

STATE OF CONNECTICUT

SITING COUNCIL

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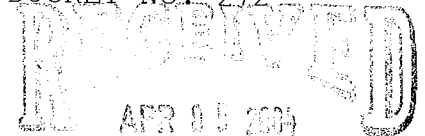
CONNECTICUT LIGHT & POWER COMPANY *
 AND UNITED ILLUMINATING COMPANY *

APPLICATION FOR A CERTIFICATE OF *
 ENVIRONMENTAL COMPATIBILITY AND *
 PUBLIC NEED FOR THE CONSTRUCTION *
 OF A NEW 345-kV ELECTRIC *
 TRANSMISSION LINE AND ASSOCIATED *
 FACILITIES BETWEEN THE SCOVILL ROCK *
 SWITCHING STATION IN MIDDLETOWN *
 AND THE NORWALK SUBSTATION IN *
 NORWALK, CONNECTICUT *

* * * * *

MARCH 25, 2004
(10:05 A.M.)

DOCKET NO. 272



CONNECTICUT
SITING COUNCIL

BEFORE: PAMELA B. KATZ, CHAIRMAN

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1 . . .Verbatim proceedings of a hearing
2 before the State of Connecticut Siting Council in the
3 matter of an application by Connecticut Light & Power
4 Company and United Illuminating Company, held at Central
5 Connecticut State University Institute of Technology &
6 Business, 185 Main Street, New Britain, Connecticut, on
7 March 25, 2004 at 10:05 a.m., at which time the parties
8 were represented as hereinbefore set forth . . .

9
10
11 CHAIRMAN PAMELA B. KATZ: Good morning.
12 I'd like to call this continuation of the evidentiary
13 hearing to order. This is a continuation of a hearing --
14 an evidentiary hearing which began on Tuesday. And as
15 previously noticed, today's hearing will be exclusively
16 on the subject of EMFs.

17 To start off the hearing, I'd like to put
18 into the record some progress that has been made on
19 discovery issues between the Towns and the Applicants.
20 And I'm going to call first on Mr. Ball representing the
21 Towns and then on Linda Randell representing the
22 Applicants to just put into the record the progress that
23 has been made and not made on discovery issues. Mr.
24 Ball.

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1 MR. DAVID BALL: Thank you, Chairman Katz.
2 As we have reported to the Siting Council, the Towns and
3 the Applicants have spent a good deal of time over the
4 last couple of days to try to work towards a resolution
5 of the ongoing issues that we've had in discovery.

6 And with respect to Towns' Interrogatories
7 24, 26 and 32, we do have an understanding with the
8 Applicants as to the scope of discovery and also as to
9 the deadline for the Applicants to comply, which will be
10 April 19th. We are discussing the mechanics to help
11 facilitate that and make that work in the best way for
12 all sides, but that much of our dispute has been, we
13 believe, resolved at this point.

14 On the other issue, which is obviously a
15 significant one, being the GE models and our experts
16 access to them, we have begun the discussions of a
17 process that we are hopeful will lead towards a
18 resolution. However, at this point we do not have a
19 resolution. We are, obviously, going to have to work
20 with GE to make this resolved in a way that's acceptable
21 to all parties. So we're working on it, but we're not
22 there yet. And we're certainly hopeful of not having to
23 come back before the Council to ask for any relief in
24 that regard, but it's an open issue and one that at this

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1 point all of our rights we'd like to make sure are not
2 waived.

3 CHAIRMAN KATZ: Thank you, Mr. Ball. Miss
4 Randell.

5 MS. LINDA RANDELL: I believe that
6 accurately reflects where we are, Chairman Katz. There
7 were issues with respect to Interrogatories 24, 26 and
8 32. I believe those are fully resolved and we'll be able
9 to proceed forward to provide any additional information
10 by April 19. And with GE, as I had indicated in the
11 prehearing conference, we're working to get GE and the
12 Towns' consultant together to reach a mutually agreeable
13 way of moving forward.

14 CHAIRMAN KATZ: Thank you. Is there any
15 other party or intervenor who wishes to place anything in
16 the record on the issue of discovery issues? Seeing
17 none, we will proceed with the hearing program. At this
18 time, we are going to -- I'm sorry -- Mr. Fitzgerald.

19 MR. ANTHONY FITZGERALD: Mr. Zaklukiewicz
20 informed me that he has a correction he'd like to make to
21 something that's on file before we proceed with the EMF
22 part of the program --

23 CHAIRMAN KATZ: Sure, why don't we --

24 MR. FITZGERALD: -- if that would be

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1 acceptable.

2 CHAIRMAN KATZ: Get to a microphone and
3 just identify yourself for the record.

4 MR. ROGER ZAKLUKIEWICZ: Roger
5 Zaklukiewicz. In our response to Towns' 36 in page 4 of
6 4, Column 2, which is the proposed line loading, under
7 the case 27.7 gigawatts for the first line item it's
8 Scovill Rock Substation to Chestnut Junction, there was a
9 typo, and the response as we submitted it, it reads 372.8
10 megavolt amperes. And that number should be 672.8. And
11 that would make it consistent with the data submitted in
12 Towns' 037 and Towns' 038. So it was strictly a typo
13 mistake which we picked up.

14 CHAIRMAN KATZ: Thank you.

15 MS. RANDELL: Chairman Katz --

16 MR. PHILIP T. ASHTON: (Indiscernible) --
17 on your errata sheet.

18 MS. RANDELL: I was just going to ask
19 would you like us --

20 CHAIRMAN KATZ: Yes --

21 MS. RANDELL: -- to do an errata sheet for
22 that --

23 CHAIRMAN KATZ: Please --

24 MS. RANDELL: -- with the date of the

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1 correction.

2 MR. ZAKLUKIEWICZ: We will -- we will get
3 that for you.

4 CHAIRMAN KATZ: Yes. And serve the list.
5 Any other procedural matters before we go to the witness
6 panel? Seeing none, at this time, I'd ask the Applicants
7 to introduce their EMF witnesses and then we will have
8 them sworn in.

9 MR. FITZGERALD: Thank you, Madam
10 Chairperson. Starting with the person closest to me is
11 Dr. Stuart Aaronson. Seated next to him is Dr. William
12 Bailey, who I believe is known to the Council from prior
13 appearances. To Dr. Bailey's left is Dr. Philip Cole.
14 To Dr. Cole's left is Mr. Carberry. And to his left is
15 Kathleen Shanley from UI. Bob Carberry of course is from
16 Northeast Utilities. He is known to the Council from
17 other proceedings and this proceeding. He is just making
18 a special appearance to deal with the EMF questions that
19 relate to the company's facilities.

20 CHAIRMAN KATZ: Do you need the spellings
21 of names, Tony, or are you set? Okay.

22 MR. ROBERT L. MARCONI: Will all the
23 witnesses please rise and raise your right hand.

24 (Whereupon, Dr. Philip Cole, Dr. Stuart

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1 Aaronson, Dr. William Bailey, Kathleen Shanley and Robert
2 Carberry were duly sworn in.)

3 MR. MARCONI: Please be seated. Thank
4 you.

5 MR. FITZGERALD: I have -- there's a
6 couple of corrections I'd like to get on the record.

7 CHAIRMAN KATZ: Sure.

8 MR. FITZGERALD: And then if it would be
9 helpful to the Council, I'd like to ask -- although we
10 generally don't do direct examination and I don't intend
11 to, but if we could give Dr. Cole and Dr. Aaronson, who
12 have not appeared here before, a very brief opportunity
13 to just tell the Council who they are and what their
14 credentials are, perhaps less than a minute each.

15 CHAIRMAN KATZ: Yes. The key words there
16 being very brief.

17 MR. FITZGERALD: Yes. Thank you. First
18 of all, Dr. Cole, did you have a correction to make to
19 the transcript of your prefiled testimony at page 5?

20 DR. PHILIP COLE: Yes. I'd like to
21 correct an omission that occurs on page 5 of my direct
22 testimony, it's apparently a word processor error. A
23 little bit more than halfway down the page there's an
24 italicized statement of strength of association and it

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1 ends in a non-sentence, it says an SMR in the range 100-
2 200. That should be continued as follows, an SMR in the
3 range 100-200 means that there is a weak association, one
4 that is unlikely to prove to be causal. Should I repeat
5 it or is that okay?

6 MR. COLIN C. TAIT: You're going to back
7 that up with an insert?

8 MR. FITZGERALD: Yes.

9 CHAIRMAN KATZ: Right.

10 MR. ASHTON: Once more just for --

11 DR. COLE: An SMR in the range 100-200
12 means that there is a weak association, one that is
13 unlikely to prove to be causal.

14 MR. FITZGERALD: And then if we could turn
15 to Dr. Aaronson's -- I'm sorry, to Dr. -- yes, to Dr.
16 Aaronson's testimony, the last page, page 8, this is
17 actually a correction not to the testimony but to the
18 question, so perhaps I should make it. It's -- again,
19 it's just a word processor error. The first question at
20 page 8 says please describe laboratory studies. And the
21 -- the answer begins numerous laboratory studies have
22 examined the relationship. That phrase examined the
23 relationship should be inserted after specifically in the
24 question.

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1 CHAIRMAN KATZ: So did the witness answer
2 the question you asked or the question you meant to ask?

3 MR. FITZGERALD: Well, he -- he answered -
4 - he answered the question that was meant to be asked --

5 CHAIRMAN KATZ: Okay --

6 MR. FITZGERALD: The statement -- there's
7 no correction to be made to the statement that's in the
8 answer.

9 MR. ASHTON: (Indiscernible) -- precision
10 --

11 MR. FITZGERALD: And -- and with that, Dr.
12 Aaronson, could you, then followed by Dr. Cole, just give
13 the Council a very brief resume of who you are and what
14 you've done that's relevant to this subject today that
15 we're talking about?

16 DR. STUART AARONSON: I'm a physician
17 scientist who trained at the University of California in
18 San Francisco. And after my internship went to the NIH
19 initially to serve my country during the Vietnam era to -
20 -

21 MR. FITZGERALD: Dr. Aaronson, we have a
22 rule in this hearing room that when you use an acronym,
23 the first time that you state what the acronym stands for
24 if you would --

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1 DR. AARONSON: Sorry --

2 MR. FITZGERALD: Sorry to interrupt.

3 DR. AARONSON: Sorry. To the National
4 Institutes of Health, and in specific terms to the
5 National Cancer Institute. The National Institutes of
6 Health is the major biomedical research facility for our
7 country and is critically important in the development of
8 research on biomedical problems. And I specifically was
9 interested in the area of cancer and in learning about it
10 at the molecular level. And over the 25 years that I
11 spent there becoming a laboratory chief, we participated
12 in a lot of discoveries of some of the basic causes of
13 cancer with respect to the changes in cells that make
14 them become malignant. Ten years ago, I chose to go to
15 the Mount Sinai Medical Center in their medical school to
16 head their cancer research effort, and I've been there
17 for the past 10 years.

18 MR. FITZGERALD: Thank you. Dr. Cole.

19 DR. COLE: I am a physician. I received
20 my M.D. at the University of Vermont. I then went to the
21 Harvard School of Public Health where I received a
22 Masters Degree and a Doctoral Degree in Epidemiology. I
23 joined the faculty at Harvard for 10 years. I then moved
24 to the Department of Epidemiology at the University of

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1 Alabama at Birmingham where I was the department head for
2 20 years and the Director of -- the Associate Director of
3 the Comprehensive Cancer Center for Epidemiology. I have
4 35 years of experience totally committed to cancer
5 epidemiology, that is the study of the causes of cancer
6 in human beings.

7 MR. FITZGERALD: And would you -- I need
8 now need to ask each of you who has submitted prefiled
9 testimony to swear that it is accurate to the best of
10 your knowledge and belief. And so that would be starting
11 again with Dr. Aaronson.

12 CHAIRMAN KATZ: Mr. Fitzgerald, do you
13 just want to identify which exhibits they're verifying.

14 MR. FITZGERALD: Oh, I'm sorry. Thank
15 you. We have before us in the hearing program -- Exhibit
16 No. 11 is the prefiled testimony of Philip Cole. So Dr.
17 Cole, is the prefiled testimony that you have submitted
18 true to the best of your knowledge and belief?

19 DR. COLE: Yes, with the addition that
20 I've already offered.

21 MR. FITZGERALD: Thank you. Exhibit No.
22 12 is the prefiled testimony of Stuart Aaronson, M.D.
23 Dr. Aaronson, is that testimony true to best of your
24 knowledge and belief?

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1 DR. AARONSON: Yes, it is.

2 MR. FITZGERALD: Exhibit 13 is the
3 testimony of Kathleen Shanley of the United Illuminating
4 Company and -- well actually, there's two -- there's two
5 numbers given to this testimony, but it's one piece of
6 testimony. They submitted joint testimony. It's listed
7 as 13 and 14, but it's really just one document.

8 CHAIRMAN KATZ: Mr. Fitzgerald, are you
9 working off of the revised hearing program? You better
10 than anyone should know this is a dynamic process.

11 MR. FITZGERALD: Yeah. I was actually --
12 I'm sorry, I was actually looking at a list of witnesses
13 that had been handed to me.

14 MS. RANDELL: Blame me, it was my fault.

15 MR. FITZGERALD: So to correct the record,
16 we see that there is -- Exhibit 40 is the Prefiled Direct
17 Testimony Concerning Power Frequency Electric and
18 Magnetic Fields. That one filing is given a single
19 exhibit number, so I stand corrected. Included within
20 that is the testimony of Dr. Cole, who has just sworn to
21 it, the testimony of Dr. Aaronson, who I think has
22 verified it, and the testimony of Dr. Bailey.

23 Dr. Bailey, do you verify that your
24 prefiled testimony is true and correct to the best of

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1 your knowledge and belief?

2 DR. WILLIAM BAILEY: Yes.

3 MR. FITZGERALD: And there is also joint
4 testimony of Mr. Carberry and Miss Shanley. And I ask
5 you two, do you verify that that is true and correct to
6 the best of your knowledge and belief?

7 MS. KATHLEEN SHANLEY: Yes.

8 MR. ROBERT CARBERRY: Yes.

9 MR. FITZGERALD: And in addition, there
10 are a number of interrogatory responses that have been
11 submitted for which Dr. Bailey is identified as the
12 responsible witness, and that appears on the face of the
13 interrogatories. And if you'd like, I could put in a
14 list, but I think -- I think that it's self-identifying.

15 So Dr. Bailey, do you verify that the
16 information submitted in the EMF -- the response to the
17 EMF interrogatories on which your name appears as the
18 responsible witness is true and correct to the best of
19 your knowledge and belief?

20 DR. BAILEY: Yes. I have one -- one
21 correction I believe on date of request, CSC 010, I am
22 listed as the party responsible for that, but I believe
23 that was prepared by a witness of the company. Perhaps
24 Peter Brandien should be identified as the witness on

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1 that response.

2 MR. FITZGERALD: And with that exception,
3 do you verify that the interrogatories submitted in your
4 name are true and correct?

5 DR. BAILEY: Yes.

6 MR. FITZGERALD: Alright. With that,
7 Madam Chairperson, the panel is offered for cross-
8 examination.

9 CHAIRMAN KATZ: Is there any objection to
10 making these full exhibits? Hearing none, they are full
11 exhibits.

12 (Whereupon, Applicant Exhibit No. 40 was
13 received into evidence as a full exhibit.)

14 CHAIRMAN KATZ: I think we are ready for
15 cross-examination. Are there any procedural matters we
16 need to do before that? Hearing none, we will go to the
17 list. The first person on the list is State
18 Representative Al Adinolfi. I believe Mr. Adinolfi is
19 not here today. And we should say for the record that
20 the House is in session.

