey) Those are the low-cost measures that  
2 they identify, yes.

3 Q. Okay. Thank you. So, based on this report, at  
4 least as of 2007, and it's a very big report,  
5 the WHO believes -- is it fair to say that the  
6 WHO's view is that there is a link between  
7 ELF/EMF and childhood leukemia, and that people  
8 who are thinking about things like siting a  
9 transmission line need to take steps to  
10 prudently avoid creating exposures to children  
11 and others, correct?

12 A. (Bailey) Yes. That's a summary of their  
13 position.

14 Q. Okay. Now we're looking at a report that's  
15 Exhibit 108. And it's from the Scientific  
16 Committee on Emerging and Newly Identified  
17 Health Risks of the European Commission. And  
18 I'm not even going to try to guess what that --  
19 how they pronounce that. "SCENIHR".

20 A. (Bailey) "SCENIHR".

21 Q. "SCENIHR". Well, not bad. So, SCENIHR wrote  
22 this paper in January of 2015, just a little  
23 over two years ago, correct?

24 A. (Bailey) Yes.

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. And are you familiar with this report?

2 A. (Bailey) Yes.

3 Q. And you cite it in your report, don't you?

4 A. (Bailey) Yes.

5 Q. And I'm looking at Page 156. Now, on this page  
6 here, the title is "What has been achieved  
7 since then?" And, so, I think this is intended  
8 to be sort of a summary of research that has  
9 been done after Ahlbom, or maybe -- I guess  
10 after Ahlbom and Greenland. And it points to  
11 some studies that have continued to find a  
12 connection and some studies that didn't. Is  
13 that fair to say?

14 A. (Bailey) Yes.

15 Q. And, if you look in the center of that, it  
16 talks about how some of the exposure categories  
17 and -- were finding ORs. And what's an "OR"?  
18 Is that the --

19 A. (Bailey) Odds Ratio.

20 Q. Odds Ratio. And is that another risk  
21 assessment?

22 A. (Bailey) It is a measure of the statistical  
23 association between an exposure and a disease.

24 Q. Okay. And, if an OR is greater than one, does

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 that mean that there is an association?

2 A. (Bailey) There is a positive association.

3 Q. Okay. Thank you. And, so, they found that  
4 some of these studies came up with ORs of 1.16,  
5 1.44, 1.46, and 2.02. Is that correct?

6 A. (Bailey) That's what it says.

7 Q. Okay. And somehow, when you take Brazil out,  
8 it goes -- that's how you end up at 2.02, which  
9 they say is "similar to the doubling of risk in  
10 the pooled analysis of earlier studies by  
11 Ahlbom". And, so, what's going on with Brazil?  
12 I'm just curious, really?

13 A. (Bailey) I'm not sure what you mean by "what  
14 was going on with Brazil?"

15 Q. Why did they find it necessary to take Brazil  
16 out?

17 A. (Bailey) It's common, when summarizing studies,  
18 to look at how the results might change if you  
19 take one study out and look at the summary  
20 evidence, to determine whether one study might  
21 have a particular influence on the outcomes of  
22 a group of studies.

23 Q. Okay. But there wasn't anything that was  
24 particularly flawed about Brazil, was there?

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Bailey) Well, they mention here there was  
2 concern about their "choice of controls", --

3 Q. Okay.

4 A. (Bailey) -- which could bias the study.

5 Q. Okay. And, then, further down, they talk about  
6 a French study "involving 2,779 cases and  
7 30,000 population controls", and it says that  
8 "the OR living within 50 meters of a 225-400 kV  
9 line was 1.7." Correct?

10 A. (Bailey) Yes. And they give a confidence  
11 interval there that is from "0.9 to 3.6", which  
12 means that it could not be reliably  
13 distinguished from 1.0.

14 Q. Okay. And 1.0 of confidence interval being  
15 50/50?

16 A. (Bailey) If the confidence intervals includes  
17 one, that means that the association could not  
18 be distinguished from a statistical perspective  
19 from 1.0. So, that's the potential range of  
20 values that includes 1.0. So, that odds ratio,  
21 in experimental terms, would be described as  
22 "not statistically significant".

23 Q. Okay. And, then, it mentions a Denmark study  
24 that "found no association", correct?

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Bailey) Correct.

2 Q. And then a U.K. study that found "no  
3 association"?

4 A. (Bailey) Correct.

5 Q. So, there's still -- is it fair to say there  
6 are still studies being done of EMF and  
7 childhood leukemia that find no association,  
8 and there are still studies being done that  
9 actually do find the association, correct?

10 A. (Bailey) That's correct.

11 Q. Okay. And I'm looking at the next page, 157.  
12 At the bottom, it says "There is little new  
13 data available on the association between  
14 quantitatively assessed ELF magnetic fields and  
15 the risk of childhood leukemia". And I assume  
16 you would agree with that?

17 A. (Bailey) Well, there's two studies that have  
18 come out. This is talking about studies since  
19 2009 it appears. So, since 2009, the studies  
20 we just talked about are contributing to this  
21 research.

22 Q. Okay. And, then, the next clause is  
23 "meta-analysis of studies published 2000 to  
24 2009, however, confirms an approximately

[WITNESS PANEL: Bailey~Bell~Johnson]

1 two-fold increased risk at average magnetic  
2 field levels above 0.3 and 0.4 microteslas."  
3 Do you agree that that's what those -- that a  
4 meta-analysis of those studies shows?

5 A. (Bailey) Correct.

6 Q. Okay. Now, I was curious about one of the  
7 things you said in your report. And -- strike  
8 that. Yes, let's try it.

9 All right. Let's go to Page 159. No,  
10 158. Now, with respect to the round-up here of  
11 "What has been achieved since then on childhood  
12 cancers?" The conclusion here, at the last  
13 sentence of that top paragraph is "the new  
14 epidemiological data do not alter the  
15 assessment that ELF magnetic field exposure is  
16 a possible carcinogen based on the reported  
17 association with childhood leukemia risk." Do  
18 you agree that that's still true?

19 A. (Bailey) Yes.

20 Q. Okay. So, as of 2015, the European Commission,  
21 and you, agree that that's true. Thank you.

22 [Audible microphone click.]

23 CHAIRMAN HONIGBERG: Sometime in the  
24 next ten, fifteen minutes.

[WITNESS PANEL: Bailey~Bell~Johnson]

1 MR. ROTH: Okay. That click is  
2 deadly.

3 BY MR. ROTH:

4 Q. And let's go to the next page, 159. At the top  
5 of 159, it says "The previous assessment of  
6 2009 SCENIHR Opinion on a possible association  
7 between long-term exposure to ELF magnetic  
8 fields and an increased risk of childhood  
9 leukemia remains valid. A positive association  
10 has been observed in multiple studies in  
11 different settings at different points in  
12 time." Is that still a fair analysis?

13 A. (Bailey) Yes.

14 Q. "Little progress has been made in explaining  
15 the finding, neither in terms of a plausible  
16 mechanism for a causal relationship with  
17 magnetic field nor in identifying alternative  
18 explanations." Is that -- do you agree with  
19 that?

20 A. (Bailey) Yes.

21 Q. Okay. Before we look at 62, however, I wanted  
22 to ask you about, because I had a hard time  
23 finding this, but, in your report on Page 46,  
24 you said you basically agreed with this kind of

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 an assessment by SCENIHR in their report. And  
2 then you said, you know, in terms of the  
3 epidemiological connection, and you said "for  
4 which, however, chance, bias, and confounding  
5 cannot be ruled out as an explanation." And  
6 what I -- I didn't understand the SCENIHR  
7 report to be quite that simple. And, correct  
8 me if I'm wrong, didn't SCENIHR say that there  
9 are judgments that they are making about it,  
10 but that I didn't see them say that  
11 "confounding, chance, and bias cannot be ruled  
12 out". Is that your own assessment?

13 A. (Bailey) That was the assessment of the IARC  
14 report in 2002. And there are, in epidemiology  
15 studies, this, and in virtually every  
16 epidemiology studies, these are major issues.

17 Q. But, Dr. Bailey, --

18 *(Multiple parties speaking at*  
19 *the same time.)*

20 BY MR. ROTH:

21 Q. -- I'm asking specifically about your opinion  
22 about the SCENIHR study. You describe the  
23 SCENIHR study in these terms. And my question  
24 is, is that your assessment or theirs?

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Bailey) I believe that the SCENIHR report  
2 discusses each of those issues of chance, bias,  
3 and confounding in their assessment.

4 Q. Of course they did. But, in terms of making  
5 the conclusion that they were possible  
6 explanations that couldn't be ruled out, is  
7 that your assessment or did they say that?