21 Second on the list is -- the Town has
22 traded spots to the Attorney General, so next on the list
23 is the Attorney General. Mr. Blumenthal --

24 MR. RICHARD BLUMENTHAL: Thank you --

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1 CHAIRMAN KATZ: -- the panel is ready for
2 your cross-examination.

3 MR. BLUMENTHAL: Thank you, Madam Chair.
4 And thank you for giving us this opportunity to do the
5 cross-examination this morning. Thanks to you and the
6 Council and to all witnesses for being here this morning.
7 I was interested to hear your description of the process
8 as a dynamic one. I've never cross-examined five
9 witnesses before at the same time, so forgive me if I go
10 forward somewhat informally, but I'd like to begin by
11 asking Dr. Cole in particular -- good morning, Dr. Cole -
12 -

13 DR. COLE: Good morning.

14 MR. BLUMENTHAL: -- my name is Richard
15 Blumenthal, I'm the Attorney General for the State of
16 Connecticut.

17 DR. COLE: Good morning.

18 MR. BLUMENTHAL: Good morning. And I'm
19 here with Assistant Attorney General Mike Wertheimer. If
20 at any point, and I should say this to all the witnesses,
21 my questions are unclear or you have any questions about
22 my questions, don't hesitate to say so. And if any of
23 you have points to add if I'm questioning one of the
24 other witnesses, I hope that you will do so in the course

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1 of your testimony.

2 Let me ask you, Dr. Cole, you -- you don't
3 have any doubt that the Council is legitimately concerned
4 with the electromagnetic field problem, do you?

5 DR. COLE: It's my understanding that the
6 Council is concerned about the electromagnetic field
7 issue.

8 MR. BLUMENTHAL: And you don't have any
9 question about the validity of that concern?

10 DR. COLE: I -- I understand that they are
11 concerned, so I take it that their concern is valid in
12 their own views, yes.

13 MR. BLUMENTHAL: Should they be concerned?

14 DR. COLE: With regard to the issue of the
15 relationship between electromagnetic fields and cancer in
16 human beings, I don't think so, no.

17 MR. BLUMENTHAL: No reason for concern at
18 all?

19 DR. COLE: Well, I think that rather than
20 look for specific reasons which might be based on
21 specific pieces of information, if you ask what the
22 totality of the information shows, it shows a substantial
23 amount of basis for holding the point of view that there
24 is not a relationship between electromagnetic field

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1 exposure and cancer in human beings.

2 MR. BLUMENTHAL: And therefore, your
3 testimony today is there's no reason for concern?

4 DR. COLE: That is not the testimony that
5 I'm going to give. If someone holds some concern, that
6 is their prerogative. What I am saying is that I do not
7 see a basis -- I do not see a basis for that concern.

8 MR. BLUMENTHAL: Let me ask you are you
9 familiar with the fact sheet that is on-line from the
10 Connecticut Department of Public Health concerning
11 electromagnetic fields?

12 DR. COLE: Yes.

13 MR. BLUMENTHAL: Do you have a copy before
14 you? I can give you a copy.

15 DR. COLE: I do not have a copy.

16 MR. BLUMENTHAL: With your permission,
17 Madam Chair.

18 CHAIRMAN KATZ: Right.

19 MR. BLUMENTHAL: If I may direct your --

20 CHAIRMAN KATZ: Mr. Blumenthal --

21 MR. BLUMENTHAL: I'm sorry --

22 CHAIRMAN KATZ: -- just a little
23 housekeeping here before we do this. I believe this is
24 part of the prefilled information from the Department of

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1 Public Health.

2 MR. BLUMENTHAL: It is -- it is, Madam
3 Chairman.

4 CHAIRMAN KATZ: And we'd just like to take
5 that in for identification purposes only at this point.
6 When Dr. Ginsberg is a witness later, he will actually
7 verify it.

8 MR. BLUMENTHAL: I have some other
9 documents that I will be using that are not yet part of
10 the record, but this one is. Thank you.

11 If I may direct your attention to the
12 second page, Dr. Cole.

13 DR. COLE: Yes, sir.

14 MR. BLUMENTHAL: Specifically in the
15 middle section, the second sentence --

16 DR. COLE: Yes.

17 MR. BLUMENTHAL: -- however high voltage
18 lines can cause EMF to be elevated directly beneath and
19 nearby the lines.

20 DR. COLE: Yes.

21 MR. BLUMENTHAL: You don't disagree with
22 that statement --

23 DR. COLE: I do --

24 MR. BLUMENTHAL: -- do you?

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1 DR. COLE: -- I do not.

2 MR. BLUMENTHAL: Going then to the next
3 section, despite extensive research over the past 20
4 years, the health risks caused by EMF exposure remains an
5 open question. And it goes on to say some studies have
6 shown a weak link between household EMF exposure and a
7 small increased risk of childhood leukemia at average
8 exposures above 3 milligauss. Do you agree with that
9 statement?

10 DR. COLE: Well, I need to say two things.
11 Firstly, it might be a little more accurate to say
12 despite extensive research over the past 25 years, the
13 health risks caused by EMF exposure -- and I want to make
14 it clear that my testimony relates to the issue of
15 malignant disease and not health in general -- remains an
16 open question. Well my experience is that questions are
17 never closed. It only happens that the amount of
18 evidence to one side or the other becomes so persuasive
19 that it becomes the basis for public policy. And it is
20 my position that the available evidence, which is now
21 very substantial, will not support the idea that
22 electromagnetic fields are a cause of malignancy in human
23 beings.

24 MR. BLUMENTHAL: So you do not agree that

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1 it's an open question?

2 DR. COLE: The specific question being
3 what, sir?

4 MR. BLUMENTHAL: That the health risks
5 caused by EMF exposure remains an open question, do you
6 agree or disagree?

7 DR. COLE: In a philosophical sense an
8 open question, yes, in that causation can never be proven
9 or disproven with 100 percent assurance of correctness.
10 In a practical sense, I think it's close.

11 MR. BLUMENTHAL: Well just to draw the
12 analogy that you do in your prefiled testimony, would you
13 say that smoking as a cause of cancer is still an open
14 question?

15 DR. COLE: Again, as -- as a scientist the
16 question of causation remains always open. Perhaps
17 that's more philosophical than we need to address here.
18 As a practical matter there is no doubt in my mind
19 whatsoever that cigarette smoking is an established and
20 has been an established cause of lung cancer for nearly
21 50 years.

22 MR. BLUMENTHAL: So as a -- as a practical
23 matter is it your testimony, just so we understand the
24 difference between philosophical and practical --

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1 DR. COLE: Right --

2 MR. BLUMENTHAL: -- that as a practical
3 matter, EMF is no -- is not a health risk?

4 DR. COLE: It is not a --

5 MR. BLUMENTHAL: That's not an open
6 question?

7 DR. COLE: As a practical matter, the
8 question of whether or not electromagnetic fields are a
9 cause of malignancies in human beings is not an open
10 matter --

11 MR. BLUMENTHAL: Okay, so --

12 DR. COLE: -- it's a --

13 MR. BLUMENTHAL: -- to the extent
14 malignancies are a health risk, your testimony is the
15 question is no longer open?

16 DR. COLE: I'd like to leave the words
17 health risks out of the question and focus on the issue
18 of malignant diseases. To the extent that the issue
19 addresses malignant diseases, I believe that the question
20 has been resolved as a practical matter.

21 MR. BLUMENTHAL: So there may be other
22 health risks that remain an open question, is that --

23 DR. COLE: There may be. I have never
24 addressed the other health risks or possible health

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1 risks.

2 MR. BLUMENTHAL: Let me -- if I may direct
3 your attention to the next page --

4 DR. COLE: May I just ask when this
5 document was produced? I see 2004 listed on the last
6 page. That's the only date I see and it doesn't -- I'm
7 not sure that it applies to the entire document.

8 MR. BLUMENTHAL: It's -- it's on-line
9 currently. I don't know -- you're -- you're right that
10 it has the date of January 2004. I assume that's when it
11 was placed on the website or compiled.

12 CHAIRMAN KATZ: We will get that in the
13 record later in this proceeding on how old that document
14 is.

15 MR. BLUMENTHAL: Directing your attention
16 to page 3 --

17 DR. COLE: Yes, sir.

18 MR. BLUMENTHAL: -- do you agree that one
19 way to reduce exposure to EMF includes increasing the
20 distance between you and the electrical source as is
21 stated in this document at page 3?

22 DR. COLE: Yes.

23 MR. BLUMENTHAL: And do you agree that if
24 the power lines are more than 300 feet away, there should

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1 be no cause for concern?

2 DR. COLE: The distance -- I'm not sure
3 what is meant here by the statement no cause for concern.
4 The distance from the power line where the magnetic field
5 becomes indistinguishable from the ambient levels varies
6 as a function of the load on that line and other
7 characteristics of that line. I understand that it has
8 been represented for this particular line under the
9 circumstances of maximum load, 300 feet is represented to
10 be a basis for no concern, and I will accept that.

11 MR. BLUMENTHAL: Now, you've testified I
12 believe that in your opinion there is no causal link or
13 no evidence to support a causal link between EMF and
14 malignancies, is that correct?

15 DR. COLE: I might have missed a word
16 there in the statement. I testified that in my own
17 opinion, but I want to make it clear that it is not
18 solely my own opinion. It is the general opinion of the
19 scientific community that there is no established casual
20 link between electromagnetic fields and cancer in human
21 beings.

22 MR. BLUMENTHAL: Would you agree that some
23 studies have shown a correlation or an association
24 between EMF exposure and a health risk, including risks

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1 of malignancies?

2 DR. COLE: Yes, but that response needs
3 two fairly significant correlations -- or qualifications.

4 First, individual findings and individual studies have
5 little or no meaning in epidemiology, and that's because
6 of the nature of epidemiology, which should not be
7 confused with what we usually think of as medical
8 science, which is experimental research. Epidemiology is
9 not experimental. It's a so-called observational
10 science. It is thus prone to high degrees of variation.

11 Even in studies that are categorically negative, you
12 will occasionally find some positive results. Even in
13 the studies of cigarette smoking and lung cancer there
14 were, for example, some negative results.

15 The second qualification, apart from the
16 fact that there is some positive results particularly in
17 the earlier studies, which have of course faded away in
18 the recent studies, is that association alone in and of
19 itself is only a necessary but far from a sufficient
20 basis for inferring a causal relationship. In fact, the
21 establishment of causation is an extremely difficult and
22 rare thing in the area of human carcinogens.

23 MR. BLUMENTHAL: Well, let --

24 CHAIRMAN KATZ: Mr. Lynch.

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1 MR. DANIEL P. LYNCH, JR.: Could I ask a
2 follow-up question?

3 MR. BLUMENTHAL: Please.

4 MR. LYNCH: Dr. Cole, when you say earlier
5 studies in relationship to the current studies, what
6 dates are you looking at specifically that would mark
7 early studies as opposed to the later studies?

8 DR. COLE: Sir, it's not really possible
9 to draw a line in the sand. And that's one of the most
10 important and interesting things about the evolution of
11 knowledge regarding the relationship between
12 electromagnetic fields, and I'll say childhood leukemia
13 since it seems to be the disease of greatest interests.
14 There were a succession of studies starting in 1979 with
15 the Wertheimer Leeper Study and going on up until -- well
16 last year when we had some of the MEDA analyses. The
17 fascinating thing is that with one or two exceptions,
18 being the smaller studies, each successive study of the
19 major large scale studies showed a weaker relationship
20 than the previous ones, to the point where in 1990 or
21 1995, you can sort of choose in there, the studies turned
22 negative. And all of the studies thereafter, including
23 the national collaborative study of the United States,
24 the national collaborative study of the United Kingdom,

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1 the Canadian study and others have failed to support a
2 relationship between electromagnetic field exposure and
3 childhood leukemia.

4 Further, the two most recent MEDA analyses
5 -- and I just will mention MEDA analysis is a collection
6 of -- it's sort of a study of studies -- come to the
7 conclusion that a causal relationship cannot be
8 established and that if there is any association, it will
9 be extremely small, extremely rare, and extremely
10 difficult to establish. I will offer what I think that
11 means if I'm asked about that.

12 MR. LYNCH: Thank you, Dr. Cole. And
13 thank you, Mr. Attorney General.

14 MR. BLUMENTHAL: Thank you. Since we're
15 talking about studies, maybe we can move to a document
16 that I believe is not in the record. And I'd be happy to
17 mark it or just use it for cross-examination. It's a
18 document from the New York State Department of Health
19 that is also on-line, and it is entitled Power Lines
20 Project, Questions and Answers. It's an official
21 document from the State of New York. If I may use it for
22 cross-examination? We'd be happy to mark a copy.

23 MR. MARCONI: Have all counsel been given
24 copies of that document?

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1 CHAIRMAN KATZ: Has the Applicant received
2 a copy of this document?

3 MR. FITZGERALD: We just -- we just --
4 we've got one.

5 CHAIRMAN KATZ: Mr. --

6 MR. BLUMENTHAL: They have been.

7 MR. FITZGERALD: If this is -- on the
8 basis of the representation that it's a publication of
9 the New York State Department of Public Health --

10 CHAIRMAN KATZ: Can we have the Attorney
11 General take administrative notice since it's a
12 government document --

13 MR. FITZGERALD: Sure --

14 CHAIRMAN KATZ: -- would that be
15 appropriate?

16 MR. FITZGERALD: That would be
17 appropriate.

18 MR. BLUMENTHAL: It is a government
19 document, Madam Chair.

20 MR. MARCONI: Are there copies available
21 for all Council members by any chance or not?

22 CHAIRMAN KATZ: Mr. Wertheimer.

23 MR. MICHAEL WERTHEIMER: If not, there
24 will be.

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1 CHAIRMAN KATZ: There will be.

2 MR. MARCONI: Okay.

3 CHAIRMAN KATZ: Okay. So the list --

4 MR. TAIT: And the Council members too?

5 MR. WERTHEIMER: Absolutely.

6 MR. MARCONI: Mr. Johnson --

7 CHAIRMAN KATZ: Mr. Johnson, you want to
8 be heard on this?

9 MR. BRUCE JOHNSON: Yes. I was going to
10 suggest and request that you direct the Attorney General
11 or his agency affiliates to file in the normal way in the
12 record, you know, to the full service list any documents
13 that are used here.

14 CHAIRMAN KATZ: Yes. Mr. Wertheimer will
15 serve the list.

16 MR. JOHNSON: Thank you.

17 MR. TAIT: Are we noticing this for all
18 purposes for just for cross-examination at this point?

19 A VOICE: We can get copies made right now
20 if Mr. Wertheimer can provide --

21 CHAIRMAN KATZ: Mr. Wertheimer, do you
22 want to provide -- the Council is offering to make copies
23 for you.

24 MR. WERTHEIMER: Okay --

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1 CHAIRMAN KATZ: A kind offer.

2 MR. WERTHEIMER: I appreciate that, but I
3 hate to interrupt the --

4 CHAIRMAN KATZ: Do you want to take a
5 moment?

6 A VOICE: Just keep going and I'll come
7 back --

8 MR. WERTHEIMER: Okay -- (pause) --

9 CHAIRMAN KATZ: Okay, so there's no
10 objection if we proceed with this? We've taken
11 administrative notice of this document and we'll proceed
12 with cross-examining on it --

13 MR. ASHTON: What -- what's the title of
14 the docket, Mr. Blumenthal?

15 CHAIRMAN KATZ: The document?

16 MR. BLUMENTHAL: The title of the document
17 is New York State Information for Consumers Power Lines
18 Project, Questions and Answers. It's on-line, an
19 official website of the New York State Department of
20 Public Health.

21 MR. TAIT: Well, I need to ask one further
22 question --

23 MR. BLUMENTHAL: Sure --

24 MR. TAIT: -- are you offering it so that

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1 this is an authentic document or that the content of that
2 document is true and accurate?

3 MR. BLUMENTHAL: I'm using it only for
4 purposes of cross-examination. I'm not offering it for
5 the true of what is in the document.