8 A. (Bailey) I don't know that they used the word  
9 "ruled out", but I do know that they have  
10 considered those factors as alternative  
11 explanations. Without that, one would have  
12 concluded that there may be a causal  
13 relationship, which they did not.

14 Q. Okay. And I think we can all agree that nobody  
15 is concluding that there's a causal  
16 relationship, correct?

17 A. (Bailey) Not to my knowledge.

18 Q. Okay. Now, I'm going to -- so, now we have 62.  
19 I will represent to you that this is a  
20 factsheet that I got from the SCENIHR website  
21 just the other day. And I think that's how I  
22 got it anyway. And does this factsheet look  
23 familiar to you?

24 A. (Bailey) Yes. I've seen it.

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. Okay. And in the middle there, right smack in  
2 the middle, it says "Epidemiological studies  
3 link exposure to ELF fields from long-term  
4 living in close proximity to power lines for  
5 example, to a higher rate of childhood  
6 leukemia, which is a rare blood cancer." And  
7 do you agree with that?

8 A. (Bailey) Yes.

9 Q. And "This correlation has neither been  
10 explained nor supported by animal and cellular  
11 studies." Correct?

12 A. (Bailey) Yes.

13 Q. "So far, research studies" -- "research  
14 findings were not able to find a possible  
15 mechanism." Correct?

16 A. (Bailey) Yes.

17 Q. And "More research is needed to confirm or  
18 exclude a possible causal relationship."  
19 Correct?

20 A. (Bailey) Yes.

21 Q. All right. Thank you.

22 A. (Bailey) Excuse me, I -- I'm looking at this,  
23 and that's -- that portion that you're reading  
24 is part of a paragraph that starts "The results

[WITNESS PANEL: Bailey~Bell~Johnson]

1 of current scientific research show that there  
2 are no evident adverse health effects if  
3 exposure remains below the level set by current  
4 standards."

5 Q. That's what it says. But isn't that  
6 inconsistent with a finding that  
7 epidemiological studies have found a  
8 correlation and perhaps an increased risk?

9 A. (Bailey) No.

10 Q. Okay.

11 A. (Bailey) And, apparently, it's not a  
12 inconsistency to SCENIHR.

13 Q. Okay. Thank you.

14 MR. ROTH: Okay. Thank you. Take a  
15 break now?

16 CHAIRMAN HONIGBERG: All right.  
17 We're going to take a ten-minute break. We'll  
18 come back as close to ten minutes to 11:00 as  
19 we can.

20 *(Recess taken at 10:37 a.m. and*  
21 *the hearing resumed at 10:52*  
22 *a.m.)*

23 CHAIRMAN HONIGBERG: Mr. Roth, you  
24 may continue.

[WITNESS PANEL: Bailey~Bell~Johnson]

1 MR. ROTH: Thank you, Mr. Chairman.

2 Thank you, Mr. Chairman.

3 BY MR. ROTH:

4 Q. So, Dr. Bailey, before the break we had talked  
5 a little bit about the IARC have classified EMF  
6 as "possibly carcinogenic", correct?

7 A. (Bailey) Yes.

8 Q. And they have a monograph or a series of  
9 monographs that they have published, which  
10 identifies a large number of substances and  
11 conditions and the like that are -- they  
12 believe have varying degrees of  
13 carcinogenicity, if I got that word correctly.  
14 And I know Steve's fingers are breaking with  
15 that. Is that correct?

16 A. (Bailey) Yes.

17 Q. Okay. And, now, up on screen is what I will  
18 represent to you what I printed off from the  
19 IARC, a table of all of those things that they  
20 have identified, correct? Does that look  
21 familiar to you?

22 A. (Bailey) Assuming this is current, I have no  
23 reason to doubt it.

24 Q. Okay. Thank you. As I understand it, and I

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 think this is in your testimony or report as  
2 well, that IARC has identified some 900  
3 different conditions, substances and the like,  
4 and varying degrees of carcinogenicity. Do you  
5 agree with that?

6 A. (Bailey) Yes.

7 Q. And that most of them are not known  
8 carcinogens?

9 A. (Bailey) Correct.

10 Q. And, apparently, there's only approximately 100  
11 of them that are known carcinogens, is that  
12 correct?

13 A. (Bailey) I don't know the exact number.

14 Q. Okay. Is it -- I think you had some  
15 percentages in your report, and perhaps --

16 A. (Bailey) It sounds -- it sounds approximately  
17 correct.

18 Q. Okay. Thank you. And I am just approximating.  
19 It may be more, more or less, but it's in that  
20 range. So, the rest of them, the other 800 are  
21 possibly carcinogenic in varying degrees, or  
22 what was the Category 3, which is "not known to  
23 be" --

24 A. (Bailey) Not classifiable.

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. Not classifiable. But this list doesn't cover  
2 everything in the world, does it? You know,  
3 for example, you know, you won't find a  
4 Hershey's bar in here, or maybe you'll find  
5 chocolate. But a lot of things that we  
6 experience every day that aren't on this list,  
7 correct?

8 A. (Bailey) Yes. I think there's about 50,000  
9 plus chemicals in everyday use that --

10 Q. Yes. So, not everything shows up on the IARC  
11 list, is that -- that's fair to say?

12 A. (Bailey) They have not been nominated and  
13 reviewed by IARC.

14 Q. And I'm sure you've heard the expression  
15 "everything gives you cancer", but only these  
16 900 have been chosen by IARC for some analysis  
17 of -- for inclusion on this list?

18 A. (Bailey) They have reviewed that number of  
19 exposures.

20 Q. Okay. And isn't it true that EMF is still  
21 listed as a possible carcinogen?

22 A. (Bailey) Yes. As I said before, they have not  
23 impaneled a new working group to review or  
24 update that assessment.

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. And isn't it also true that RF, radio  
2 frequency, has also been added to this list,  
3 correct?

4 A. (Bailey) Yes.

5 Q. Okay. And, as I recall your testimony, and I'm  
6 going to paraphrase a little bit here, and if  
7 you can -- and you're essentially -- I think  
8 you're saying that it's not sort of higher up  
9 on the list of carcinogenity [carcinogenicity?]  
10 because of the limited evidence in epidemiology  
11 for drawing or eliminating a causal connection.  
12 Is that a fair assessment of why it's still  
13 just "possibly carcinogenic"?

14 A. (Bailey) It's, as explained in my testimony,  
15 it's rated as "possibly carcinogenic", because  
16 under the IARC rules, once a statistical  
17 association is reported between an exposure and  
18 any type of cancer, it automatically is placed  
19 in the "2B" category, irrespective of any other  
20 information that's known about the exposure.

21 And the other categories that EMF could  
22 have been placed in, of "probable a human  
23 carcinogen" or "known human carcinogen" were  
24 not the selection of either IARC or the WHO.

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. So, and the reason that it would -- if there  
2 were an understandable or known connection in  
3 some way that they could -- a causation, would  
4 it move higher up the list?

5 A. (Bailey) If there was evidence supporting that,  
6 it would have been labeled "probable" or  
7 "known".

8 Q. Okay. And is it also fair to say that the fact  
9 that there is still epidemiological evidence  
10 showing that it has -- that there is an  
11 association, is that why it's still on this  
12 list?

13 A. (Bailey) As I said before, the only way that  
14 this rating would change by IARC is if they  
15 impaneled a new working group to review the  
16 evidence since the previous review, and then to  
17 update that. The IARC ratings are not  
18 automatically updated unless they convene a new  
19 panel to review new evidence.

20 Q. So, I want to look -- I'm looking at your  
21 report. And, on Page 39, you said "Throughout  
22 the history of the IARC, only one agent has  
23 been classified as probably not carcinogenic to  
24 humans, which illustrates the conservatism of

[WITNESS PANEL: Bailey~Bell~Johnson]

1 the evaluations and the difficulty in proving  
2 the absence of an effect beyond all doubt." Is  
3 that the standard by which the IARC would  
4 evaluate that or is that yours?

5 A. (Bailey) My explanation as to why there is only  
6 one compound that has been classified in  
7 Category 4.

8 Q. Okay. And do you believe that there is  
9 conservatism in listing and delisting things at  
10 the IARC?

11 A. (Bailey) I believe that the process and the  
12 categories are very conservative.

13 Q. Okay. Thank you. Now I want to go through the  
14 list a little bit, so we can give the Committee  
15 a flavor of some of other things that show up  
16 on this list. And, if we turn to the Page 5.  
17 Where you see there are two categories of  
18 bitumens for Class 2B. And bitumens, as I  
19 understand it, are asphalt, is that correct?

20 A. (Bailey) Essentially, yes.

21 Q. So, it says that -- what this suggest then is  
22 that being a worker in asphalt is possibly  
23 carcinogenic, is that fair to say?

24 A. (Bailey) Yes.

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. Okay. And now go to Page 7. And here we see  
2 "carbon tetrachloride", affectionately known as  
3 "carbon tet". Is that a solvent or a dry  
4 cleaning solution or something like that?

5 A. (Bailey) Yes.

6 Q. Okay. And "chlordanes". Are you familiar with  
7 chlordanes?

8 A. (Bailey) Yes.

9 Q. Okay. Isn't chlordanes among what is known as  
10 the "dirty dozen of pesticides" and banned by  
11 the Stockholm Convention in 2001?

12 A. (Bailey) I don't know that specifically about  
13 chlordanes.

14 Q. Okay. Let's go to Page 12. Down there at the  
15 bottom, "marine diesel fuel". That's on the  
16 list, Doctor?

17 A. (Bailey) Could you highlight that? I can't --  
18 the print is very small and very hard to read.

19 Q. Oh. Page 12. Third from the bottom.

20 MR. ROTH: We're having a little  
21 technical difficulty here. Sorry.

22 CHAIRMAN HONIGBERG: Off the record.

23 *[Brief off-the-record discussion*  
24 *ensued.]*

[WITNESS PANEL: Bailey~Bell~Johnson]

1 CHAIRMAN HONIGBERG: We'll go back on  
2 the record, I assume?

3 MR. ROTH: Yes. Thank you. And, for  
4 the record, the document that I submitted is,  
5 that is the exhibit, is the list. The one that  
6 I'm using as an exhibit, for my own purposes,  
7 is a different printout. So, I can't  
8 coordinate the two.

9 BY MR. ROTH:

10 Q. But I'm going to ask you about a few of the  
11 things that I found on the list, and see if  
12 they sound generally to like they are probably  
13 2B. "1,4-Dioxane"?

14 A. (Bailey) Sir, there's a great number of  
15 compounds here, many of which I know nothing  
16 about. And what their -- there is no  
17 particular reason for me to know what their  
18 particular rating is. So, if you want to point  
19 out something specific and say "does it say  
20 this?" I'd be happy to do that. But, you  
21 know, just asking me about random chemicals on  
22 the list, I don't think I'll be helpful.

23 Q. All right. I'm going to try another one. Dry  
24 cleaning, being a dry cleaner?

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Bailey) I assume -- it's on the list, but --

2 Q. Okay. Being a firefighter?

3 A. (Bailey) I understand that that's on the list.

4 Q. Okay. HIV?

5 A. (Bailey) Yes.

6 Q. Various forms of HPV?

7 A. (Bailey) Yes.

8 Q. Parathion, a pesticide?

9 A. (Bailey) I assume it's on the list.

10 Q. Lead?

11 A. (Bailey) It's on the list.

12 Q. Okay. Gasoline engine exhaust?

13 A. (Bailey) Yes.

14 Q. Gasoline?

15 A. (Bailey) Yes.

16 Q. So, it's a long list and, in some respects,  
17 reads like a who's who of nasty chemicals and  
18 conditions, don't you agree?

19 A. (Bailey) Yes. To some extent, it sounds like  
20 it. But it certainly doesn't explain the  
21 breadth of what IARC did. So, for instance,  
22 recently IARC classified red meat as "probably  
23 carcinogenic", and processed meat in Class 1  
24 known -- as a "known carcinogen". So, there

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 are a wide range of exposures on the IARC list  
2 beyond those that you've read off.

3 Q. Including "pickled Chinese vegetables"?

4 A. (Bailey) Correct.

5 Q. Now I'm going to go to 63-A. Now, and this  
6 document here is Counsel for the Public  
7 Exhibit 63-A, and this is the 2010 ICNIRP  
8 Guidelines. And, in the record -- or,  
9 previously filed, I should say, I had an  
10 earlier version of this. But this is the one  
11 we're working off of now. And this is the one  
12 you referenced in your report, correct?

13 A. (Bailey) Yes.

14 Q. And you and Dr. Johnson both included the  
15 ICNIRP Guidelines in your reports, correct?

16 A. (Bailey) Yes.

17 Q. Okay. And, based on those guidelines, you  
18 determined that the model exposures of the  
19 Project fell below the ICNIRP standards?

20 A. (Bailey) Yes.

21 Q. Okay. But isn't it true that ICNIRP, by its  
22 own terms, does not apply to a number of  
23 different things that have been studied,  
24 including neurobehavior?

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Bailey) You would have to point me to where  
2 you're referencing in the guideline.

3 Q. Okay. So, you are familiar with this document,  
4 correct?

5 A. (Bailey) Yes.

6 Q. Okay. Let's go to Page 4 of the -- I think  
7 it's 4.

8 MS. MERRIGAN: Page at the bottom?  
9 The page number at the bottom?

10 MR. ROTH: 820. Yes. I think that's  
11 where I want to be. Hold on.

12 BY MR. ROTH:

13 Q. Four to five describes neurobehavior, correct?  
14 And, if you look at Page 5 -- or, I'm sorry,  
15 821, --

16 A. (Bailey) Okay.

17 Q. -- on the right column, in the middle there,  
18 where it begins "thus"?

19 A. (Bailey) Uh-huh.

20 Q. And the last sentence: "The evidence from  
21 other neurobehavioral research in volunteers  
22 exposed to low frequency electric" --

23 A. (Bailey) Wait a second. I'm -- okay. I'm with  
24 you.

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. -- "low frequency electric and magnetic fields  
2 is not sufficiently reliable to provide a basis  
3 for human exposure limits." Correct?

4 A. (Bailey) Yes.

5 Q. So, the ICNIRP standards do not apply to  
6 neurobehavior issues?

7 A. (Bailey) I don't believe that's what it says.

8 Q. Okay.

9 A. What they say here, and I think it's very  
10 clear, that there was not a reliable -- that  
11 the neurobehavioral studies did not provide a  
12 reliable basis to establish a standard. And  
13 they did not find that there were adverse  
14 effects for this type of -- in this category  
15 upon which to base a standard.

16 Q. Correct. So, if you go back to Page 818, the  
17 beginning, first where it says "Scope and  
18 Purpose", "The main objective of this  
19 publication is to establish guidelines for  
20 limiting exposure to electric and magnetic  
21 fields (EMF) that will provide protection  
22 against all established adverse health  
23 effects." Correct?

24 A. (Bailey) Correct.

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. Okay. And, so, is it fair to say that ICNIRP  
2 does not believe, except with -- I think  
3 there's a certain -- a small exception, which  
4 I'll mention in a second, that neurobehavior is  
5 not an established adverse health effect?

6 A. (Bailey) Correct.

7 Q. Okay. And, so, the ICNIRP guidelines would not  
8 apply to it?

9 A. (Bailey) They were not -- they were not used --  
10 they are were reviewed, but not used as a basis  
11 for setting the guideline.

12 Q. Okay. So, and then we look, the next one is  
13 "neuroendocrine system". And that's on Page  
14 821, and over to 822. And at the last sentence  
15 there it says "Overall, these data do not  
16 indicate that low frequency electric and/or  
17 magnetic fields affect the neuroendocrine  
18 system in a way that would have an adverse  
19 impact on human health." Is that what it says?

20 A. (Bailey) Yes.

21 Q. And, so, the ICNIRP guidelines don't apply to  
22 neurodegenerative -- I'm sorry, to  
23 neuroendocrine systems, correct?

24 A. (Bailey) That's what it says.

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. Okay. And, similarly, "neurodegenerative  
2 disorders", on the same page, it ends with  
3 "Overall, the evidence for the association  
4 between low frequency exposure and Alzheimer's  
5 disease and ALS is inconclusive." And do you  
6 take from that that the ICNIRP standards  
7 provide no guidance or standard with respect to  
8 neurodegenerative disorders?

9 A. (Bailey) They do not find that, as they say  
10 here, that the evidence is inclusive as to  
11 whether there's any adverse effect.

12 Q. Okay. Is there a standard in ICNIRP that  
13 beyond which you're going to have an adverse  
14 effect on neurodegenerative disorders?

15 A. (Bailey) No.

16 Q. Okay. And, similarly, "cardiovascular  
17 disorders". Is there a standard by which  
18 cardiovascular disorders will be affected by  
19 exposure to EMF?

20 A. (Bailey) ICNIRP concludes, on Page 822,  
21 "Overall, the evidence does not suggest an  
22 association between low frequency exposure and  
23 cardiovascular diseases."