6 MR. TAIT: Thank you.

7 MR. BLUMENTHAL: And I'm happy to mark it
8 for identification so that at some later point it could
9 be introduced if Mr. Wertheimer or any of the other
10 parties wish to do so, but right now I'm using it only
11 for purposes of cross-examination.

12 MR. TAIT: So let's identify it as Exhibit
13 1 -- Attorney General Exhibit 1 for identification.

14 MR. BLUMENTHAL: Fine.

15 (Whereupon, Attorney General Exhibit No. 1
16 was marked for identification purposes.)

17 CHAIRMAN KATZ: Does any party or
18 intervenor have objections to making -- taking
19 administrative notice of this document? Hearing none, we
20 will proceed on that basis. So does the witness have it
21 before them?

22 DR. COLE: Yes, I do.

23 CHAIRMAN KATZ: Proceed.

24 MR. BLUMENTHAL: I'd like to direct your

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1 attention, Dr. Cole, to the bottom of the page, what can
2 EMFs do to me, and ask you to review those two
3 paragraphs. And I'll read them out loud because the
4 Council members do not have them before them, if I may --
5 and I apologize that we don't have copies for all the
6 individual Council members -- electric and magnetic
7 fields can cause small electric fields in our bodies.
8 These fields are much weaker than fields that occur
9 naturally in the body, but there is some evidence that
10 they might affect some cell functions. There have been
11 several studies conducted to determine whether exposure
12 to magnetic fields causes disease in humans. There are
13 many unanswered questions raised by the research done so
14 far. There have been both positive and negative studies.
15 We are not sure if EMF exposure adversely affects human
16 health. More extensive studies of EMFs are needed.

17 Do you agree or disagree with that
18 statement? And take your time in answering, I know there
19 are various statements in those two paragraphs.

20 DR. COLE: Thank you. Let me point out
21 that at least as I understand it, this document was
22 revised in July of 2002, so it's at least two years old.

23 Since --

24 MR. BLUMENTHAL: Well, I should point out

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1 to you, sir, that at the bottom of the page it bears the
2 date 3 -- 10 March 2004. But I'm not asking you about
3 the truth of what's in the document. This document is
4 not in evidence. I'm asking you whether you agree or
5 disagree?

6 DR. COLE: I understand that, but the
7 statement -- I think my response will be more meaningful
8 if it is understood that -- at least as I looked at this
9 document, I see the March 10, 2004 as a print date or a
10 date that appears on-line. If you look at the top of the
11 last page, you will see that the document was actually
12 revised in July of 2002. That of course was a revision,
13 so there was evidently a prior document. So any number
14 of these statements may have been added at the time of
15 the revision or may have anti-dated the revision by I
16 have no idea how many years. All I'm saying is that some
17 of the statements that are made here may have to be taken
18 in the perspective of time. Now with that, I'll try to
19 be responsive --

20 CHAIRMAN KATZ: Mr. Tait.

21 MR. TAIT: I think the question is do you
22 agree with them whenever they were made. Is that the
23 question?

24 MR. BLUMENTHAL: That's --

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1 DR. COLE: Well --

2 MR. TAIT: Do you agree with them and
3 which ones do you disagree with?

4 DR. COLE: If we look at the statement, it
5 says more extensive studies are needed. If that
6 statement was made in 2001, I agree with it. If it is
7 made today, I disagree with it.

8 MR. TAIT: Good.

9 DR. COLE: That's why I need the date.

10 MR. TAIT: But that's a good answer --

11 MR. BLUMENTHAL: Well, that's -- that's
12 all -- what we're asking you --

13 MR. TAIT: Put it in your answer --

14 MR. BLUMENTHAL: -- or what I'm asking you
15 -- and I apologize for interrupting -- I should actually
16 let you do the questioning because you're focusing more
17 adeptly on what we're trying to do --

18 MR. TAIT: If you have to qualify your
19 answer by date, do so.

20 DR. COLE: Okay.

21 CHAIRMAN KATZ: Well, I'd just like to
22 indicate to all witnesses what's very helpful to us is if
23 you answer yes and an elaboration or no and an
24 elaboration, otherwise then we're trying to figure out if

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1 you're trying to give us a positive or a negative answer.
2 So if you could do that in your answers, it would be
3 helpful.

4 DR. COLE: Thank you. The first two
5 sentences, I agree with fully. The next sentence --

6 MR. ASHTON: (Indiscernible) -- Dr. Cole,
7 which are those two sentences --

8 MR. TAIT: Yeah --

9 DR. COLE: I'm sorry --

10 MR. ASHTON: -- because we don't have a
11 copy.

12 MR. TAIT: We don't have a copy.

13 DR. COLE: Electric and magnetic fields
14 can cause small electric fields in our bodies. True. I
15 agree.

16 These fields are much weaker than the
17 fields that occur naturally in our body. True. I agree.

18 But there is some evidence that they might
19 affect cell functions. I would defer on that, if I may,
20 to Dr. Aaronson. My own position would be that if we're
21 talking about the electromagnetic fields that emanate
22 from a power line, that is are experienced by human
23 beings in their normal lives, I would disagree with that.

24 But under some circumstances electromagnetic fields that

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1 are generated for test purposes, yes, may have some
2 effects, not necessarily malignant transformation.

3 There have been several studies conducted
4 to determine whether exposure to magnetic fields causes
5 diseases in human beings. Yes, of course.

6 There are many unanswered questions raised
7 by the research done so far. I don't know how to respond
8 to that.

9 There have been both positive and negative
10 studies. Yes. And there have been some individual
11 studies that have been both positive and negative.

12 We are not sure if EMF exposure adversely
13 affects human health. I think I've been over this, but
14 I'll simply say that I am about as sure as I can
15 reasonably be that they do not cause cancer in human
16 beings.

17 More extensive studies of EMFs are needed.
18 If the target of the studies is the relationship with
19 malignant disease, I think they are not needed at this
20 time. The events that would cause me to change my answer
21 would be if there were some major breakthrough in our
22 capacity to develop a time weighted average picture of
23 exposure in a human being. But at the present time there
24 has been no major breakthrough in that. We have pretty

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1 good perceptions of peoples' exposure but not excellent.
2 So that is -- that is my series of answers to the series
3 of statements.

4 MR. BLUMENTHAL: If I understand your
5 comment on the last sentence, it is no more extensive
6 studies of EMFs are not needed?

7 DR. COLE: With regard to the question of
8 human malignancy.

9 MR. BLUMENTHAL: And perhaps I could ask,
10 Dr. Aaronson, whether you agree?

11 DR. AARONSON: I think that with respect
12 to the ways that agents have been tested by the major
13 national programs that are responsible in our country for
14 testing potentially dangerous substances, those tests
15 have now been done and they are negative.

16 MR. BLUMENTHAL: But as to the association
17 or correlation between EMFs and -- EMF exposure and
18 health risks, do you agree with Dr. Cole that no more
19 studies are needed?

20 DR. AARONSON: I think the studies that
21 have been done have been really now done pretty well --
22 very well. And I think -- under those circumstances, I
23 think the answer is clear enough to a scientist that they
24 don't pose a health risk with respect to cancer.

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1 MR. BLUMENTHAL: And do you agree with Dr.
2 Cole that -- as to EMF exposure and health risks there is
3 no longer an open question as a practical matter?

4 DR. AARONSON: You know, I think -- you
5 know, when you ask somebody that's a scientist about
6 anything -- you know, we go back to the question -- if I
7 were asked will the sun rise tomorrow, I would say with
8 almost a hundred percent certainty it will, but can I be
9 absolutely certain, I can't.

10 With respect to my evaluation of the
11 literature, with respect to the studies needed to
12 determine whether an agent poses a health risk with
13 respect to cancer, from the perspective of the laboratory
14 studies, of the toxicology studies, my answer is I think
15 those studies have now been done, and the answer is it's
16 negative. So, I think there is no more need for those
17 kinds of studies.

18 MR. BLUMENTHAL: Well, I apologize for
19 then putting it sort of in layman's terms, but I take it
20 from your testimony that you are as sure that there is no
21 need for any further study of health risks resulting from
22 EMF as you are that the sun will rise in the morning?

23 DR. AARONSON: I would not want to be
24 quite as sure as that --

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1 MR. BLUMENTHAL: I wanted to make sure
2 that I gave you the benefit of elaborating --

3 DR. AARONSON: But --

4 CHAIRMAN KATZ: Excuse me. Before you
5 answer, we need a moment.

6 (Pause)

7 CHAIRMAN KATZ: Go ahead.

8 DR. AARONSON: My turn?

9 CHAIRMAN KATZ: Yes. You were telling us
10 if your statements were equivalent to your assurity the
11 sun was going to rise tomorrow.

12 DR. AARONSON: I think that -- we -- we
13 look at data from the perspective of how we normally
14 today assess risks. How we test an agent for whether it
15 is a potential risk to man or woman based on the way we
16 do this in a very organized manner in this country, it's
17 a pretty good system, those tests have now been done.
18 And based on that and based on our knowledge today, I say
19 that I don't see a risk in my judgment with respect to
20 cancer --

21 CHAIRMAN KATZ: Dr. Aaronson --

22 DR. AARONSON: -- for power frequency EMF.

23 CHAIRMAN KATZ: If I can follow-up, you
24 mentioned in a man and a woman. And I'm just wondering

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1 if you feel that enough studies have been doe in
2 relationship to children, or is that --

3 DR. AARONSON: I can give you some
4 examples --

5 CHAIRMAN KATZ: Has that been under-
6 served?

7 DR. AARONSON: Well again, I'm coming at
8 this from the perspective of looking at how agents are
9 tested for potential risks to man, but using animals.
10 And so how do we do that? Well, for example, we can
11 expose -- or people can expose small animals, rodents,
12 rats or mice, for the life span of those animals, for the
13 life span or for a long period of time of the animals
14 that have been bred, you know, in the presence of not
15 only power frequency EMF but magnetic fields at least a
16 thousand times higher than you or I would normally be
17 exposed. The results of those experiments are
18 essentially completely negative in my evaluation of the
19 literature, so that is with respect to developmental
20 abnormalities in such animals that have been bred in the
21 presence of exposure to frequencies -- I'm sorry, to
22 field strengths at least a thousand times higher than
23 what power frequency fields provide to us.

24 CHAIRMAN KATZ: Would it be fair to say

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1 though that are some things that laboratory animals are
2 indicative of the equivalent human condition and there
3 are other things that laboratory animals are not
4 indicative of what would happen to humans?

5 DR. AARONSON: You know, I've thought a
6 lot about that, you know, before coming here, and -- I
7 mean clearly there are things that can be carcinogenic in
8 animals that have not been proven to be carcinogenic in
9 human. A good example, there was a scare about
10 saccharin. Those of us that might have been using it were
11 told that it really wasn't good because some mouse or rat
12 had developed bladder cancer. The levels of saccharin
13 that had been used were so high, that I'm told by experts
14 there was actually crystallization of the material in the
15 bladders of these mice or rats which was really the cause
16 of those particular tumors. There was no evidence from
17 epidemiology that saccharin was a cause of cancer in
18 humans. And eventually, it became no longer on anybody's
19 list.

20 In trying to think about agents that might
21 be cancer producing in humans but would not show up in
22 any of these major testing methods with rodents, I
23 personally don't know of any --

24 CHAIRMAN KATZ: But how do you prove a

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1 negative like that?

2 DR. AARONSON: Well, that's -- I mean that
3 is always an issue. Epidemiology often provides the
4 first potential hint of something. A good example might
5 be something like the vinyl chloride situation where it
6 caused a particular kind of liver cancer in workers that
7 were working in contact. They then did the animal
8 studies and found that it caused cancer. So epidemiology
9 and laboratory sciences really are complimentary. You
10 can learn something that causes you to do more testing,
11 but you need to have some experimental basis for making a
12 conclusion about something being a risk. And in our
13 country that is -- and in other countries as well --
14 that's through really carefully performed laboratory
15 tests using small animals as the tests -- I'll give you
16 one -- if you have time, I'll give you --

17 MR. BLUMENTHAL: Can -- can I ask you a
18 question, Dr. Aaronson --

19 DR. AARONSON: Sure.

20 MR. BLUMENTHAL: Talking about humans and
21 about children, are you aware of the studies that do show
22 a link, an association between certain types of power
23 lines and higher than average rates of leukemia?

24 DR. AARONSON: One thing that I decided to

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1 do when I chose to be a cancer researcher was to talk and
2 learn and be able to provide information about areas that
3 I'm really an expert in. The areas of epidemiology I
4 have never really been a person that felt comfortable in
5 making conclusions from looking at any of that type of
6 information. And I would have to and would be delighted
7 to defer to Dr. Cole on that.

8 MR. BLUMENTHAL: So the answer is no?

9 DR. AARONSON: That I have --

10 MR. BLUMENTHAL: You have -- you are not
11 aware of those studies --

12 DR. AARONSON: I am aware of them --

13 MR. BLUMENTHAL: -- you haven't reviewed
14 the studies that show associations or links between
15 childhood cancer and power lines?

16 DR. AARONSON: I'm certainly aware of the
17 epidemiological studies that you've been talking about.
18 I have not evaluated them because I don't feel competent
19 to be able to do so.

20 MR. BLUMENTHAL: Well, Dr. Cole, are you
21 aware of those studies that show that there are reports
22 of higher than average rates of leukemia on the part of
23 children living near power lines?

24 DR. COLE: Yes.

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1 MR. BLUMENTHAL: And referring you to the
2 document that is in front of you now, the New York State
3 report, Question 5 --

4 DR. COLE: Yes, sir.

5 MR. BLUMENTHAL: -- are you aware of the
6 studies that are referenced in that document? And for
7 the Council, I might just read the relevant sentence; two
8 early studies conducted in Denver suggested a possible
9 association, a follow-up study done in Los Angeles found
10 an association between childhood leukemia and estimated
11 EMF exposure in children's homes. It goes on to say --
12 the next sentence is the risk in all studies was small.
13 Are you aware of those studies?

14 DR. COLE: I am.

15 MR. BLUMENTHAL: And would you agree that
16 those studies do show an association?

17 DR. COLE: No.

18 MR. BLUMENTHAL: You would not agree?

19 DR. COLE: No, I'd like to elaborate on
20 that.

21 MR. BLUMENTHAL: Please do.

22 DR. COLE: It says the two early studies -
23 - firstly, the paragraph begins with the statement over
24 the last several years, but it is then going to take us

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1 back 25 years to the first two studies that were done.
2 The first study done in Denver is the Wertheimer study.
3 The study was -- did not show a small risk, it showed a
4 very large risk. It showed such a large risk --

5 MR. TAIT: Excuse me, doctor, when was
6 that done?

7 DR. COLE: That was 1979, Wertheimer and
8 Leeper. The study showed a risk of three to five-fold
9 increase in risk for all forms, not leukemia, but for all
10 forms including leukemia of childhood cancer. The study
11 was implausible on a number of basis, which I pointed out
12 at that time. I'll tell you what those are if you care
13 to hear it, otherwise I'll go on.

14 A VOICE: We'd love to --

15 MR. TAIT: No, we'd like to hear it.

16 DR. COLE: Okay. The study was improbable
17 for two reasons. Firstly, that it showed such a strong
18 association for every form of cancer that was evaluated.
19 That's most unlikely even at that time to be correct.
20 Secondly, the author claimed that although she gathered
21 her data on 22 separate days, she found a positive
22 relationship in the data gathered on each and every one
23 of those days. Given the magnitude of the association
24 that she found and the size of the study that she

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1 performed, that would have been as a practical matter
2 impossible, statistically most unlikely.

3 The next study was a study that was
4 commissioned by the New York Power Line Commission
5 because of their concerns about the Wertheimer study.
6 It's known as the Savitz Study of 1986. It was an effort
7 to replicate in Denver the Wertheimer study. When it
8 appeared, it was generally stated in the mass media that
9 it did in fact replicate the Wertheimer study. It did
10 not. The associations were much weaker than in the
11 Wertheimer study. The study was much superior to the
12 Wertheimer study and it showed little or no association
13 at all for forms of childhood cancer other than leukemia.

14 It then goes on to say a follow-up study -
15 - this brings us up now to about 1989 or 1990 -- done in
16 Los Angeles, this is the so-called London study, London
17 being the name of the author, found an association
18 between childhood leukemia and estimated EMF exposure in
19 children's homes. That is not correct. There was not an
20 association found. The risk in all studies was small --
21 well, I've already mentioned that in the first study the
22 risk was large and in the second study, the Savitz study,
23 the risk was on the order of two-fold, and in the London
24 study it was about 1.3 as I recall.

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1 So this statement is I suppose something
2 of an effort at generalization, in fact a
3 misrepresentation and failure to point out what is one of
4 the most important things that has gone on in the
5 literature on electromagnetic field exposures and
6 childhood leukemia. And for the reasons that I've
7 already mentioned in epidemiology in general and in this
8 area in particular, it will lead you astray if you focus
9 on individual studies. But if you focus on the pattern
10 and the evolution of findings over the last 25 years, you
11 must necessarily come to the same conclusion that was
12 reached by the two MEDA analyses that were done, and I
13 might add which were done by authors of some of the
14 earlier studies that produced some of those intermediate
15 positive results, and they came to a conclusion that --
16 well, we'll get there, maybe I should continue with the
17 next paragraph here -- it says more recently a study done
18 in Sweden found a possible statistical association --
19 yes, I'm going to agree with that -- a possible
20 statistical association, for people living near large
21 overhead electrical transmission lines. But that study
22 was never confirmed.

23 Another study conducted in Denmark and had
24 a similar exposure, although not a similar design, found

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1 no association. You bet ya', it did not.

2 Other research studies are currently
3 underway. Given that this might have been written three
4 years ago, that statement is true. If it's taken today,
5 I'm aware of only one study that's underway.

6 CHAIRMAN KATZ: Which is?

7 DR. COLE: I really don't know anything
8 about it. I just know that it is going on, I believe in
9 Europe. I'm sorry, I don't have any specifics on it.

10 No laboratory research has been able to
11 confirm a definite link between leukemia and EMFs. Well,
12 I don't like words like definite. They always make it
13 difficult to come up with an affirmative. So let's say
14 no laboratory research has been able to confirm any link
15 between leukemia and EMFs. Agreed.

16 MR. BLUMENTHAL: Let me ask you about
17 another document that I assume you will not challenge as
18 a misrepresentation because the Applicants rely on it,
19 it's the --

20 DR. COLE: Sir, let me just say that that
21 has nothing to do with whether I'll agree with it or not
22 --

23 MR. BLUMENTHAL: Well --

24 DR. COLE: -- let me be clear about that.

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1 MR. BLUMENTHAL: I am -- I am happy to
2 hear that. If I may ask you -- I don't know whether you
3 have a copy of it, but I'm happy to provide one to you,
4 the NIEH report. I understand that acronyms are out the
5 first time they're mentioned, so it's the National
6 Institute of Environmental Health Services Report --

7 DR. COLE: Sir, Sciences -- NIEHS, Health
8 Sciences.

9 MR. BLUMENTHAL: Correct. It's entitled
10 Health Effects from Exposure to Power Line Frequency
11 Electric and Magnetic Fields. Do you have a copy?

12 DR. COLE: Yes, I do.

13 MR. TAIT: Can you reference it for the
14 Council. Is it --

15 CHAIRMAN KATZ: Did we take --

16 MR. TAIT: A page number?

17 CHAIRMAN KATZ: Miss Randell, did we take
18 administrative notice --

19 MR. BLUMENTHAL: Oh, the page number in
20 the application is page 95 of Volume 6.

21 CHAIRMAN KATZ: Thank you.

22 MR. BLUMENTHAL: The quote --

23 DR. COLE: Could you just tell me what
24 page -- oh, this is a different document --

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1 MR. BLUMENTHAL: Well, there are actually
2 two documents, and I'm going to ask you to look at both.
3 One is the Applicants' document, which is 6, and then
4 there's the underlying report which is quoted in the
5 document.

6 DR. COLE: Alright.

7 MR. BLUMENTHAL: I'm asking you to look at
8 the top of the page.

9 DR. COLE: We're on page 95 now --

10 MR. BLUMENTHAL: Page 95 --

11 DR. COLE: -- of the Applicants' document?

12 MR. BLUMENTHAL: Correct.

13 DR. COLE: Okay.

14 MR. BLUMENTHAL: The scientific evidence
15 suggesting that ELF-EMF exposures pose any threat -- any
16 health risk is weak. The strongest evidence for health
17 effects comes from associations observed in human
18 populations with two forms of cancer, childhood leukemia
19 and chronic lymphocytic leukemia in occupationally
20 exposed adults. Now, I'd like to then direct your
21 attention -- as you'll notice there is an ellipsis, the
22 company has omitted the next sentence, but I'd like to
23 refer you to that next sentence in the document itself.
24 And I'm now referring you to double ii, it's entitled

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1 NIEHS Conclusion.

2 DR. COLE: I'll need a moment to find
3 that.

4 MR. BLUMENTHAL: Sure.

5 CHAIRMAN KATZ: And we need a moment to
6 indicate where in the record this full document is. Mr.
7 Wertheimer, do you have that?

8 MR. WERTHEIMER: I -- (indiscernible) --
9 I've got copies --

10 CHAIRMAN KATZ: By the microphone --

11 MR. WERTHEIMER: I've got copies that I
12 can distribute. The study was put in by the Applicants
13 and it was referred to.

14 CHAIRMAN KATZ: Okay.

15 MR. WERTHEIMER: I've got copies here. I
16 -- I presumed that the full document was provided by the
17 Applicants in their application since it was excerpted
18 and referred to. I have copies --

19 CHAIRMAN KATZ: For the Council --

20 MR. WERTHEIMER: -- of the relevant pages
21 for the Council --

22 CHAIRMAN KATZ: Thank you. We'll take
23 those. Mr. Fitzgerald and Miss Randell, do you want to
24 comment if this was part of our application or it was

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1 something administratively noticed?

2 MR. FITZGERALD: Yeah, I -- I don't object
3 to references to it, but I don't -- we didn't include the
4 whole NIEHS report in the application, did we?

5 CHAIRMAN KATZ: I believe the Council took
6 administrative notice of it. Mr. Cunliffe tells me --

7 MR. FITZGERALD: Oh -- oh, yes --

8 CHAIRMAN KATZ: Okay --

9 MR. FITZGERALD: -- yes. We asked that
10 the Council take administrative notice of it, but it's
11 not in the application.

12 CHAIRMAN KATZ: For the record, the
13 Council has taken administrative notice of the full
14 document and we will take Mr. Wertheimer up on his --

15 MR. MARCONI: So these are pages that are
16 not in the application necessarily but may be referenced
17 possibly?

18 MR. TAIT: And --

19 MR. BLUMENTHAL: We're citing --

20 MR. TAIT: But in --

21 MR. BLUMENTHAL: We're citing parts of a
22 document that has been administratively noticed by the
23 Council --

24 MR. TAIT: But that's a bulk file and we

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1 don't have copies of it in our hands --

2 MR. BLUMENTHAL: I see.

3 MR. TAIT: We don't have everything that's
4 in the office. You wouldn't have a place to sit, sir, if
5 --

6 CHAIRMAN KATZ: Okay, so the witness now
7 has the relevant portion before them.

8 DR. COLE: I believe so, Madam --

9 CHAIRMAN KATZ: And Mr. Blumenthal, you're
10 going to read the relevant sentence --

11 MR. BLUMENTHAL: I will read --

12 CHAIRMAN KATZ: -- and we'll go from
13 there.

14 MR. BLUMENTHAL: I will read the relevant
15 sentence that the Applicants omitted from the documents
16 that have been submitted. While support -- while the
17 support from individual studies is weak, the
18 epidemiological studies demonstrate for some methods of
19 measuring exposure a fairly consistent pattern of a small
20 increased risk with increasing exposure that is somewhat
21 weaker for chronic lymphocytic leukemia than for
22 childhood leukemia. There is then the sentence that is
23 quoted in the application, in contrast the mechanistic
24 studies and the animal toxicology literature fail to

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1 demonstrate any consistent pattern. And then there is
2 another ellipsis, and I'm going to read the full quote,
3 "across studies, although sporadic findings of biological
4 effects (including increased cancers in animals) have
5 been reported".

6 Now, first, Dr. Cole, you were not
7 involved in preparing the application, were you?

8 DR. COLE: That is correct.

9 MR. BLUMENTHAL: So you don't know why
10 they omitted certain parts that I have now read to you,
11 do you?

12 DR. COLE: That is correct.

13 MR. BLUMENTHAL: Okay. Do you agree or
14 disagree with what has been read to you?

15 DR. COLE: Again -- and I understand that
16 I -- since I've been given the prerogative in the past of
17 responding to each of a series of statements, I'd like to
18 exercise that right again. And once again, I must begin
19 by pointing out that although --

20 MR. BLUMENTHAL: You don't need my
21 permission by the way, you need the Chair's permission.

22 CHAIRMAN KATZ: Just to make it easier, he
23 read you two separate statements. If you could say yes,
24 I agree and -- and no, I disagree, and go from there.

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1 DR. COLE: Okay. Madam -- may I speak at
2 all to the issue of the dates of these documents?

3 CHAIRMAN KATZ: Yes.

4 DR. COLE: Okay. The Applicants' document
5 implies that the information is current as of 1998 and
6 1999. And the actual base document or source document is
7 in fact dated May 1999. My experience is that with
8 documents of this sort, they are often prepared one to
9 two years before they actually -- and are vetted through
10 various procedures in the government before they come to
11 public attention. I emphasize this business of the dates
12 for reasons that I think have now become evident, that
13 there has been an evolution of the state of knowledge of
14 electromagnetic fields and human cancer, particularly
15 during the 1990's.

16 Now with that statement, I understand that
17 I am being asked to say whether I agree or disagree with
18 each of the two statements that is omitted from the
19 application, is that correct?

20 MR. BLUMENTHAL: Well, some of that --
21 some of what I read to you, and as you note, it's in the
22 document and has not been omitted. The point is that I'm
23 -- I'm asking you not about the selectively edited
24 version that is in the application, Volume 6, page 95,

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1 but about the entire report --

2 DR. COLE: Okay, I --

3 MR. BLUMENTHAL: -- unedited that has been
4 quoted to you.

5 DR. COLE: Okay, I just wanted to be
6 clear. I wasn't sure whether I was being asked about the
7 entire series of statements or the two things that were
8 represented by the ellipses in the application.

9 I won't quote it, I'll just capture the
10 essence of each of the sentences. The evidence
11 suggesting EMF exposures pose any health risk is weak.
12 Yes, of course, I agree with that.

13 The strongest evidence comes from
14 association observed in human populations of two forms of
15 cancer, childhood leukemia and CLL we call it, chronic
16 lymphocytic leukemia in adults. I disagree. The
17 strongest evidence at that time came from brain cancer,
18 it was from brain cancer in adults. The information on
19 childhood cancer has never been strong other than in the
20 first several studies of the 1980's. The information on
21 chronic lymphocytic leukemia or CLL, has never been
22 strong and has never been replicated in more than one or
23 two studies.

24 While the support from individual studies

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1 is weak, the epidemiologic studies demonstrate for some
2 methods of exposure a fairly consistent pattern of small
3 increased risks with increasing exposure that is somewhat
4 -- let me stop at that point. Disagree. That is
5 somewhat weaker for CLL than for childhood leukemia.
6 Agree.

7 It then goes on to studies about animal
8 toxicology and mechanistic studies. And we have Dr.
9 Aaronson here. I will simply say that I disagree with
10 this, but obviously he is more qualified than I am to
11 address those.

12 In short, I am largely in disagreement
13 with this statement.

14 MR. BLUMENTHAL: Let me -- let me refer
15 you then to the next page of the NIEHS study --

16 DR. COLE: That's small Roman iii?

17 MR. BLUMENTHAL: Small Roman iii, correct.
18 And I will read it for the Council. Again, it has been
19 omitted from the Applicants' document, Volume 6 at page
20 95. The NIEHS concludes that ELF-EMF exposure cannot be
21 recognized as entirely safe because of weak scientific
22 evidence that exposure may pose a leukemia hazard. Do
23 you agree or disagree?

24 DR. COLE: I think that that was a

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1 statement which in 1999 I would have agree with. I do
2 not agree with it today. May I suggest that it would be
3 useful to read the next sentence --

4 CHAIRMAN KATZ: Before you do that. Mr.
5 Tait.

6 MR. TAIT: On that first sentence, are you
7 hung up on the entirely safe --

8 DR. COLE: Yes, exactly.

9 MR. TAIT: -- from your prior testimony?

10 DR. COLE: Yes. Yes, sir. I know you
11 don't want to hear about it, but Dr. Aaronson has
12 independently of me conveyed to you the idea that science
13 does not seek assurances and 100 percent guarantees. We
14 seek probabilities of assurance of correctness and
15 probabilities of magnitude of risk. These associations,
16 the EMF/childhood leukemia is highly improbable. And if
17 we are wrong and there is a risk, it is exceedingly
18 small. It is also furthermore restricted to a tiny
19 portion of the population.

20 CHAIRMAN KATZ: Miss Randell, just caution
21 your witnesses not to preface their statements on what we
22 want to hear and don't want to hear.

23 DR. COLE: Sorry. I apologize --

24 MS. RANDELL: (Indiscernible) -- respond

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1 as appears appropriate. And as you can see, the Council
2 will tell you if you've been going on long.

3 DR. COLE: I'm sorry, I was only
4 reflecting my perception that these -- when the argument
5 turns philosophical, it's not of great interests, that's
6 all.

7 MR. TAIT: Well if it can interpret a
8 phrase like this, it's helpful. The entirely safe now is
9 qualified as we understand your qualification. Thank
10 you.

11 DR. COLE: Thank you. I think the next
12 sentence qualifies the one that I was asked to agree with
13 or disagree with and I think it's very informative,
14 particularly considering that it was written five years
15 ago. May I read it?

16 CHAIRMAN KATZ: Yes --

17 MR. BLUMENTHAL: I would be happy to have
18 the witness read it along with the sentence after the
19 next one if you would do so.

20 DR. COLE: So I'll read two sentences now,
21 okay --

22 MR. TAIT: One at a time, sir --
23 (laughter) --

24 MR. BLUMENTHAL: Unless you and Dr.

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1 Aaronson have a duo.

2 DR. COLE: No, we have not spoken about
3 this at all --

4 MR. BLUMENTHAL: And I was being
5 facetious. Please go ahead and read --

6 DR. COLE: It says in our opinion this
7 finding is insufficient to warrant aggressive regulatory
8 concern. This is five years ago. However -- this is his
9 sentence -- however, because virtually everyone in the
10 United States uses electricity and therefore is routinely
11 exposed to ELF-EMF, passive regulatory action is
12 warranted, such as continued -- this is a long sentence -
13 - such as continued emphasis on educating both the public
14 and the regulated community on means aimed at reducing
15 exposure.

16 CHAIRMAN KATZ: Well, isn't that why we're
17 all sitting here. How do you -- what do you think
18 they're trying to say about minimizing exposure?