24 Q. And, so, the answer to my question is, is there

[WITNESS PANEL: Bailey~Bell~Johnson]

1 an ICNIRP standard that, if you exceed it, you  
2 will have an effect on cardiovascular  
3 disorders?

4 A. (Bailey) No.

5 Q. Okay. And, with respect to "Reproduction and  
6 Development", same question. Is there an  
7 ICNIRP standard beyond which you will have an  
8 effect on reproduction and development?

9 A. (Bailey) They do not make any such prediction.

10 Q. Okay. Now, with respect to "cancer", that goes  
11 from 822 to 823. And do they similarly  
12 conclude that there is no ICNIRP standard that  
13 would apply to cancer?

14 A. (Bailey) Because they have not concluded that  
15 there is a causal relationship.

16 Q. Okay. That's all I'm trying to get, is that it  
17 doesn't apply, right? And "occupational  
18 circumstances", this is -- where is that? If  
19 you look at 823, the right column, and it's  
20 kind of the middle paragraph, which begins  
21 "Following the recommendations". It says  
22 "ICNIRP considers that there are occupational  
23 circumstances where, with appropriate advice  
24 and training, it is reasonable for workers

[WITNESS PANEL: Bailey~Bell~Johnson]

1 voluntarily and knowingly to experience  
2 transient effects such as retinal phosphenes,  
3 possible minor damages [changes?] in some brain  
4 functions, since they are not believed to  
5 result in long-term or pathological health  
6 effects."

7 CHAIRMAN HONIGBERG: You didn't read  
8 that exactly correct.

9 WITNESS BAILEY: Yes.

10 CHAIRMAN HONIGBERG: You changed a  
11 word in there.

12 MR. ROTH: I did?

13 CHAIRMAN HONIGBERG: You changed the  
14 word "changes" to "damages", or "damage", I  
15 think.

16 MR. ROTH: "Possible minor  
17 changes" --

18 CHAIRMAN HONIGBERG: Yes.

19 MR. ROTH: -- "in some brain  
20 functions." I thought that's what I said. I'm  
21 sorry. I didn't mean to do that.

22 BY MR. ROTH:

23 Q. And, so, does this suggest that ICNIRP  
24 standards have -- either don't apply or have a

[WITNESS PANEL: Bailey~Bell~Johnson]

1 different application for workers who  
2 voluntarily and knowingly experience effects of  
3 electromagnetic fields?

4 A. (Bailey) ICNIRP has set guidelines for both  
5 workers and for the general public. And they  
6 allow higher levels of exposure for workers, in  
7 part because these minor changes, such as  
8 retinal phosphenes and so on, might be  
9 distracting and of some -- have some indirect  
10 effects on someone performing a very sensitive  
11 job in an occupational environment.

12 Q. Okay. Okay. So, it's fair to say that the  
13 ICNIRP standards have sort of a different -- a  
14 different level for people who work in the  
15 facility or at the place?

16 A. (Bailey) Yes. But all of these standards are  
17 far below the levels at which these phenomena  
18 would occur. So, they have these guidelines in  
19 place, but it does not mean that the workers or  
20 the public would be experiencing the effects  
21 that are being protected against.

22 Q. Now I want to look at Page 830. There's a  
23 paragraph there at the end here labeled  
24 "Considerations Regarding Possible Long-Term

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Effects". And here it says "As noted above,  
2 epidemiological studies have consistently found  
3 that everyday chronic low intensity (above 0.3  
4 to 0.4 microteslas) power frequency magnetic  
5 field exposure is associated with an increased  
6 risk of childhood leukemia. IARC has  
7 classified such fields as possibly  
8 carcinogenic. However, a causal relationship  
9 between magnetic fields and childhood leukemia  
10 have not been established nor have any other  
11 long-term effects been established. The  
12 absence of established causality means that  
13 this effect cannot be addressed in the basic  
14 restrictions. However, risk management advice,  
15 including considerations on precautionary  
16 measures, has been given by WHO and other  
17 entities." So, is that there way of saying  
18 that there's no standard in here to measure for  
19 long-term exposure of electromagnetic fields?  
20 Let's start there.

21 A. There is no standard contained in the ICNIRP  
22 2010 guidance to protect against effects which  
23 haven't been established.

24 Q. You changed the question. And the question,

[WITNESS PANEL: Bailey~Bell~Johnson]

1 I'll ask it a little bit differently. It says  
2 here that there's a causal -- there's no causal  
3 relationship with childhood leukemia, but that  
4 there is epidemiological evidence that  
5 "everyday chronic low-intensity exposure is  
6 associated with an increased risk of childhood  
7 leukemia", correct?

8 A. (Bailey) That's what it says.

9 Q. Okay. And that, because they can't figure out  
10 a causal effect, there are no basic  
11 restrictions provided by ICNIRP to address  
12 that. Is that correct?

13 A. (Bailey) Yes.

14 Q. Thank you. And, lastly, that they -- ICNIRP  
15 recommends basic precautionary measures, as we  
16 discussed, that WHO has suggested in its  
17 papers, correct? That's what it says?

18 A. (Bailey) Yes. They point you to the WHO  
19 guidance.

20 Q. Now, in your report, and this -- I think both  
21 of you, both Dr. Johnson and Dr. Bailey mention  
22 this, that there's no particular standard for  
23 EMF exposure in New Hampshire, and that you  
24 relied on the ICNIRP and one other national, I

[WITNESS PANEL: Bailey~Bell~Johnson]

1 guess it's the NIHS standard. But other states  
2 have standards, don't they?

3 A. (Bailey) The states listed do have standards  
4 for transmission lines.

5 Q. Okay. And that's what we're talking about here  
6 today, isn't it?

7 A. (Bailey) Yes.

8 Q. Okay. And, in fact, Florida, Minnesota,  
9 Montana, New Jersey, New York, and Oregon have  
10 specific quantitative standards and limits,  
11 correct?

12 A. (Bailey) Yes.

13 Q. All right. And, in addition, other states have  
14 prudent avoidance standards apply, correct?

15 A. (Bailey) Yes, I believe there are.

16 Q. Okay. And that's that "no regrets" policy that  
17 WHO mentioned?

18 A. (Bailey) Yes.

19 Q. Okay. Now, and, in fact, you referred to, in  
20 your testimony, Best Management Practices that  
21 were established by the Connecticut Siting  
22 Council. Now, as I understand it, Exponent,  
23 your firm, and I believe it's Northeast  
24 Utilities, helped the Connecticut Siting

[WITNESS PANEL: Bailey~Bell~Johnson]

1 council in developing these standards -- the  
2 Best Management Practices?

3 A. (Bailey) We -- I appeared as a witness in  
4 hearings when the Connecticut Siting Council  
5 was establishing the Best Management Practices,  
6 in updating them, which was, I don't know, --

7 Q. As far as --

8 A. (Bailey) -- early in 2000, the early 2000s.

9 Q. Okay.

10 A. (Bailey) But I have had no assistance to them  
11 other than that.

12 Q. Okay. As far as you know, is this the most  
13 current of the Connecticut Siting Council Best  
14 Management Practices?

15 A. (Bailey) Yes, it is.

16 Q. Okay. Can I get Page 4 of 12? It's probably  
17 the fifth sheet, or the sixth. Okay. So, as I  
18 understand it, the State of Connecticut Siting  
19 Council, which I'm going to hazard a guess is  
20 something like this body here, has incorporated  
21 this policy of prudent avoidance, as it's  
22 mentioned in that other document we just looked  
23 at. Is that your understanding as well?

24 A. (Bailey) Yes. And that's been their policy

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 since about 1993.

2 Q. Okay. And, on Page 4 of 12 here, and at the  
3 bottom it says "The Council directs the  
4 Applicant to develop a baseline Field  
5 Management Design Plan that depicts the  
6 proposed transmission line project designed  
7 according to standard good utility practice and  
8 incorporating "no-cost" MF mitigation design  
9 features", and then it goes on. And it comes  
10 up with -- it says here that "The Applicant  
11 shall then modify this base design by adding  
12 low-cost MF mitigation design features  
13 specifically where portions of the project are  
14 adjacent to residential areas, public or  
15 private schools, licensed child day-care  
16 facilities, licensed youth camps, or public  
17 playgrounds." Is that correct?

18 A. (Bailey) Yes.

19 Q. And, so, in Connecticut, if somebody wants to  
20 build a line, they have to go through this  
21 process here?

22 A. (Bailey) If those are adjacent facilities.

23 Q. Yes. And they have it here an "overall  
24 low-cost", it's not a cap, because they don't

[WITNESS PANEL: Bailey~Bell~Johnson]

1 call it that, "4 percent of the cost", is that  
2 correct? A four percent, but it's not an  
3 absolute cap?

4 A. (Bailey) Right.

5 Q. And that their goal, if you turn to page -- the  
6 next page, Page 5 of 12, is to achieve a  
7 "15 percent reduction"?

8 A. (Bailey) Yes.

9 Q. And that, if it turns out that getting to 15  
10 costs more than 4 percent, then they should do  
11 that. Is that fair to say?

12 A. (Bailey) That they should present that to the  
13 Council for its review.

14 Q. Yes. Okay. And, then, on Page 6, 7, 8, and 9,  
15 the Council, in this document, describes what  
16 the Best Management Practices are. Is that  
17 correct?

18 A. (Bailey) Yes. Starting on Page 6, and  
19 continuing, yes.

20 Q. Yes. And, as I read, and maybe this is a  
21 question for Dr. Johnson, in terms of following  
22 this, it looks like you guys followed the MF  
23 calculations part correctly. You did that, the  
24 MF calculations that you did, at least with

[WITNESS PANEL: Bailey~Bell~Johnson]

1 respect to the samples that you did, followed  
2 this particular rubric. Is that fair to say?  
3 You did peak load conditions and projected  
4 seasonal maximum 24-hour. Is that how you did  
5 it, Dr. Johnson?

6 A. (Johnson) We basically -- whoops. We  
7 calculated conditions for average load, and  
8 also the peak load projected for the line.

9 Q. Okay. And it says that they're to be  
10 "calculated from the right-of-way centerline,  
11 on each side of the centerline 300 feet, and at  
12 intervals of 25 feet, including the edge". And  
13 you did something like that, correct?

14 A. (Johnson) We extended out to 300 feet on either  
15 side of the line we calculated them at  
16 positions closer together than 25 feet.

17 Q. Okay.

18 A. (Johnson) And also caught the edge of the  
19 right-of-way. In the table reports, we  
20 reported the edge of the right-of-way, the peak  
21 found within the right-of-way, and out at  
22 300 feet.

23 Q. Okay. And, if we look at Page 7, did you  
24 provide along with this and in your analysis

[WITNESS PANEL: Bailey~Bell~Johnson]

1 the "locations of and the anticipated magnetic  
2 field levels in residential areas, private or  
3 public schools, licensed childcare facilities,  
4 licensed youth camps, or public playgrounds  
5 within 300 feet of the proposed line"?

6 A. (Johnson) For the cross sections, we presented  
7 the magnetic field out to distances of  
8 300 feet, irregardless -- regardless of whether  
9 there was a public area, schools, or something  
10 within that distance.

11 Q. Okay. But you didn't go along the line and  
12 identify the residential areas, the schools,  
13 daycare facilities and all that stuff within  
14 300 feet and do measurements at those places?

15 A. (Johnson) We did not do the measurements.

16 Q. Okay. Or calculations?

17 A. (Johnson) The calculations, as I said, would be  
18 for those cross sections along the line and out  
19 to 300 feet.

20 Q. Okay. I'll just -- I'm going to repeat myself  
21 a little bit. But, when you did that, did you  
22 go out and identify where there were  
23 residential areas, schools, daycare centers and  
24 the like, along -- and do calculations at all

[WITNESS PANEL: Bailey~Bell~Johnson]

1 of those places for the entire 100 miles of  
2 overhead line?

3 A. (Johnson) For specific locations, no.

4 Q. Okay. And, now, the second Best Management  
5 Practice, B, is "Buffer Zones and Limits". And  
6 do you know whether the Project is designed  
7 with buffer zones that will limit exposure of  
8 magnetic fields?

9 A. (Bailey) The decision about the appropriate  
10 size of a buffer zone is determined by the  
11 Connecticut Siting Council. And, in quite a  
12 number of projects, they have deemed that the  
13 right-of-way provides a sufficient buffer, and  
14 that no further buffer is required.

15 Q. Okay. But, in this case, nobody has done that.

16 A. (Bailey) As I said, that's the job of the  
17 Connecticut Siting Council.

18 Q. So, in the designs that you've seen simply  
19 assume that the existing right-of-way is the  
20 sufficient buffer zone?

21 A. (Bailey) I have not made any assumptions about  
22 buffer zones.

23 Q. Dr. Johnson?

24 A. (Johnson) There was no consideration of buffer

[WITNESS PANEL: Bailey~Bell~Johnson]

1 zones, *per se*, in the calculations. The  
2 calculations are what they are.

3 Q. Okay. Thank you. Does the Northern Pass  
4 design cause existing fields along the existing  
5 right-of-way to increase?

6 A. (Johnson) Is that a question for me or Dr.  
7 Bailey?

8 Q. Yes. I suppose it's probably for you, Dr.  
9 Johnson.

10 A. (Johnson) Okay. In some cases, in some  
11 locations for some cross sections, there will  
12 be an increase in the electric fields and  
13 magnetic fields. And I think, in some cases,  
14 because of the multiple lines within the  
15 corridor, it will stay roughly the same or  
16 decrease.

17 Q. Okay.

18 A. (Johnson) Now, within the report, for each of  
19 the cross sections, there are the levels that  
20 are existing for the present lines, and also  
21 what those fields will change to after the new  
22 lines go in.

23 Q. Okay. And as I think your testimony is, in  
24 some places they will increase, and in some

[WITNESS PANEL: Bailey~Bell~Johnson]

1 places they will not?

2 A. Correct.

3 Q. And, in fact, aren't there at least one or two  
4 places where, for some reason, they go down?

5 A. (Johnson) That's correct.

6 Q. Okay. And do you know whether the New York or  
7 Florida standards would be met by this project  
8 design as you did your modeling?

9 A. (Johnson) If you had the exact levels for  
10 Florida and the other state that you mentioned,  
11 I don't have those directly in front of me. As  
12 I remember, Florida is roughly 200 milligauss  
13 at the edge of the right-of-way. And, in this  
14 case, the proposed Project would meet that.

15 A. (Bailey) New York is 200. And Florida varies  
16 with the voltage.

17 Q. Isn't it true that the New York and Florida  
18 guidelines are designed to maintain the *status*  
19 *quo*, and that fields from new lines should not  
20 exceed those of existing lines? Isn't that  
21 what the Connecticut standard says here, with  
22 respect to Florida and New York?

23 A. (Johnson) That's my understanding. That the  
24 choice of the level for New York and Florida

[WITNESS PANEL: Bailey~Bell~Johnson]

1 was that no new lines would be producing fields  
2 that were higher than other lines that were  
3 already out there.

4 Q. Okay. So, at least with respect to that part  
5 of their standard, the current design would not  
6 be in compliance with New York and Florida,  
7 because the new design causes the -- or, the  
8 new line would cause the -- or, would exceed  
9 the existing facilities, correct?

10 A. (Johnson) No.

11 Q. Am I misunderstanding that?

12 A. (Johnson) That would be a misrepresentation of  
13 the standard. New York and Florida, as I  
14 understand their standards, that is a level.  
15 So, for any new line, it's not respective of  
16 what's there already. It's for any line going  
17 in. It should be producing fields similar to  
18 any other line across the state that's already  
19 there. That was the thinking and basis behind  
20 setting that.

21 Q. I see. So, when I read this statement, on Page  
22 7, at the bottom, "New York and Florida have  
23 general MF guidelines that are designed to  
24 maintain the *status quo*, i.e., fields from new

[WITNESS PANEL: Bailey~Bell~Johnson]

1 transmission lines not exceed those of existing  
2 transmission lines." So, you're saying that  
3 this is a sort of a generic category that, if  
4 you have a field and what -- if the fields that  
5 are produced by whatever is in place in New  
6 Hampshire now, you shouldn't be putting  
7 something out there that has a greater field  
8 than that?

9 A. (Johnson) Correct.

10 Q. Kind of like, we've learned to live with that,  
11 we might as well live with it again?

12 A. (Johnson) When it's talking about "existing  
13 lines" in this paragraph, my understanding of  
14 the thinking of the Committee that put that  
15 together was that it was a generic, those lines  
16 already existing within the state.

17 Q. Okay.

18 A. (Johnson) It wasn't specific lines.

19 Q. And do you know what the magnetic fields of the  
20 lines existing in New Hampshire are today?

21 A. (Johnson) Not specifically. I've not directly  
22 calculated or measured those for specific  
23 instances. But, based on the designs, they  
24 would be -- you have 345 kV lines, you have 240

[WITNESS PANEL: Bailey~Bell~Johnson]

1 kV lines. The designs are fairly standard.  
2 Depending on the exact right-of-way width,  
3 these levels are well below existing, probably  
4 lines that are already out there or the similar  
5 designs.