19 MR. FITZGERALD: Could Dr. Bailey --

20 CHAIRMAN KATZ: Yes --

21 MR. FITZGERALD: -- handle that?

22 DR. BAILEY: I would like to jump in here.
23 I think the point that's being made here is that since
24 everyone is exposed to EMF in their daily life, that we

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1 want to be very sure that even the possibility of the
2 smallest risk is not overlooked. A very tiny risk
3 applied over a very large population of let's say North
4 America or Europe would be a public health consequence
5 even though the risk is so small to any individual or any
6 community that is not something that would necessarily be
7 of concern, but I think what this identifies is if there
8 were a risk, we'd want to know about it. And that's why
9 research is continuing because we want to leave no stone
10 unturned in ascertaining whether or not a risk exists for
11 such ubiquitous exposure.

12 MR. TAIT: You may not have a witness that
13 could describe the difference between aggressive
14 regulatory concern and passive regulatory concern, but
15 I'd be interested at some point to explore that issue.

16 MR. FITZGERALD: Actually, I thought that
17 was Dr. Bailey and that's why --

18 (Multiple voices overlapping,
19 indiscernible)

20 MR. FITZGERALD: -- I asked that he handle
21 the question.

22 MR. TAIT: Maybe he didn't quite get
23 through to me.

24 DR. BAILEY: Okay, what they -- in this

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1 document and other references they have described the
2 differences. Aggressive regulatory action would be --

3 MR. TAIT: Standard setting?

4 DR. BAILEY: Setting standards --

5 MR. TAIT: -- (indiscernible) --

6 DR. BAILEY: -- mandating reductions and
7 exposures, a whole variety of other regulatory
8 possibilities. Passive regulatory action would include
9 providing information, people suggesting that the utility
10 industry continue the practice that they had adopted to
11 minimize exposures to people. And I would point out
12 that, you know, to the extent that there is public
13 concern, I think both government agencies and the
14 utilities have attempted to try and respond to that
15 concern. And you know, one philosophy is providing
16 information to people and the other is if people are
17 concerned, let them select options by which they might be
18 able to reduce their personal exposure. So --

19 MR. TAIT: But some people don't --

20 DR. BAILEY: -- these are not public
21 policies --

22 MR. TAIT: Some people don't have that
23 option, sir. I was wondering what other passive things
24 you might suggest other than education?

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1 DR. BAILEY: Well, I think included in
2 this is -- specifically with regard to utility facilities
3 is -- would be selecting options that would minimize
4 exposures to nearby populations.

5 MR. TAIT: Such as?

6 CHAIRMAN KATZ: Such as?

7 DR. BAILEY: It's not spelled out in any
8 great detail, but that might include making changes to
9 the design of the facilities through things like reverse
10 phasing or the choice of the configuration of the wires
11 to minimize fields of the edge of the right-of-way. It -
12 - there are a variety of actions. It's not clearly
13 spelled out here, but --

14 MR. TAIT: Are there --

15 DR. BAILEY: -- those are the types of
16 things I believe they had in mind.

17 MR. TAIT: Are there any way to shield
18 yourself from this?

19 DR. BAILEY: For magnetic fields there's
20 no practical means of shielding. However, there are
21 design changes that can be made of the facilities that
22 would cause mutual cancellations of the fields from
23 individual conductors.

24 MR. BLUMENTHAL: Dr. Bailey, you -- you

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1 have mentioned a couple of measures, but isn't it fair to
2 say that altering the route might be one way to help
3 protect against the increased risks of EMFs?

4 DR. BAILEY: One of the -- in this
5 particular instance, the --

6 MR. BLUMENTHAL: Well when you say this
7 particular instance --

8 DR. BAILEY: In this -- in this case, this
9 particular line, a selection of a route along an existing
10 right-of-way I think would qualify as one of those ways
11 because the fields from the existing line, as indicated
12 in the report, will be partially cancelled by the fields
13 from the proposed line. So if you look at some of the
14 sections of the right-of-way, you'll find that the fields
15 of the edge of the right-of-way in fact will be lower as
16 a result of the proposed construction rather than higher.

17 MR. BLUMENTHAL: Well, Dr. Bailey,
18 wouldn't one way be to put the line underground?

19 DR. BAILEY: Putting the line underground
20 would not directly block the magnetic field. Placing the
21 conductors closer together would result in lower magnetic
22 fields from mutual cancellation, and that's indicated in
23 the report.

24 MR. BLUMENTHAL: Well, you submitted to my

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1 office -- I'm not sure whether it's part of the record --
2 I believe it is --

3 CHAIRMAN KATZ: Is this a response to AG
4 interrogatories --

5 MR. BLUMENTHAL: Yes.

6 CHAIRMAN KATZ: Yes, it is.

7 MR. BLUMENTHAL: I'm going to direct your
8 attention to that document, Dr. Bailey, which is from
9 you, so no doubt you're familiar with it --

10 MR. WERTHEIMER: AG-14.

11 MR. BLUMENTHAL: AG-14.

12 DR. BAILEY: Yes.

13 MR. BLUMENTHAL: And ask you to look at a
14 number of the locations in the section marked overhead
15 lines. First, No. 7, ballfields on South Cherry Street.

16 DR. BAILEY: Um-hmm.

17 MR. BLUMENTHAL: Looking to the category
18 of proposed magnetic field average load and then to the
19 next peak load --

20 DR. BAILEY: Yes.

21 MR. BLUMENTHAL: -- would you say that
22 those numbers are significantly higher than elsewhere
23 along the line?

24 DR. BAILEY: These locations were not

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1 systematically chosen, so -- to my knowledge --

2 MR. BLUMENTHAL: Well, I'm asking you
3 about the numbers and not how the locations were chosen.

4 DR. BAILEY: But you were applying it
5 along the line. At this location these numbers, these
6 calculated values are indeed higher than what they are at
7 the -- calculated for the existing condition.

8 MR. BLUMENTHAL: So those numbers are not
9 reduced or substantially eliminated by the phenomenon
10 that you've described of the lines canceling --

11 DR. BAILEY: At that -- at that location,
12 correct.

13 MR. BLUMENTHAL: And looking then to Item
14 11, baseball fields at the JCC --

15 DR. BAILEY: Yes.

16 MR. BLUMENTHAL: -- the phenomenon that
17 you've described of the lines canceling each others
18 effects, I won't pretend to try to describe that
19 phenomenon, but that doesn't have any effect there, does
20 it?

21 DR. BAILEY: Well -- well, in fact,
22 whenever you have -- the company has designed these
23 facilities so whenever there are adjacent lines, and this
24 is one of those locations, the design has been chosen to

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1 maximize the mutual cancellation from those facilities.

2 You should also be aware, as I indicated,
3 that there are discussions between the companies and
4 adjacent landowners, and this is one of those locations,
5 to make site specific alterations in design that would
6 further lower the fields at such a location.

7 CHAIRMAN KATZ: Is this part of the
8 record?

9 MR. BLUMENTHAL: I'm not -- it's the first
10 I've --

11 DR. BAILEY: It's referred to in my
12 prefiled testimony. This is --

13 MR. BLUMENTHAL: The discussions? I
14 believe the Chairman's question was about the discussions
15 that are ongoing between --

16 MR. FITZGERALD: I don't -- if I may
17 intervene --

18 CHAIRMAN KATZ: Yeah, can you get closer
19 to the mic, Mr. Fitzgerald.

20 MR. FITZGERALD: No, I don't think there's
21 anything on the record about this, and there probably
22 should not be.

23 CHAIRMAN KATZ: Okay, now you're going to
24 have to elaborate.

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1 DR. BAILEY: I mean --

2 MR. FITZGERALD: Well, I mean --

3 CHAIRMAN KATZ: If the EMF levels could be
4 different --

5 MR. FITZGERALD: Yeah, in terms of -- I
6 think Dr. Bailey -- it would be helpful for him to
7 discuss ways in which EMF can be reduced in practical
8 ways, but I don't -- I think it's probably not fair to
9 get into any discussions that are --

10 CHAIRMAN KATZ: Okay, what I'm going to
11 suggest is in May when we resume this EMF discussion,
12 that perhaps you can tell us more on first general
13 passive ways to reduce or minimize EMF exposure. And
14 perhaps you can tell us something a little more
15 definitive about what's going on.

16 MR. FITZGERALD: Well -- yeah, I think we
17 can tell you in general more definitively things that can
18 be done. And then in terms of specifics, yes, I would
19 hope that by then we could -- maybe there is something in
20 there -- (pause) -- okay -- yes, the -- the -- there's a
21 general statement in Dr. Bailey's prefiled testimony the
22 companies have offered to work with organizations next to
23 the proposed route where large --

24 MR. BLUMENTHAL: Could we have a page

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1 reference?

2 MR. FITZGERALD: Yeah, 7. Page 7, the
3 last bullet point, the answer that continues from the
4 previous page, the companies have offered to work with
5 organizations next to the proposed route where large
6 numbers of children or other special groups might
7 congregate to minimize field levels outside the right-of-
8 way, specifically they are looking for ways to adapt a
9 generic design of the overhead line to a specific site.

10 CHAIRMAN KATZ: Yeah, I'm familiar with
11 that part. It's just I got the impression that some
12 progress had been made and that's what I was --

13 MR. FITZGERALD: Yeah, I -- I'm -- I'm
14 just not sure that things are at a stage --

15 CHAIRMAN KATZ: Okay, we'll have this
16 discussion in May --

17 MR. FITZGERALD: -- or where that is ripe
18 to talk about it.

19 MR. BLUMENTHAL: May --

20 CHAIRMAN KATZ: Yes --

21 MR. BLUMENTHAL: -- may I resume, Madam
22 Chair?

23 CHAIRMAN KATZ: Yes.

24 MR. BLUMENTHAL: Let me direct your

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1 attention then to Item 14 -- and I might as well just do
2 all of them to save time -- Item 14, which is the B'Nai
3 Jacob Congregation basketball court; Item 17, Fred Wolff
4 Park; Item 18, High Plains Community Center in Orange;
5 Item 20, the Eisenhower Park in Milford; Item 22, Christ
6 the Redeemer Church -- at all those locations would you
7 agree the projected magnetic average loads are higher
8 than elsewhere along the line by many multiples in some
9 of those cases?

10 DR. BAILEY: There -- the calculated
11 values are indeed higher than what they are from the
12 proposed facilities. Now one thing you should recognize
13 is that these --

14 MR. FITZGERALD: Excuse me, Dr. Bailey, I
15 think you misspoke --

16 MR. TAIT: Yes. These are the proposed --

17 DR. BAILEY: The proposed are higher than
18 from --

19 MR. TAIT: Existing --

20 DR. BAILEY: -- the existing facilities.
21 I'm sorry. Thank you. What you should recognize,
22 however, that these calculations are based on typical
23 structures across an entire section, which may be miles
24 long, and the route takes particular turns and bends and

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1 so on. So that there may be particular locations where a
2 site specific -- if we know the exact tower location and
3 the alignment of the proposed line on the right-of-way,
4 that these calculated values could differ somewhat. So
5 these are -- these are based upon a kind of generic
6 analysis of that right-of-way section. And then based
7 upon the distance given this table at that location to
8 the right-of-way, a generic estimation of what those
9 average field levels would be from the existing and
10 proposed facilities. So, I think -- I just want to --
11 just caution that we shouldn't give a micro
12 interpretation of this. These field values are the
13 calculated values at the midpoint between towers where
14 the conductors are closest to the ground that would
15 result at the highest values, so --

16 MR. BLUMENTHAL: Well, that -- that method
17 of calculation, Dr. Bailey, was applied to all of these
18 sites, was it not?

19 DR. BAILEY: That's correct.

20 MR. BLUMENTHAL: So the -- the very, very,
21 very significantly higher amounts that are stated for
22 those locations are the result of calculations that were
23 applied using the same methodology for all sites?

24 DR. BAILEY: That's correct.

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1 MR. BLUMENTHAL: Now, I notice the
2 document beginning at Item 23 goes into underground lines
3 and the same numbers there in the equivalent categories
4 are zero or close to zero, are they not?

5 DR. BAILEY: That's correct, because the
6 placement of the underground line will result in elevated
7 magnetic fields directly over the conductors. But as you
8 go further away, certainly 1200 feet away from an
9 overhead line or underground line, you would not see a
10 magnetic field from that source. And a number of these
11 locations of underground are so far that no matter what
12 line was in place, you would not see a magnetic field.
13 But closer to the line there is -- the fields are indeed
14 lower for underground facilities than overhead
15 facilities.

16 MR. BLUMENTHAL: So that --

17 COURT REPORTER: One moment please.

18 (Pause). Thank you.

19 MR. BLUMENTHAL: So that you would agree,
20 would you not, that one of the steps to reduce health
21 risks and exposure to EMFs is to alter the route or
22 location or the configuration insofar as it may be placed
23 underground?

24 DR. BAILEY: I would only agree with the

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1 part of the statement that has to do with reducing
2 magnetic fields. I would disagree that that would -- the
3 implication that that would in turn reduce a health risk.

4 MR. BLUMENTHAL: So you're -- you're going
5 to join Dr. Cole at least that there is no open question
6 as to whether or not health risks are associated with EMF
7 exposure?

8 DR. BAILEY: If -- in my mind you're
9 asking whether I believe that there is a health risk from
10 magnetic fields at these exposures, at these levels I do
11 not.

12 MR. BLUMENTHAL: And you would then
13 disagree with the Connecticut Department of Health which
14 says that there is an open question?

15 DR. BAILEY: The state agencies are
16 required to respond to a variety of health concerns. It
17 is -- it is their job to determine whether the results of
18 scientific research are sufficient to take action on any
19 one of a variety of topics. Most state health agencies
20 will have on their websites dozens and dozens of topics
21 that might be of concern to people and they will give
22 their commentary on that; or in some cases if they
23 believe there's a risk, specific recommendations about
24 reducing their exposures, reducing the amount of intake

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1 of mercury or avoiding lead paint. And I don't see that
2 for EMF the Connecticut Department of Health has taken a
3 position that would indicate that they have concluded
4 that EMF is a cause of health risks and that they are
5 recommending as public policy that something be actively
6 done about this.

7 MR. ASHTON: Dr. Bailey, I think that
8 Attorney General Blumenthal asked a question to which a
9 yes or no answer is quite amenable, and then the answer
10 could be followed up by all sorts of qualifications you
11 care to make on it, but it would help to provide I think
12 a good response to the question.

13 DR. BAILEY: Thank you for that.

14 MR. BLUMENTHAL: You know, the Connecticut
15 Department of Health document will speak for itself, but
16 just so you understand, you may not have it in front of
17 you, the document says, and I'm quoting, "the health risk
18 caused by EMF exposure remains an open question". Will
19 you agree or disagree with that statement?

20 DR. BAILEY: Well, I think we're getting
21 into perhaps philosophy again. Anytime that a question
22 is raised about any exposure, one could assert the
23 hypothesis that there's a health risk associated with it
24 --

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1 CHAIRMAN KATZ: Dr. Bailey, I'm just going
2 to stop you. Mr. Ashton asked you to just sort of start
3 with a yes or no and then go from there, and I'm going to
4 ask that you try to do that.

5 DR. BAILEY: Okay. I do not believe that
6 the health risks caused by EMF exposure remains an open
7 question is a full and complete accurate characterization
8 of the state of the science.

9 MR. BLUMENTHAL: So the answer is you do
10 disagree with it?

11 DR. BAILEY: And I believe that a more
12 complete answer would address the question what does
13 health risk mean. Any -- and I'm trying to explain --
14 that anytime that a question is raised about an exposure,
15 there is a question of a potential health risk, and the
16 question is whether the degree of evidence that we have
17 in favor of that hypothesis or not is something that we
18 choose to may attention to or take action on.

19 MR. BLUMENTHAL: Dr. Bailey, let me direct
20 your attention to the New York State document and
21 specifically the end of the document under Question 27,
22 what research is currently underway, worldwide there are
23 more than 230 research projects underway, including
24 epidemiological studies, laboratory studies on biological

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1 effects, and exposure and measurement studies. Are you
2 aware of those studies?