6 Q. But you haven't done any measurements or  
7 calculations to make that determination?

8 A. (Johnson) Not specifically for this Project,  
9 and I don't have that information directly in  
10 front of me.

11 Q. Okay. Now, on Pages 8 and 9, there are a  
12 number of engineering controls. And it says  
13 "the Council will expect the applicant to  
14 examine the following engineering controls to  
15 limit MF in publicly accessible areas", and  
16 there are a number of them described.

17 So, Dr. Johnson, when you did your  
18 modeling, did you rely on the same set of plans  
19 that Dr. Bailey looked at, the preliminary  
20 draft plans?

21 A. (Johnson) We were provided information by the  
22 Applicants. As far as the design of the line,  
23 we took a preliminary, I guess you'd say, look  
24 at that in determining the electric and

[WITNESS PANEL: Bailey~Bell~Johnson]

1 magnetic fields, yes.

2 Q. Okay. And do you know, in looking at those  
3 plans, whether the design incorporated these  
4 engineering controls: "distance, height of  
5 support structures, conductor separation,  
6 conductor configuration, optimum phasing,  
7 increased voltage, underground installation",  
8 obviously we know they did that. Do you know  
9 whether those were incorporated in the plans  
10 for purposes of complying with prudent  
11 avoidance techniques?

12 A. (Johnson) Yes. They were considered. The  
13 positioning of the line, the use of existing  
14 right-of-ways to place the new lines, the  
15 position within the right-of-way for the  
16 possible positioning of the line. And --

17 Q. Where is exist -- I'm sorry, I didn't mean to  
18 interrupt you. But where is exist -- "using  
19 the existing right-of-way" described as one  
20 these engineering controls?

21 A. (Johnson) That would be a consideration of  
22 routing. If you have a choice that you route a  
23 line --

24 Q. No. I'm sorry to interrupt again, but you're

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1           misunderstanding. Connecticut has these  
2           recommendations of engineering controls.  
3           "Using the existing right-of-way" is not one of  
4           them. That's what I'm saying to you.

5   A.    (Johnson) Well, that will have an impact on the  
6           distance, how far away you can put the line  
7           from, say, some place.

8   Q.    Okay. Now, I'm actually going to switch to you  
9           almost exclusively, Dr. Johnson. I'm looking  
10          at your experience. And I couldn't tell from  
11          your CV when you started at Exponent. And how  
12          many -- can you tell us how long you've been  
13          with Exponent?

14   A.    (Johnson) I've been with Exponent since  
15          November of 2001.

16   Q.    And, before that, you were with Power Research  
17          Engineering?

18   A.    (Johnson) For a period of about five or six  
19          years, seven years maybe, roughly '95 to 2001.

20   Q.    Okay. And, in both of these positions, at  
21          Exponent and at Power Research Engineering,  
22          have your clients been electric utility  
23          industry?

24   A.    (Johnson) Electric utilities, in some cases

[WITNESS PANEL: Bailey~Bell~Johnson]

1 state agencies. Electric Power Research  
2 Institute comes to mind.

3 Q. Okay. Electric Power Research Institute is,  
4 again, a utility-funded entity?

5 A. (Johnson) It's a research organization that the  
6 utilities primarily support. And, instead of  
7 doing each individual utility trying to do  
8 their own research, EPRI tries to coordinate  
9 that. And the utilities then combine forces  
10 effectively, so they can do larger research  
11 projects, more extensive research, than what  
12 they might be able to accomplish on their own.

13 Q. Okay. But that is utility-funded, correct?

14 A. (Johnson) Correct.

15 Q. Thank you. Now, when you did your study, your  
16 modeling, as you say, I'm trying to think of  
17 the word you used, but you didn't go up and  
18 down the line, from Pittsburg to Deerfield, and  
19 model the entire line mile-by-mile,  
20 foot-by-foot, inch-by-inch, did you?

21 A. (Johnson) I think what you're asking about,  
22 "did we do each span by span?" No.

23 Q. Okay. And --

24 A. (Johnson) We looked -- if I could continue and

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 just explain. What we did do is look at the  
2 entire length of the line, the entire route.  
3 And where there were different cross section  
4 configurations, where the number of lines  
5 changed across the cross section, where even  
6 though the number of lines may have stayed the  
7 same or the same lines, the loading, the  
8 currents on them changed between sections, we  
9 did identify each one of those sections. And,  
10 in cases where there were two or three sections  
11 that are fairly close in design or the only  
12 change was a change in the width of the  
13 right-of-way, those we may have combined and  
14 just represented by one particular cross  
15 section, instead of doing each unique one.

16 Q. So, you used representative samples and not a  
17 study of the complete line itself?

18 A. (Johnson) I -- we used samples, yes. But I  
19 think --

20 Q. That's all. You explained what you did. I'm  
21 just trying to --

22 A. (Johnson) Okay.

23 Q. -- summarize it quickly.

24 A. (Johnson) Okay.

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. All right? And then when you -- in your  
2 analysis, you applied the ICNIRP and the ICES  
3 standards, correct?

4 A. (Johnson) When we had calculated the electric  
5 and magnetic fields, we looked at the ICNIRP  
6 standards and the ICES to see if they were  
7 below those levels, and they were.

8 Q. And did you find in your modeling and analysis  
9 that in many instances adding the 345 kV line  
10 increased the electromagnetic field of the AC  
11 line?

12 A. (Johnson) That's reported in the appendices and  
13 the summary tables in the report. But it did  
14 increase the electric and magnetic fields in  
15 some cases.

16 Q. Okay. And you noted that, in segment -- and I  
17 guess, let's see --

18 MR. ROTH: Can I see 82? The third  
19 page.

20 BY MR. ROTH:

21 Q. And, if this is hard to read, it's hard to  
22 read. That's what you gave us. So, this  
23 Exhibit 82 is a map that -- part of a map.  
24 It's a three-page document, and they're all

[WITNESS PANEL: Bailey~Bell~Johnson]

1           there, but a map that you provided us that  
2           shows the various segments that you did your  
3           modeling on. Is that correct?

4   A.    (Johnson) Correct.

5   Q.    And you pointed out in your testimony that  
6           Segment S1-13 had an unusually high EMF rating.  
7           Am I stating that correctly?

8   A.    (Johnson) Is there a specific page in the  
9           report or is --

10   Q.    I'm sure there is.

11   A.    (Johnson) Otherwise, I'll just go to "S1-13"  
12           you said?

13   Q.    If I look at your testimony, on Page 7, you  
14           said "At the edge of the right-of-way", this is  
15           Line 20 through 23. Are you there?

16   A.    (Johnson) Okay. You said "Page 7 of the  
17           testimony". And which line?

18   Q.    Twenty to twenty-three.

19   A.    (Johnson) Okay. Yes.

20   Q.    Okay. And there you say "At the edge of the  
21           right-of-way, the AC magnetic-field level due  
22           to the AC lines was calculated to vary between  
23           0.1 and 92 milligauss along the NPT route  
24           except for a short distance of right-of-way

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 approximately 2,000 feet in length, where it  
2 will be 127 milligauss or less under full  
3 loading conditions for the Project."

4 A. (Johnson) That's correct.

5 Q. Okay.

6 A. (Johnson) That particular right-of-way was  
7 singled out and mentioned because it is the  
8 highest segment along the whole route.

9 However, it is also extremely short. It's only  
10 2,000 feet for that particular design where  
11 that would have a level of 127 milligauss.

12 Q. Now, you noted in -- I guess it's in your  
13 report, because I don't see it here on the  
14 testimony page, that there were no adjacent  
15 residences. But you didn't say how far. Do  
16 you know how far the residences are to that  
17 S1-13?

18 A. (Johnson) Not specifically.

19 Q. So, it looks to me like, looking at 82, that  
20 S1-13 is Concord or Pembroke?

21 A. (Johnson) It's in around Concord.

22 Q. Okay. And you don't know whether there are any  
23 residences, daycare centers, schools,  
24 playgrounds and the like in that vicinity?

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Johnson) There are probably residences in the  
2 general vicinity. But, within a few hundred  
3 feet, I don't believe so.

4 Q. Okay. And, with respect to the people in the  
5 residences and the schools and the like that  
6 you're not sure about, you don't know how much  
7 EMF they're already getting in those places,  
8 not -- you know, without considering the  
9 Project, do you?

10 A. (Johnson) We have the calculations of the  
11 existing lines on the right-of-way at that same  
12 right-of-way location, and what it will be  
13 after the Project goes in.