3 DR. BAILEY: I can't say that off the top
4 of my head I'm aware of 230 research projects, but it
5 doesn't surprise me that -- that sounds like a number
6 that might be correct. In terms of epidemiology, there -
7 - as Dr. Cole testimony, I think there is just one or
8 two. There are many more laboratory studies that have
9 been involved in terms of looking at biological effects
10 of magnetic fields. And I would point out that many of
11 these studies are underway because people are looking for
12 potential therapeutic applications --

13 MR. BLUMENTHAL: So is the answer that you
14 are aware of them or not?

15 DR. BAILEY: I am aware of this magnitude
16 of research going on around the world, yes.

17 MR. BLUMENTHAL: And the reason for that
18 research is that the health effects of EMF exposure is
19 still an open question. Isn't that fair to say?

20 DR. BAILEY: The reasons why --

21 MR. BLUMENTHAL: Well yes or no?

22 DR. BAILEY: I do not believe that this
23 research is going on just because there is an open
24 question about health effects from EMF.

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1 MR. BLUMENTHAL: Why would it be going on?

2 DR. BAILEY: As I mentioned before, some
3 of this research is questions that have been raised in
4 the past, allegations in some case going back decades,
5 people have a particular expertise to bear and they may
6 go back to try and reexamine a topic or to try and
7 attempt to replicate a study. There are studies that are
8 ongoing that are actively trying to use magnetic fields
9 for a variety of therapeutic purposes. And so there are
10 many reasons why research may be ongoing, but it's not
11 necessarily because there is a pressing public health
12 question before us.

13 MR. BLUMENTHAL: But in this context the
14 reference to these studies is in regard to health risks,
15 is it not?

16 DR. BAILEY: In this question, yes. And
17 as I --

18 MR. BLUMENTHAL: Okay. Dr. Cole, are you
19 -- are you aware of these 230 plus studies?

20 DR. COLE: No, I'm not.

21 MR. BLUMENTHAL: You're not aware of these
22 studies?

23 DR. COLE: I am not aware of any but one
24 epidemiologic study.

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1 MR. BLUMENTHAL: Dr. Aaronson, are you
2 aware of these studies?

3 DR. AARONSON: Are you referring to
4 ongoing studies today that have not been published? I --
5 I would have no knowledge of that. I have knowledge of
6 what's been published --

7 COURT REPORTER: Doctor, speak into a
8 microphone please.

9 DR. AARONSON: Oh. I have knowledge of
10 what's been published.

11 MR. BLUMENTHAL: But you have no -- you
12 have no knowledge of ongoing studies that may indicate
13 that the health risks of EMF exposure continue to be an
14 open question?

15 DR. AARONSON: I do not know of that -- I
16 know that there was 41 million dollars spent by the
17 government on peer review research, that means research
18 of a quality that was selected by peers, that's the best
19 way to do research, that gave a tremendous amount of data
20 of the type that I've just described. And most of those
21 studies have now been completed to the best of my
22 knowledge. I do not know that there is ongoing new
23 funding to continue to investigate this question.

24 DR. BAILEY: Mr. Blumenthal --

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1 MR. BLUMENTHAL: So I think the answer to
2 your question is you're not aware of these studies?

3 DR. BAILEY: Mr. Blumenthal, I think I can
4 clarify this point. And as I mentioned before, and the
5 other witness to eluded to it also, science cannot prove
6 the negative, we can't prove the absence of something.
7 And the way that we determine our beliefs about any
8 particular area is through repeated testing. And so the
9 hypothesis having been raised decades ago about potential
10 health risks from exposure to EMF, the way that we assure
11 ourselves that in fact we haven't overlooked a risk,
12 should one exist, is by repeated testing of that
13 hypothesis. And so this testing is going on by
14 laboratories to see -- I have a particular idea, maybe
15 someone else hasn't tested it using the methods I've
16 proposed, and so I'll try my methods. And it's just
17 repeated testing and failing to find support for the
18 hypothesis that convinces us as to whether there is a
19 health risk or not --

20 CHAIRMAN KATZ: Mr. Tait --

21 DR. BAILEY: -- so, I would say --

22 CHAIRMAN KATZ: -- oh --

23 DR. BAILEY: -- that this is repeated
24 testing, which is what we're seeing in this research.

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1 MR. TAIT: What document are you asking
2 him to refer to, the New York State or the Connecticut
3 one?

4 MR. BLUMENTHAL: The New York State.

5 MR. TAIT: Now this is just for
6 identification. Are you going to put evidence in that
7 these studies exist?

8 MR. BLUMENTHAL: Well, we --

9 MR. TAIT: You know the old --

10 MR. BLUMENTHAL: We --

11 MR. TAIT: -- Perry Mason --

12 MR. BLUMENTHAL: We may --

13 MR. TAIT: -- ask a question and --

14 MR. BLUMENTHAL: I am asking and I think I
15 have gone as far as I need to to establish that these
16 witnesses are not aware of ongoing research that
17 addresses what we believe --

18 MR. TAIT: Well, we --

19 MR. BLUMENTHAL: -- to be open questions
20 relating to health effects from EFF -- EMF --

21 MR. TAIT: We would be interested if there
22 are such studies. And you're inferring that there are?

23 MR. BLUMENTHAL: Well, the New York State
24 document provides a basis -- I don't want to get into the

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1 --

2 MR. TAIT: I don't either.

3 MR. BLUMENTHAL: The New York State
4 document refers to --

5 MR. TAIT: I guess we're interested if
6 there are these studies and are they going to be
7 forthcoming or are you just raising the question?

8 MR. BLUMENTHAL: We can make as many
9 available as we can access --

10 MR. TAIT: That these gentlemen are not
11 aware of?

12 MR. BLUMENTHAL: That they may not be
13 aware of, yes.

14 CHAIRMAN KATZ: Well --

15 MR. BLUMENTHAL: -- I can't -- I can't
16 vouch for whether they're completed or not or will be in
17 the time that the Council has --

18 MR. TAIT: No, but we would be interested
19 to their existence --

20 MR. BLUMENTHAL: We will certainly make
21 that information available --

22 MR. TAIT: Thank you --

23 MR. BLUMENTHAL: -- these witnesses
24 evidently are unaware of ongoing research in this area.

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1 CHAIRMAN KATZ: And --

2 MR. TAIT: And I assume you would make it
3 available in time for them to look at it so when we have
4 them back again, they can respond to it.

5 CHAIRMAN KATZ: Exactly. Before --

6 MR. BLUMENTHAL: We'll do our best.

7 MR. TAIT: Thank you.

8 CHAIRMAN KATZ: Before the May
9 continuation, I would like to have the expert witnesses
10 make themselves aware of what the ongoing research is and
11 whether it's relevant to this docket. Mr. Fitzgerald and
12 Miss Randell, is that possible?

13 MR. FITZGERALD: I don't know. I'd have
14 to -- I mean I just don't know enough about it. I'd have
15 to talk to them. Because how do you know -- is there a
16 way to know what people are doing that hasn't been
17 published.

18 MR. TAIT: Dr. Cole has a comment.

19 DR. COLE: If I may. I don't know where
20 this number 230 came from. When I responded to Mr.
21 Blumenthal's question, I was responding to the number
22 230, that is that I know that there are 230. No, I do
23 not know that there 230. I do not know that there ever
24 were 230 or that there ever will be. Furthermore, I do

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1 not know how they would know. There is no one place,
2 there is no collection of places that you can go to other
3 than to write to every scientist in the world who might
4 be doing such research. I don't doubt that the New York
5 State author of this document has some basis for that
6 statement, but it certainly escapes me what that basis
7 would be. And I would be delighted to learn what those
8 230 studies are. And if you ask me to by some date come
9 to you and say I know that there are so many studies
10 going on or I do not know, I don't know how to meet that
11 request without undertaking a massive effort that is to
12 very little avail --

13 CHAIRMAN KATZ: But --

14 DR. COLE: -- no doubt there are some
15 studies going on somewhere.

16 CHAIRMAN KATZ: And I -- and I think
17 you're correct that it's a comprehensive thing, but there
18 are the usual suspects when you're vetting out new
19 research prior to it being published where -- and that
20 people who will -- things will get passed around for peer
21 review and I would think that that would be a fairly
22 limited audience and that -- I'm asking for some effort -
23 -

24 MR. FITZGERALD: Well, I think one thing

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1 that could be done is we could endeavor to locate the
2 person --

3 MR. TAIT: That's what I'm suggesting. I
4 thought the Attorney General was offering to do, was to
5 identify those studies that have been referenced in the
6 New York State report --

7 MR. BLUMENTHAL: We have very good
8 contacts in New York, particularly in the Attorney
9 General's Office there -- (laughter) -- we deal with them
10 regularly, and we can certainly make inquiries. But I --
11 I want to point out that this -- these witnesses have
12 challenged some of the statements made here on the
13 grounds that they're not current --

14 CHAIRMAN KATZ: Right --

15 MR. BLUMENTHAL: -- and now they're saying
16 they're not aware of what is current.

17 MR. TAIT: We want to know what is
18 current.

19 CHAIRMAN KATZ: Right.

20 DR. BAILEY: Could I also -- and we don't
21 even know when that statement was made.

22 CHAIRMAN KATZ: But you witnesses have
23 opened the door that dates are particularly relevant when
24 talking about research. Okay that door is open now and

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1 you've got to walk all the way through. If there is more
2 recent research that is relevant to this docket, then I
3 think we need to know that.

4 MS. RANDELL: I think we do hear you and
5 the witnesses hear you and we will in some way respond.

6 CHAIRMAN KATZ: Thank you.

7 MR. TAIT: But I think the ball is in the
8 Attorney General's court having identified a number and a
9 source that -- to at least get the ball going, give it --
10 give it a whack.

11 MR. BLUMENTHAL: We will indeed. Thank
12 you.

13 MS. RANDELL: And we would then ask that
14 Mr. Wertheimer provide us the information in a timely
15 fashion so that the witness panel can address the
16 Council's questions in May.

17 CHAIRMAN KATZ: With sufficient copies.
18 And you did get the three hole punch thing the other day.
19 Okay, where are we?

20 MR. LYNCH: Madam Chairman --

21 CHAIRMAN KATZ: Yes, Mr. Lynch.

22 MR. LYNCH: Just one follow-up to the
23 studies. Dr. Bailey represented that there are
24 therapeutic effects being studied for magnetic fields.

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1 And I'm assuming those are positive effects from magnetic
2 fields. If any of those studies would be available, I'd
3 like to have those part of the research for the next
4 time.

5 DR. BAILEY: Those -- those studies are --
6 have been published over the last 20 years on those
7 effects and I'm sure that the research in this area is
8 still ongoing.

9 MR. FITZGERALD: But -- but just so we
10 don't go chasing -- I don't -- nobody claims that those
11 studies provide a basis for concluding that power lines
12 are good for you. It's a -- it's a different application
13 --

14 CHAIRMAN KATZ: It's a different type of
15 EMF and a different --

16 MR. FITZGERALD: Yeah.

17 CHAIRMAN KATZ: Okay.

18 MR. LYNCH: But I think both should be
19 looked at.

20 CHAIRMAN KATZ: Mr. Blumenthal, we
21 normally recess in about 15 minutes. Can you just sort
22 of give us an idea of where you are and we'll work
23 accordingly.

24 MR. BLUMENTHAL: Well, I'm -- I'm actually

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1 in my own mind trying to decide, because if -- there are
2 a bunch of other materials and studies that are referred
3 to in the documents that I was going to use, but if we're
4 going to continue with these witnesses in May and we're
5 going to do it with updated studies, I'm wondering
6 whether I should take the Council's time now with the
7 cross-examination --

8 CHAIRMAN KATZ: Well, we -- as Council
9 members we love to have the material in front of us
10 before it's cross-examined. So if you have cross-
11 examination you can do that does not require these
12 documents which are not before us, do you want to do that
13 now, and then we'll invite you back in May, and --

14 MR. FITZGERALD: Well --

15 MR. BLUMENTHAL: Thank you, I'd be happy
16 to do that.

17 CHAIRMAN KATZ: Mr. Fitzgerald, you want
18 to be heard?

19 MR. FITZGERALD: Yes, I do. I -- I don't
20 think it's a foregone conclusion that these witnesses are
21 going to be back in May to provide further information
22 about the answer to this question because I have to take
23 into account the possibility that it's going to turn out
24 that that question just wasn't changed since the EMF --

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1 since the Federal Government's program, the 40-million
2 dollar program for investing EMF was ongoing and the
3 money having now been spent, this is stale information
4 and there aren't 230 studies. I don't know, but I think
5 that's within the universe of possibilities, that it's
6 going to turn out that the New York power lines people --
7 or the New York Health Department people will say, oh,
8 well gee, actually that's a stale statement. In which
9 case, it may not be necessary to bring these people back
10 for that reason.

11 CHAIRMAN KATZ: Well, they are going to be
12 back.

13 MR. FITZGERALD: If there's some reason --

14 CHAIRMAN KATZ: That's a statement, that's
15 not a question.

16 MS. RANDELL: We heard that. My concern
17 about moving this along however is --

18 AUDIO TECHNICIAN: Could you grab a mic --

19 MS. RANDELL: Certainly. Sorry, guys. If
20 the Attorney General has more, you know, documentary
21 material, perhaps it would just facilitate the
22 proceedings if he, you know --

23 CHAIRMAN KATZ: Yes, that's what we're
24 asking --

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1 MS. RANDELL: -- provided it to the
2 witnesses beforehand --

3 CHAIRMAN KATZ: Right --

4 MS. RANDELL: -- and I think that's where
5 you were going --

6 CHAIRMAN KATZ: Yes --

7 MS. RANDELL: -- and I definitely concur
8 with that.

9 CHAIRMAN KATZ: Yes. I think we need to
10 have these documents given to you people with sufficient
11 time that you can look at them and -- but -- why don't we
12 back up a step -- was there any question on whether this
13 panel was not going to be available in May?

14 MR. FITZGERALD: In my mind, I kind of
15 played with the possibility that the questions that
16 people had of them could be exhausted in a day, yes. And
17 I still don't know that that's not the case.

18 CHAIRMAN KATZ: I guess --

19 MS. RANDELL: My understanding, Chairman
20 Katz, from the prehearing conference was that we would
21 continue today for a full day, and that if new issues
22 came up, we would endeavor to bring the panel back just
23 so that the Council members were sure that all their
24 questions were answered.

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1 CHAIRMAN KATZ: This is I guess the way I
2 had visualized it, is that we are going to be hearing
3 from other people on the EMF issues and then we were
4 going to come back -- which are going to provide
5 questions in our mind -- and then we were going to come
6 back with fresh questions based on the new information to
7 your panel.

8 MS. RANDELL: That was my understanding.

9 MR. FITZGERALD: Alright. So -- well as
10 usual Miss Randell is ahead of me -- (laughter) --
11 because that was not my understanding.

12 MR. TAIT: I guess I would find it helpful
13 if the Attorney General would continue today to raise
14 these things that we need to explore and not just bring
15 them out two months from now and have to go through this
16 all over again. So please do go forward and if we
17 identify documents we don't have copies of, we'll
18 identify them today and get them produced. Let's do as
19 much as we can --

20 MR. BLUMENTHAL: I'm happy to do so --

21 MR. TAIT: And your time is valuable I
22 know, so you're here and --

23 MR. BLUMENTHAL: Thank you --

24 CHAIRMAN KATZ: So we are going to proceed

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1 with cross-examination on questions that do not -- are
2 based on documents that are not before us at this time.