14 Q. Based upon your modeling and the sampling that  
15 you did?

16 A. (Johnson) That's correct. Those are for the  
17 average load levels and the peak load levels.  
18 Specifically within residences at some location  
19 in the general area, you'd have to do  
20 measurements within that, because there could  
21 be local sizes --

22 Q. Right.

23 A. (Johnson) -- local sources that could be  
24 producing magnetic fields.

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Q. That's correct. But you don't know about any  
2 of that stuff in any of those residences or  
3 businesses, do you?

4 A. (Johnson) At this point, we have not done  
5 specific measurements, no.

6 Q. And, when I look at the tables, and we're  
7 looking at Page A-18 and 19 of your report, it  
8 appears to me that the highest levels are found  
9 in what I would describe as probably the most  
10 densely populated areas, is that fair to say?  
11 Pembroke, Concord, and Deerfield?

12 A. (Johnson) Do you have a specific right-of-way?  
13 I mean, this is for S1-13, that short segment  
14 of 2,000 feet?

15 Q. No. I'm talking about in general. You've got  
16 S1-3 through S1-20. And, if you -- I think  
17 your tables show, and in particular -- where  
18 was I? Yes. I'm asking you, do the  
19 measurements or calculations that you did show  
20 the highest levels that you saw occurring in  
21 these densely populated areas?

22 A. (Johnson) If you're referring like to S-1  
23 through S-13, which I think --

24 Q. Okay.

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Johnson) -- encompasses on the map the Concord  
2 area, and if you -- a quick summary -- hang on  
3 a second. Table 15 of the report, on Page 89,  
4 let's say the cross sections roughly through  
5 S1 --

6 Q. This is -- yes. Thank you for finding this  
7 table for me.

8 A. (Johnson) -- S1-4 through S-20 will have higher  
9 levels of the AC magnetic field at the edge of  
10 the right-of-way --

11 Q. Okay.

12 A. (Johnson) -- than for the rest of the route.

13 Q. Okay. And, so, these, S1-4 through S1-20, are  
14 the segments that you modeled in Pembroke,  
15 Concord, Deerfield?

16 A. (Johnson) As shown on the map, it appears that,  
17 yes, they're in the Concord, Pembroke, and  
18 Deerfield areas.

19 Q. Thank you. And some of these values on this  
20 table, and maybe you can't tell from Table 15,  
21 but don't some of these values increase greatly  
22 over existing conditions?

23 A. (Johnson) Those, for the particular line and  
24 the conditions modeled, depends on what you

[WITNESS PANEL: Bailey~Bell~Johnson]

1 mean by "greatly". But there's an increase,  
2 yes.

3 Q. Like two, three, four, five times, in some  
4 cases?

5 A. (Johnson) In some cases, at the edge of the  
6 right-of-way. But I would point out that these  
7 levels are still well below the existing  
8 standards.

9 Q. Okay. But the levels do increase greatly, and  
10 sometimes by magnitudes, correct?

11 A. (Johnson) In some cases, yes, they do increase.

12 Q. Okay. When you did your modeling, you assumed  
13 that phase optimization was going to be  
14 utilized during the design and construction,  
15 correct?

16 A. (Johnson) The phasing of the new lines going in  
17 was considered, yes.

18 Q. That's not my question. Did you consider in  
19 your modeling that phase optimization was going  
20 to be -- was going to be utilized?

21 A. (Johnson) If you're asking "did I think it was  
22 going to be used?" Or, "did I know that it was  
23 being used?"

24 Q. I'll restate the question. When you did your

[WITNESS PANEL: Bailey~Bell~Johnson]

1 modeling, did you assume, as a condition of  
2 your model, that the lines would be phase  
3 optimized?

4 A. (Johnson) As part of the early discussion and  
5 planning, the phasing of the new lines going in  
6 was a consideration. And, where possible, my  
7 belief is, my understanding is it was  
8 implemented.

9 Q. Implemented --

10 A. (Johnson) So, yes. It was considered and being  
11 used.

12 Q. So, in your model, you made an assumption that  
13 phase optimization was used?

14 A. (Johnson) I wouldn't call it an "assumption".  
15 I used the phasing that was there, and the  
16 choice of phasing was made to try and minimize  
17 the magnetic field where possible.

18 Q. Okay. Do you know that the line is, in fact,  
19 going to be constructed using phase  
20 optimization?

21 A. (Johnson) My understanding is the line will be  
22 constructed with the choice of phasing that was  
23 made.

24 Q. And that was in the preliminary plan and design

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 that you saw?

2 A. (Johnson) When the calculations were made, yes.

3 Q. Okay. Do you know whether Northern Pass has a  
4 plan to go back post-operation, once the line  
5 becomes operational, and actually measure the  
6 electromagnetic fields along the line?

7 A. (Johnson) I have no knowledge of that one way  
8 or the other.

9 Q. Do you think that would be a prudent thing to  
10 do?

11 A. (Johnson) Based on my experience, it's  
12 typically not done. And it's an extra  
13 expenditure of money, and I would trust the  
14 model.

15 Q. So, you don't think it would be a prudent thing  
16 to do?

17 A. (Johnson) If it was absolutely zero cost, it  
18 could be done. But it's going to take time and  
19 effort. And --

20 Q. Well, nothing is zero cost. But wouldn't that  
21 fit under those prudent precautions, the  
22 low-cost?

23 A. (Johnson) I don't know what the costs would be.  
24 My own feeling is, my definition of "prudent",

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 is it worth the cost? No.

2 Q. Now I want to talk about gas pipeline.

3 MR. ROTH: Can I see Exhibit 75?

4 BY MR. ROTH:

5 Q. All right. As I understand your report, let me  
6 ask -- I'll just ask it this way. Did you  
7 conduct any study of the interaction between  
8 the Northern Pass Project and the Portland  
9 Natural Gas Transmission Pipeline?

10 A. (Johnson) No, I did not.

11 Q. Okay. And I take it you weren't here yesterday  
12 when Mr. Bowes mentioned the "Interference  
13 Study", were you?

14 A. (Johnson) No, I was not.

15 Q. Okay. Have you conducted an interference study  
16 before?

17 A. (Johnson) I guess I'd have to ask you to be a  
18 little bit more explicit what mean by an  
19 "interference study"?

20 Q. You know, I was going to ask you that same  
21 question. What do you think Mr. Bowes was  
22 talking about when he mentioned the  
23 "Interference Study"?

24 A. (Johnson) I was not here. I don't really know

{SEC 2015-06} [Day 4/Morning Session ONLY] {04-18-17}

[WITNESS PANEL: Bailey~Bell~Johnson]

1 that it -- pure supposition, could be if  
2 there's interaction between the AC lines and a  
3 paralleling long section of pipeline.

4 Q. Okay. Are you aware that there is a segment or  
5 segments of the DC line that parallels the  
6 Portland Natural Gas Pipeline?

7 A. (Johnson) Not specifically, no.

8 Q. Okay. Do you think, based on your experience  
9 and knowledge, would it be appropriate to study  
10 the interaction of the Project with a long  
11 longitudinal structure, metallic structure,  
12 like a gas pipeline?

13 A. (Johnson) For the DC line, where it's DC  
14 fields, you would not have the same interaction  
15 effects that you would potentially for an AC  
16 line.

17 Q. Okay. And, if it were -- if the DC line were  
18 collocated with an existing AC line, does that  
19 make a difference?

20 A. (Johnson) That having the DC line, as far as  
21 it's impact on the adjacent pipeline, it  
22 would -- the AC lines are already there, they  
23 would have the impact, not the DC.

24 Q. Okay. Are there any issues that could arise

[WITNESS PANEL: Bailey~Bell~Johnson]

1 where you have a high voltage DC line running  
2 parallel to a buried natural gas pipeline?  
3 Health and safety type issues?

4 A. (Johnson) With everything in place, nothing  
5 that comes to mind, no.

6 Q. Okay. So, if, for example, you had a leaky  
7 valve or a leak in the pipe, and gas was  
8 escaping, is there a possibility that there  
9 would be some sort of emission from the line  
10 that could ignite the gas?

11 A. (Johnson) That's purely hypothetical. I would  
12 not expect the DC line to cause any other,  
13 let's say, undue concerns or problems, opposed  
14 to what's already there, if it's on the  
15 existing corridor.

16 Q. Okay. So, are arcing, corona, none of that  
17 stuff could ignite gas?

18 A. (Johnson) It can.

19 Q. Okay.

20 A. (Johnson) It would probably be a rare  
21 occurrence.

22 Q. Okay. I hope so. And what about if the line  
23 were to ground and drop onto a gas pipeline  
24 structure of some kind?

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Johnson) If it's buried underground, again, I  
2 would not expect a major problem.

3 Q. Okay.

4 A. (Johnson) If you have the pipeline exposed, you  
5 would have the same concerns that you would  
6 with an AC line.