3 MR. TAIT: But I want them identified --

4 CHAIRMAN KATZ: But identified so that --

5 MR. TAIT: -- so that they can be produced
6 at an appropriate time.

7 MR. BLUMENTHAL: Well, let me -- since
8 part of what we're going to do -- or I hope we're going
9 to do in May is make reference to additional studies that
10 the witnesses may not have reviewed -- there may not be
11 230 of them, there may be only 220, there may be only
12 110, there may be only 50, but I think that the latest
13 information, which evidently these witnesses do not now
14 have, should be made available to --

15 DR. COLE: That's not true -- that's not
16 true --

17 MR. FITZGERALD: I have to object to that.
18 To say that they don't have the latest information
19 because there's a study that hasn't been published is
20 simply a mischaracterization.

21 MR. TAIT: This is only an exhibit for
22 identification. We're getting too far into the merits of
23 it --

24 CHAIRMAN KATZ: Right --

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1 MR. BLUMENTHAL: Let me --

2 MR. TAIT: Ask a question -- they've said
3 they aren't aware of a statement in a document.

4 CHAIRMAN KATZ: I don't -- let's not waste
5 time characterizing that, let's just move on.

6 MR. BLUMENTHAL: Let me -- let me make
7 reference, Dr. Cole, to a document that is in the record
8 -- as a matter of fact, it's the prefiled testimony of
9 Dr. Leonard Bell, Dr. Peter Rabinowitz, Dr. Carl Baum,
10 Dr. Alan Gerber, Dr. David Carpenter --

11 CHAIRMAN KATZ: This has not yet been
12 verified, so it's for identification purposes only.

13 MR. BLUMENTHAL: That's correct, thank
14 you. Do you have a copy of that document? It's dated
15 March 16, 2004.

16 DR. COLE: I might have it -- no, I don't
17 have it -- but now I'm going to get it -- (pause) -- I
18 have it in front of me -- I have it in front of me now,
19 yes.

20 MR. BLUMENTHAL: If I may refer you to the
21 top of page 6. I'll read it for the Council.

22 DR. COLE: Yes, sir.

23 MR. BLUMENTHAL: Our conclusion is that
24 there is a strong positive relationship between EMF from

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1 power lines and childhood leukemia. This relationship is
2 not due to chance and that the operation of the proposed
3 overhead high voltage power lines would be expected to
4 pose a long-term health hazard, particularly to exposed
5 children. As a result, it is prudent public health
6 policy to reduce exposure of people, particularly
7 children, to EMF exposure from high voltage lines.

8 Now, do you agree or disagree with that
9 statement?

10 DR. COLE: It's actually a series of
11 statements, so let's take them, if we may, one by one.
12 There is a strong positive relationship between EMF and
13 power lines and childhood leukemia. There's absolutely
14 no basis whatsoever for that statement. The MEDA
15 analyses which have been done have shown that there is a
16 weak inconsistent relationship at best.

17 This relationship is not due to chance.
18 It may very well be due to chance. It is due to chance
19 or at least consistent with a chance basis in the
20 Greenland MEDA analysis. In the Ahlbom MEDA analysis
21 they say that the residual effect, which was seen at the
22 highest exposure level only and which was even then
23 small, could be due to selection bias. They do not say
24 whether or not if the selection bias were to be

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1 corrected, the remaining or the so-called residual
2 association would or would not be due to chance. So this
3 statement which implies that they know it is not due to
4 chance, is not accurate.

5 The operation of the proposed voltage --
6 high voltage power lines would be expected to pose a
7 long-term health hazard, particularly to children. I
8 think it's an indefensible statement --

9 MR. BLUMENTHAL: Indefensible?

10 DR. COLE: Yes. There is no basis for
11 defending it, that is there is not an evidentiary basis
12 in epidemiologic research, animal research, cellular
13 research, or in theory for it.

14 As a result it is prudent public health
15 policy. I quit, I don't comment on what is prudent and
16 not prudent public health policy. There's a gentleman
17 seated to my immediate right who addresses such issues, I
18 do not. I'm not a public health practitioner.

19 MR. BLUMENTHAL: So let me ask the
20 question differently. Is there anything in that
21 paragraph with which you agree?

22 DR. COLE: I would agree that it may be
23 their conclusion. I'm not sure who they are, but whoever
24 wrote --

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1 MR. BLUMENTHAL: You don't know any of
2 these individuals?

3 DR. COLE: Well, I -- I do know some of
4 them. I meant I didn't know the antecedent of the
5 pronoun our specifically in that statement --

6 MR. BLUMENTHAL: And -- and would you
7 agree with me that they are well respected in the fields
8 of public health and epidemiology --

9 DR. COLE: I --

10 MR. BLUMENTHAL: -- in the fields of
11 expertise that are listed in this document?

12 DR. COLE: I don't comment on individuals.
13 I'm here to tell you about the causes of cancer in human
14 beings, what I believe and why I believe it --

15 MR. BLUMENTHAL: Dr. Aaronson --

16 DR. COLE: -- and that's all I can tell
17 you about --

18 MR. BLUMENTHAL: -- let me ask you then,
19 sir, if I may, is there anything in that paragraph with
20 which you agree?

21 DR. AARONSON: I'm still trying to find
22 that paragraph.

23 MR. LYNCH: It starts on page 5.

24 MR. ASHTON: The bottom of page 5.

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1 DR. AARONSON: My copies are not paged the
2 same way. Well, again where there's a relationship and
3 there is only -- the only thing that this discusses
4 relates to epidemiological studies, which again I
5 apologize but I am not an epidemiologist, so I have to
6 defer to Dr. Cole. Based on any of the animals studies
7 however, and that includes a lot of studies actually
8 where they have looked for evidence that frequency -- at
9 the power frequency level cause any detectable increase
10 in leukemias in rodents have been uniformly negative.
11 And they've done some really elegant studies that I could
12 give you more information on if you were interested.

13 MR. BLUMENTHAL: These are studies on
14 animals?

15 DR. AARONSON: On animals.

16 MR. BLUMENTHAL: Okay. But do you agree
17 with anything in that paragraph?

18 DR. AARONSON: Based on the studies of
19 animals and the way our country tests for agents that
20 have a suspect relationship to cancer, I wouldn't agree
21 with it. Based on studies in epidemiology, I would defer
22 to Dr. Cole.

23 MR. BLUMENTHAL: Okay. Let me ask Dr.
24 Bailey since Dr. Cole has deferred to you, if I may ask

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1 you about the last sentence in that paragraph, and I'll
2 just read it for you, as a result it is prudent public
3 health policy to reduce exposure of people, particularly
4 children to EMF exposure from high voltage lines. Do you
5 agree or disagree?

6 DR. BAILEY: I would disagree with that
7 statement, but I'd like to clarify that because it's not
8 clear what the word prudent refers to. If we're talking
9 about a public health -- an acknowledged public health
10 risk, then I think this statement is -- the reason is
11 clearly wrong. It's clear however from this proceeding
12 and other proceedings that there are people who are
13 concerned about EMF and I think that when people are
14 concerned, that one of the jobs that public health
15 agencies have to do is to provide people with information
16 about their concerns. And that it would be appropriate
17 if people are concerned and if they would like to have
18 the EMF levels reduced in their homes or from facilities
19 that are built, that if that can be done at low or
20 reasonable costs, even though we don't believe that there
21 is a health risk, why not do that as a public
22 accommodation.

23 CHAIRMAN KATZ: Mr. Blumenthal, is this a
24 good time to take a break in your cross-examination for

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1 lunch, or would you like another question before the
2 break?

3 MR. BLUMENTHAL: I might have just a few
4 more questions if I may --

5 CHAIRMAN KATZ: Okay, go ahead.

6 MR. BLUMENTHAL: Thank you, Madam Chair.
7 So essentially, your -- your statement is that simply
8 because the public has unjustified apprehensions about
9 the health effects of EMF exposure, that measures should
10 be taken?

11 DR. BAILEY: I think that's one very
12 strong basis for the types of recommendations that have
13 come out in terms of reducing exposures. The other
14 possibility is on some -- if there were some theoretical
15 risk, if the -- at low or no cost we were to reduce
16 people's exposures and a hundred years from now we were
17 to find out something which is beyond the can of current
18 science, then, you know, you would argue that that was a
19 reasonable thing to do.

20 MR. BLUMENTHAL: Do you -- are you
21 familiar with the term prudent avoidance?

22 DR. BAILEY: Yes, I am.

23 MR. BLUMENTHAL: Would you tell the
24 Council your understanding of it -- of the term?

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1 DR. BAILEY: Prudent avoidance was a
2 concept that was coined by Granger Morgan many years ago.
3 And he developed this to explain what should public
4 policy be in a situation like in the case of EMF. And
5 his argument was that you wouldn't want to spend more
6 money to avoid a speculative risk than to avoid a known
7 risk. And he gave an example for EMF, that the word
8 prudence refers not towards health risks but has
9 prudences in terms of fiscal expenditures. So he said,
10 you know, if people are concerned about EMF, they can do
11 things like move the clock from their bedside table to
12 the other side of the room. This is something that does
13 not require any cost or inconvenience to them. And if --
14 that may be an appropriate response, but if -- prudent
15 avoidance would not be under-grounding transmission lines
16 or retrofitting transmission lines to reduce exposures,
17 because he had put together some arguments that those
18 kinds of expenditures would be inappropriate given the
19 speculative nature of the concerns about potential health
20 risks from EMF.

21 MR. BLUMENTHAL: Well, would -- would
22 prudent avoidance in this case regarding this application
23 be to site the power lines in a manner that reduces risk
24 to the extent possible?

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1 DR. BAILEY: I don't know that there's a
2 risk from siting the power lines as they've been
3 proposed, but I would say that the company has described
4 how they have followed EMF best management practices.
5 And one of those practices includes ways to minimize
6 potential exposure to electric and magnetic fields, and -
7 -

8 MR. BLUMENTHAL: Well in this instance
9 it's difficult for parents or children to mitigate risks
10 because they can't simply take their kids out of school.
11 So prudent avoidance would be an obligation of the
12 company, wouldn't it, to reduce those risks?

13 DR. BAILEY: Again, I would disagree with
14 the term risk. We are talking about -- I think the
15 company in the general development of this project has
16 sought to minimize magnetic field exposures, and as I
17 described in my prefiled testimony, has undertaken to
18 study ways to -- at specific locations to further reduce
19 magnetic field exposures.

20 MR. ASHTON: Would best management
21 practices constitute prudent avoidance?

22 DR. BAILEY: I would --

23 MR. ASHTON: In general.

24 DR. BAILEY: In general, yes.

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1 MR. TAIT: I'm back to this passive versus
2 aggressive. Are you making that distinction again, that
3 prudent avoidance means do these things such as education
4 but nothing drastic -- not drastic -- aggressive,
5 whatever that means.

6 DR. BAILEY: Right. I think that was from
7 a regulatory perspective.

8 MR. TAIT: Yes. Would you comment on that
9 distinction?

10 DR. BAILEY: Are you asking whether or not
11 EMF best management practices -- or prudent avoidances
12 are aggressive or passive regulatory actions?

13 MR. TAIT: Would you recommend in this
14 field, as I understand you did, passive -- only passive
15 measures and not aggressive measures because of your view
16 of the risk?

17 DR. BAILEY: I am unaware of what
18 scientific justification could be proposed for an
19 aggressive regulatory approach to EMF. And I believe
20 that the EMF best management practices and the general
21 recommendations of NIHS if it's possible to reduce
22 potential exposures at lower and no cost, why not do that
23 --

24 MR. TAIT: Well the word --

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1 DR. BAILEY: -- irrespective --

2 MR. TAIT: The word possible confuses me.

3 Anything is possible. The question is -- you're putting
4 an economic factor in there, am I correct?

5 DR. BAILEY: Yes.

6 MR. GERALD J. HEFFERNAN: (Indiscernible)
7 -- if it costs a lot of money, there's no need to do it,
8 if it doesn't cost anything, why not do it?

9 DR. BAILEY: Yeah -- in simple terms, yes.

10 MR. HEFFERNAN: Okay.

11 MR. TAIT: We're simple.

12 MR. BLUMENTHAL: I -- I have just a couple
13 of more questions and then I'll be done, thank you, Madam
14 Chair.

15 Let me ask, Dr. Cole, as a practical
16 matter, do you regard the health risks of smoking as an
17 open question?

18 DR. COLE: There are a couple of questions
19 that are open, but there are many more that are closed --

20 MR. BLUMENTHAL: And --

21 DR. COLE: -- of course the public health
22 issues of smoking are -- there are many.

23 MR. BLUMENTHAL: At what point did you
24 conclude that those questions were closed?

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1 DR. COLE: Which question is that?

2 MR. BLUMENTHAL: Well -- I'm sorry, I --

3 CHAIRMAN KATZ: Aren't we sort of
4 wandering a little.

5 MR. BLUMENTHAL: Yeah. I'll save this
6 line of questioning for a different time. Thank you.

7 CHAIRMAN KATZ: Okay.

8 MR. BLUMENTHAL: Thank you.

9 CHAIRMAN KATZ: We are in recess until
10 1:00 o'clock.

11 (Whereupon, a luncheon recess was taken.)

12 CHAIRMAN KATZ: We are now back in
13 session, continuation. And Mr. Fitzgerald, I'll call on
14 you for having your witness make a clarifying statement.

15 MR. FITZGERALD: Thank you. Dr. Bailey,
16 referring to Attorney General Exhibit 1, the printout
17 from the New York State Power Line Project's website and
18 referring you to Question 28, what is being done to
19 follow up on the New York State Power Line Project
20 panel's recommendations, there is -- don't read the whole
21 answer, but there is a statement there beginning with in
22 1992. Would you -- since the Council don't have copies,
23 would you please just publish that statement to them?

24 DR. BAILEY: Yes. It states in 1992

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1 Congress passed legislation setting up and funding a 65-
2 million dollar national five-year EMF research program
3 directed by the Federal Department of Energy and the
4 National Institute of Environmental Health Sciences,
5 state health and regulatory officials, including a
6 representative from the New York State Department of
7 Health will serve on the program's advisory committee.
8 At least half of the funding for this research program is
9 to come from non-federal sources, including electric
10 utilities, producers of electrical equipment and others.

11 MR. FITZGERALD: What conclusion did you
12 reach from reading that statement as to at least the date
13 of -- this part of the website had been written?

14 DR. BAILEY: It appeared from the
15 statement that I just read they're making reference to
16 the future, that the National Research Program had not
17 yet begun. And so therefore it implies that the date
18 that this was written was perhaps in 1992 or perhaps as
19 late as early 1993.

20 MR. FITZGERALD: And did that National
21 Research Program go forward?

22 DR. BAILEY: Yes, it did.

23 MR. FITZGERALD: And when was it
24 concluded?

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1 DR. BAILEY: In 1998.

2 MR. FITZGERALD: And did you do anything
3 to confirm your perception that this might be stale
4 information?

5 DR. BAILEY: Yes. At the break I placed a
6 call to the Department of Health and I spoke with Mark
7 Virgil in the Bureau of Environmental --

8 MR. TAIT: Of which state?

9 DR. BAILEY: New York State. The Bureau
10 of Environmental Radiation Protection. And I was
11 directed to him because I called their telephone number
12 which they give out answers about this website. And I
13 asked him when was this material developed for the
14 website. And he said he wasn't sure, but he believed
15 that the material that had been developed at the end of
16 the project -- or for the New York State Power Lines
17 Project in the late 80's or early 90's was taken and
18 placed on the website.

19 Then I asked him had -- and did he know
20 that any revisions or updating had been made to this
21 materials since it was first written in the late 80's or
22 early 90's, and he said not to his knowledge, the only
23 thing that he knew that had been changed was the
24 telephone number.

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1 And then I asked him about what was the
2 source of the information that was discussed earlier
3 today about worldwide there are more than 230 research
4 projects underway, including epidemiological studies,
5 laboratory studies on biological effects and exposure and
6 measurement studies, and he indicated that to his
7 knowledge that this information was part of the original
8 material and that would have also dated back to this
9 period in the late 1980's or early 1992. And he
10 apologized that the material on the website was he said,
11 quote, "time warped and old", and he felt that they
12 should update this.