7 Q. Okay. And, so, if there were structures that  
8 were present on the ground level, access  
9 points, manholes, I'm not sure what the  
10 construction is, but, if there were  
11 infrastructure for the gas pipeline that was  
12 exposed to the surface, would grounding be an  
13 issue with that?

14 A. (Johnson) I'm not sure what you mean by an  
15 "issue". Those situations should probably be  
16 identified. I'm not probably the one that  
17 needs to be addressing this on this particular  
18 panel.

19 Q. Okay. What about induction of current? Does  
20 current come off of a DC line and onto nearby  
21 metallic objects or other grounded objects?

22 A. (Johnson) Characterizing it as "coming off the  
23 line" is not accurate. It will induce.

24 Q. Yes. I was --

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Johnson) A long parallel AC line will induce  
2 voltages and currents on long adjacent  
3 structures.

4 Q. And does that happen with -- can that happen  
5 with a DC line?

6 A. (Johnson) It's totally different. It really  
7 does not happen with a DC line. You don't have  
8 that induced current from a DC line.

9 Q. Okay. What about worker safety? If you have  
10 pipeline workers who go out with an excavator  
11 or a large dump truck, are there issues that  
12 they should be concerned about while working  
13 under the DC line?

14 A. (Johnson) Not specific to a DC. They would  
15 not, just as any other transmission line, they  
16 would not want to contact it.

17 Q. Okay. And is it -- is there any -- or, does it  
18 occur that, if you have, for example, a bucket  
19 truck or an excavator, that current would be  
20 induced from the DC line onto the equipment  
21 being operated by the worker?

22 A. (Johnson) Not for a DC line.

23 Q. Okay. But off of the AC line?

24 A. (Johnson) You would have those considerations

[WITNESS PANEL: Bailey~Bell~Johnson]

1 with an AC line.

2 Q. What about corrosion? Does the presence of the  
3 DC line induce or create a corrosion problem on  
4 gas -- on metallic gas transmission pipelines?

5 A. (Johnson) Again, these would be questions more  
6 for somebody with a corrosion/pipeline  
7 interference type specific background. But,  
8 again, good practice that is in place for the  
9 pipeline, my understanding is it would take  
10 care of that.

11 MR. ROTH: Okay. And can you give me  
12 Page 7 of the Exhibit 75?

13 BY MR. ROTH:

14 Q. Now what I'm showing you is the Joint Use  
15 Agreement between Public Service Company of New  
16 Hampshire, which owns/operates the existing  
17 transmission line, and the Portland Natural Gas  
18 Transmission System, which owns and operates  
19 the pipeline. And in paragraph -- or, on Page  
20 7, which is the last part of Section 6, it  
21 says, at the top, "The Grantees", that is  
22 Portland Natural Gas, "are solely responsible  
23 for the cost of all required cathodic  
24 protection, unless expressly provided in this

[WITNESS PANEL: Bailey~Bell~Johnson]

1 Agreement."

2 So, the cathodic protection you say is  
3 "good management practice" and that the Gas  
4 Pipeline would be the one responsible for that  
5 under this Agreement?

6 A. (Johnson) Is the Gas Pipeline the Grantees?

7 Q. Yes. The Gas Pipeline is the Grantee.

8 A. (Johnson) It says, as you read, "the Grantees  
9 are solely responsible for the cost of all  
10 required cathodic protection, unless expressly  
11 provided otherwise in this Agreement."

12 Q. Okay. And, so, I think I heard you say that it  
13 would be prudent for the operator of that  
14 pipeline to have that, correct?

15 A. (Johnson) My -- this is out of my area and what  
16 I reported on. But my understanding is that,  
17 normally, the pipeline people do look at this  
18 and consider it.

19 Q. And you don't know -- you don't know whether  
20 that's actually been done in this case?

21 A. (Johnson) No, I do not.

22 Q. And, then, if you look further down, in the  
23 fourth paragraph there, before the beginning of  
24 Section 7, it says "Except in emergency

[WITNESS PANEL: Bailey~Bell~Johnson]

1 circumstances, or except in instances of  
2 routine inspection or maintenance, Grantees  
3 shall provide Grantor", that is "the Pipeline  
4 shall tell the Power Line", "not less than ten  
5 business days advance written notice of any  
6 Pipeline excavation, repair or other work or  
7 construction activity in proximity to Grantor's  
8 energized power lines, in order to allow  
9 Grantor sufficient time to implement any safety  
10 or reliability precautions deemed necessary by  
11 Grantor in connection with the maintenance of  
12 its line, including but not limited to recloser  
13 operations and/or deenergization and  
14 grounding."

15 And do you understand that that would be  
16 also prudent practice for the workers of the  
17 gas company to provide information that they  
18 were going to dig on their pipeline?

19 A. (Johnson) It's beyond my scope of what I've  
20 look at in this study.

21 Q. Okay. And do you know whether these kind of  
22 conditions would be sufficient to protect the  
23 health and safety of the pipeline workers or  
24 the electrical workers at working on either of

[WITNESS PANEL: Bailey~Bell~Johnson]

1 these facilities in conjunction?

2 A. (Johnson) Again, this is beyond what I've  
3 looked at. I'd have to read the entire  
4 document and look at the -- what's being  
5 proposed here.

6 Q. Okay.

7 A. (Johnson) But it's beyond what I've done at the  
8 moment.

9 Q. Now, I take it that this kind of induction and  
10 the like is not limited to gas pipelines,  
11 correct?

12 A. (Johnson) That's correct. Yes.

13 Q. Okay. And that other metallic structures along  
14 the right-of-way could also create  
15 interactions, let's call them, with the  
16 electricity in the power line. Is that fair to  
17 say?

18 A. (Johnson) The key thing there is long parallel  
19 metallic structures.

20 Q. Okay. So, fences?

21 A. (Johnson) Long fences, if they're not grounded  
22 or periodically grounded.

23 Q. Okay. What about like a large barn for  
24 chickens?

[WITNESS PANEL: Bailey~Bell~Johnson]

1 A. (Johnson) If you're putting it within the  
2 right-of-way, which I don't think is going to  
3 be allowed, it would need to be grounded.

4 Q. Okay. Bridges and culverts?

5 A. (Johnson) Depends on the material.

6 Q. Okay.

7 A. (Johnson) Again, typically, those are in  
8 contact with the ground and really wouldn't be  
9 a consideration.

10 Q. Okay. And what are the issues with them, if  
11 they're not grounded?

12 A. (Johnson) They could, if they're well-insulated  
13 from the ground, they could rise, have an  
14 induced potential on them, voltage.

15 Q. Okay. And that means that they become  
16 "energized", so to speak?

17 A. (Johnson) In some -- to some extent, that would  
18 be a way of characterizing it.

19 Q. And do you know whether any of these kinds of  
20 structures, either fences, agricultural sheds,  
21 that kind of thing, are present along the  
22 right-of-way?

23 A. (Johnson) They would have to be long and they  
24 would have to be within the right-of-way. And,

[WITNESS PANEL: Bailey~Bell~Johnson]

1 to my knowledge, they are not there.

2 Q. Okay. And do you know whether Northern Pass  
3 has any plans to study them or design to  
4 account for them?

5 A. (Johnson) I don't know specific plans by  
6 Northern Pass. It is general practice to know  
7 what's along the route, and, if there is  
8 grounding needed, to have that done.

9 MR. ROTH: Okay. Thank you. That's  
10 all the questions I have.

11 CHAIRMAN HONIGBERG: Let's go off the  
12 record.

13 *[Brief off-the-record discussion*  
14 *ensued.]*

15 CHAIRMAN HONIGBERG: We'll break now  
16 and come back at one o'clock to pick up with  
17 the municipals.

18 (Lunch recess taken at 12:05  
19 p.m. and concludes the **Day 4**  
20 **Morning Session**. The hearing  
21 continues under separate cover  
22 in the transcript noted as **Day 4**  
23 **Afternoon Session ONLY**.)

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**C E R T I F I C A T E**

I, **Steven. E. Patnaude**, a Licensed Shorthand Court Reporter, do hereby certify that the foregoing is a true and accurate transcript of my stenographic notes of these proceedings taken at the place and on the date hereinbefore set forth, to the best of my skill and ability under the conditions present at the time.

I further certify that I am neither attorney or counsel for, nor related to or employed by any of the parties to the action; and further, that I am not a relative or employee of any attorney or counsel employed in this case, nor am I financially interested in this action.

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Steven E. Patnaude, LCR  
Licensed Court Reporter  
N.H. LCR No. 52  
(RSA 310-A:173)