13 CHAIRMAN KATZ: So to take this to the
14 next level of what the action step is having learned
15 this, is it still the intention of the Applicants to
16 determine if there is ongoing research being done by
17 major government institutions on this matter?

18 MR. FITZGERALD: I would say no unless so
19 instructed.

20 MR. TAIT: Is there a representative from
21 the Attorney General still here?

22 CHAIRMAN KATZ: Mr. Wertheimer?

23 MR. WERTHEIMER: Yes.

24 MR. TAIT: Do you still want to pursue

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1 this matter?

2 MR. WERTHEIMER: All we have is the
3 statements of Dr. Bailey from talking to someone that we
4 don't know in a phone conversation that no one heard.

5 MR. TAIT: So we would like you to verify
6 that and whether you're going to -- because I thought we
7 left it that it would be in your court to produce
8 information as to these 230 studies.

9 MR. WERTHEIMER: Yeah, and that's
10 understood.

11 MR. TAIT: Okay. And so you'll follow
12 this one up.

13 MR. WERTHEIMER: Yeah.

14 CHAIRMAN KATZ: Okay. Well, for the time
15 being I guess we'll leave it there.

16 Okay, we'll continue cross -- is there any
17 other procedural matters we need to do before we continue
18 cross-examination? Okay. Mr. Walsh. If you could come
19 down to the table. Once you get seated and are near a
20 mic, if you could do introductions for the record and
21 then we'll have you proceed with your cross-examination.

22 MR. CHARLES WALSH, III: Thank you, Madam
23 Chairman. My name is Charles Walsh, Assistant Attorney
24 General, representing the Connecticut Department of

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1 Transportation. And with me is Assistant Attorney
2 General Eileen Meskill, also representing the Department
3 of Transportation.

4 COURT REPORTER: Could you spell your name
5 please.

6 MS. EILEEN MESKILL: Sure. It's M-e-s-k-
7 i-l-l. The first name Eileen, E-i-l-e-e-n.

8 COURT REPORTER: Thank you.

9 MR. WALSH: Madam Chairman --

10 CHAIRMAN KATZ: Yes.

11 MR. WALSH: Thank you. I'd like to
12 express DOT's appreciation of being able to appear here
13 today to discuss its concerns regarding the safety of its
14 workers and the traveling public with regard to the
15 questions of electromagnetic radiation generated by these
16 proposed transmission lines. And I'd like to address
17 some questions to the panel if I may.

18 I believe earlier I heard testimony by --
19 I believe it was Dr. Bailey in response to the Attorney
20 General discussing the effective distance upon exposure
21 to electromagnetic fields. And am I correct in my belief
22 that you testified that increased distance from the
23 source of the magnetic field will decrease the exposure
24 to that electromagnetic field, is that correct?

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1 DR. BAILEY: In general that's the case.
2 There can be specific exceptions, but in general that's
3 the case.

4 MR. WALSH: So with respect to the
5 overhead transmission lines, the further away you are
6 from the lines in general, then the lower the exposure
7 would be to the electromagnetic radiation, is that
8 correct?

9 DR. BAILEY: From --

10 MR. FITZGERALD: I object -- I need to
11 object to the question because there's no -- there's been
12 no testimony about electromagnetic radiation --

13 MR. WALSH: I --

14 MR. FITZGERALD: -- which is completely
15 different --

16 MR. WALSH: I would be happy to rephrase
17 that. The further away you are from the transmission
18 lines, then the lower your exposure to the
19 electromagnetic field, is that correct?

20 DR. BAILEY: Yes.

21 MR. WALSH: And would the same hold true
22 for underground transmission lines, the further away you
23 are from the underground transmission lines, the lower
24 the exposure to the electromagnetic field?

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1 DR. BAILEY: The lower the exposure to
2 magnetic fields.

3 MR. WALSH: To magnetic fields.

4 COURT REPORTER: One moment please.

5 (Pause). Thank you. Go ahead.

6 MR. WALSH: Wouldn't it logically follow,
7 sir, that the deeper you bury the transmission lines
8 underground, the less exposure a person on the surface
9 would have to those -- to the electromagnetic fields
10 generated by those transmission lines?

11 DR. BAILEY: The deeper the lines are
12 buried under the ground?

13 MR. WALSH: Yes, sir.

14 DR. BAILEY: Yes.

15 MR. WALSH: Thank you.

16 CHAIRMAN KATZ: But just to follow up on
17 that, does -- if you bury the line, isn't the
18 electromagnetic fields at ground level very small?

19 DR. BAILEY: Not -- I don't know what you
20 mean by very small. But if you go back to the
21 application and look at the profiles for the underground
22 lines, you will find that there are -- directly over the
23 cables there are substantial levels of magnetic fields.

24 CHAIRMAN KATZ: Oh, okay.

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1 DR. BAILEY: If you --

2 CHAIRMAN KATZ: So how -- how many feet
3 left or right of that line do you have to get before you
4 get back down to background levels?

5 DR. BAILEY: Depending upon the design of
6 the underground line, it might be anywhere from, you
7 know, 40 to 100 feet.

8 CHAIRMAN KATZ: Okay. Thank you.

9 MR. BRIAN O'NEILL: Dr. Bailey, isn't that
10 also contingent upon soil types and actual field
11 conditions? There's a lot of variables involved in that,
12 aren't there?

13 DR. BAILEY: It's a general --

14 MR. FITZGERALD: I think Mr. Carberry
15 looks like he's got an answer to that.

16 MR. CARBERRY: Not unless that soil has
17 some kind of magnetic properties, soil type doesn't
18 matter.

19 MR. O'NEILL: Thank you.

20 MR. WALSH: With respect to electronic
21 equipment that operates public safety equipment, such as
22 traffic signal controls or radios, is there any effect of
23 electromagnetic fields upon that equipment being in close
24 proximity to transmission lines?

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1 MR. CARBERRY: If you have long parallel
2 metallic wire systems in parallel to transmission lines,
3 the magnetic field of the transmission lines could -- or
4 for that matter distribution lines could induce voltages
5 on those systems. And they need to be made -- the
6 systems need to be made not susceptible to inference.

7 MR. WALSH: When you say systems, are you
8 referring to the transmission system or to the
9 communications or electronic equipment systems?

10 MR. CARBERRY: The receptor systems.

11 CHAIRMAN KATZ: Could you give us some
12 examples, Mr. Carberry? I mean if you have a traffic
13 light over one of these things, is the traffic light
14 going to start blinking?

15 MR. CARBERRY: No. You need some long
16 parallel metallic wire systems. I think a more common
17 example that someone might think about is in a railroad
18 system where there's some long parallel transmission line
19 for, you know, many many miles and there's also a
20 parallel metallic wire system for signaling.

21 MR. ASHTON: Mr. Carberry, are you aware
22 that NU and UI have long parallel lines on a railroad
23 system?

24 MR. CARBERRY: I am aware.

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1 MR. ASHTON: And have they been able to
2 adapt the signal system correctly or successfully for
3 that application?

4 MR. CARBERRY: Yes, they have.

5 MR. TAIT: And whose responsibility is
6 that, the utilities?

7 MR. CARBERRY: We would accept some
8 responsibility for that, yes.

9 DR. BAILEY: Could I just add that there
10 is a task force between the railroad industry and the
11 utility industry which has agreed on joint methods to
12 minimize any potential inference. So there is -- this is
13 something that they have a long history of dealing with.

14 MR. WALSH: Finally, Mr. -- or Dr. Bailey,
15 excuse me, with regard to the study that was conducted
16 for -- I believe it's application -- in the application,
17 Volume 6, was there any calculation of the proposed
18 electromagnetic fields that would occur in a trench
19 adjacent to an underground transmission line such as that
20 would affect or possibly could affect DOT employees or
21 municipal or public service employees in those trenches?

22 DR. BAILEY: The magnetic fields were
23 calculated from the proposed underground circuits, and
24 those levels are described in the application. And I

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1 didn't -- we did not make any assumptions about
2 specifically workers being at a location near those
3 conductors --

4 MR. WALSH: Thank you --

5 DR. BAILEY: -- but those field levels are
6 in the application.

7 MR. WALSH: Thank you. I have no further
8 questions.

9 CHAIRMAN KATZ: Before you leave the
10 microphone --

11 MR. WALSH: Yes?

12 CHAIRMAN KATZ: -- we'd like DOT, if
13 they'd be willing, and please confer with Mr. Marconi
14 about this, to provide an expert witness, we are going to
15 be discussing alternative routes on Thursday, April 22nd,
16 known as the highway alternative routes. Is that a good
17 way to describe it, Miss Randell?

18 MS. RANDELL: Yes.

19 MR. TAIT: And the railroad alternative.

20 CHAIRMAN KATZ: And the railroad
21 alternative routes --

22 MS. RANDELL: And the railroad --

23 MR. TAIT: So we need both.

24 CHAIRMAN KATZ: And we'd appreciate it if

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1 DOT could provide an expert witness and perhaps prefile
2 some testimony on DOT's feelings about those
3 alternatives.

4 MR. WALSH: I'd be more than happy to get
5 --

6 MR. TAIT: And does a marine alternative
7 also include the Department of Transportation?

8 MR. WALSH: It may or it may --

9 CHAIRMAN KATZ: Yeah, I think your ports
10 and harbors --

11 MR. WALSH: -- along with the Department
12 of Environmental Protection possibly.

13 MR. TAIT: Yes --

14 CHAIRMAN KATZ: I know one of your members
15 of Ports and Harbors and I'm sure he has a comment.

16 MR. WALSH: Thank you.

17 CHAIRMAN KATZ: Yes, if -- and we'll --

18 MR. WALSH: We will -- we will get someone
19 to appear --

20 CHAIRMAN KATZ: Great --

21 MR. WALSH: -- before the Council on that
22 date.

23 CHAIRMAN KATZ: We'd appreciate that and
24 we'll work with you on those prefilled deadlines and

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1 having that person available. Thank you.

2 MR. WALSH: Thank you.

3 MR. ASHTON: Madam Chairman --

4 CHAIRMAN KATZ: Yes?

5 MR. ASHTON: -- I need to ask a follow-up
6 question.

7 CHAIRMAN KATZ: Yes.

8 MR. ASHTON: Mr. Carberry, I think you
9 serve an EPRI committee or an EEI committee, I can't
10 remember which from your CV, relating to --

11 MR. TAIT: Acronyms are a no no --

12 MR. ASHTON: Edison Electric Institute and
13 Electric Power Research Institute. Pardon me, Mr. Tait.

14 Are you aware of any constraints on
15 workers adjacent to an underground installation other
16 than constraints that they've got to -- they have to take
17 care not to damage the facility itself in their
18 construction work, but are there any time limitations or
19 anything like that that you're aware of in the industry -
20 -

21 MR. CARBERRY: No --

22 MR. ASHTON: -- that pertain to that?

23 MR. CARBERRY: No. There are some
24 occupational guidelines in the industry and around the

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1 world. And the exposures that would exist next to these
2 types of underground cables would not approach those
3 levels.

4 MR. ASHTON: Thank you.

5 DR. BAILEY: I would just point out that
6 on page 53 of our report, Figure 47 and 48 describe the
7 calculated magnetic fields from the underground circuits,
8 and the proposed cross-section 9, 9A, going on to Figure
9 5010, and you can see that these levels are quite low.
10 In Figure 46 within 10 feet they're less than a
11 milligauss. Figure 47 for a different cross-section,
12 again it's less than 10 feet away, they're perhaps a
13 milligauss. And in Section 9A, 10 feet away, they're
14 about a milligauss. And in Figure 50, cross-section 10,
15 on the site where the fields are highest at roughly 10
16 feet away there may be, I don't know, somewhere between
17 five and ten milligauss.

18 CHAIRMAN KATZ: Mr. Carberry.

19 MR. CARBERRY: If I might add to the
20 response I made to Mr. Ashton's question, that the place
21 where the magnetic fields would likely be highest for an
22 underground cable system where people would approach it,
23 especially the solid dielectric types of cables, would be
24 in a manhole, a vault where they're spliced together, and

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1 the separation of the cables would be more there than
2 anyplace else, and that separation would cause the fields
3 to be higher. There are no restrictions on workers for
4 time that they spend in a manhole and working on such
5 systems.

6 MR. ASHTON: Thank you.

7 CHAIRMAN KATZ: At this time, Mr.
8 Schaefer, come down for cross-examination please. Mr.
9 Schaefer, you're going to need to give one of your cards
10 to --

11 MR. DAVID SCHAEFER: I did --

12 CHAIRMAN KATZ: Oh, okay.

13 MR. SCHAEFER: -- I did when we started
14 Tuesday, but I have another one --

15 COURT REPORTER: I think I have it.

16 CHAIRMAN KATZ: Okay. Once you get
17 settled in, if you could do the -- make the
18 introductions, spell the names, and we'll go from there.

19 MR. SCHAEFER: My name is David Schaefer.
20 I'm a lawyer in New Haven, Connecticut, and I represent
21 a series of institutions in Woodbridge, Connecticut, Ezra
22 Academy, the Jewish Community Center of Greater New
23 Haven, B'Nai Jacob Congregation and the Department of
24 Jewish Education. And with me is Dr. Leonard Bell, who

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1 is one of the experts who has consulted with us, and he
2 is an author of some of the prefiled testimony that you
3 have and will be testifying at your next session.

4 CHAIRMAN KATZ: Thank you. And do we need
5 any spellings or are we all set?

6 COURT REPORTER: All set.

7 CHAIRMAN KATZ: Alright.

8 MR. SCHAEFER: Good afternoon. I'd like
9 to just ask some general questions of the panel members
10 so I just confirm your area of expertise. I think we
11 covered that a little bit this morning, but Dr. Cole,
12 you're an epidemiologist, is that correct?

13 DR. COLE: Well, I consider myself a
14 cancer epidemiologist, yes.

15 MR. SCHAEFER: Fine, okay. And therefore,
16 you have an expertise with respect to human studies and
17 whether they show an association between EMF and
18 childhood leukemia?

19 DR. COLE: No, I -- I think that would be
20 far too limiting. I consider that I'm a student not of
21 associations but of causation, and in fact have published
22 on that particular question. And I don't consider my
23 expertise either in general or with regard to the EMF
24 area to be limited to leukemia --

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1 MR. SCHAEFER: Alright --

2 DR. COLE: -- but to be inclusive of all
3 forms of malignancy --

4 MR. SCHAEFER: Yeah, maybe --

5 DR. COLE: -- in adults.

6 MR. SCHAEFER: Maybe I wasn't clear. I
7 wasn't trying to limit your expertise. Does your -- do
8 you believe that your expertise includes the human
9 studies and whether they show an association between EMF
10 and childhood leukemia?

11 DR. COLE: Yes.

12 MR. SCHAEFER: Alright. And Dr. Aaronson,
13 you're a cancer biologist, is that fair?

14 DR. AARONSON: That would be fine.

15 MR. SCHAEFER: Is that -- okay. And so
16 you -- your expertise is relevant to this -- and again,
17 not trying to limit it, is to deal with the question
18 whether biologically plausible mechanisms by which power
19 line EMF could cause cancer, whether such mechanisms
20 exist. Is that fair?

21 DR. AARONSON: That would certainly be
22 within the context --

23 MR. SCHAEFER: Right --

24 COURT REPORTER: I'm sorry, I can't hear

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1 you.

2 DR. AARONSON: Yes.

3 MR. SCHAEFER: Okay. And you said --

4 CHAIRMAN KATZ: It's still -- Ed, we're
5 going to need -- (pause) --

6 MR. SCHAEFER: And you specifically said
7 that you don't believe you're an expert in epidemiology?

8 DR. AARONSON: Yes, I said that.

9 MR. SCHAEFER: Alright. And Dr. Bailey,
10 you're basically part of the applicant team that's before
11 this Council, isn't that correct?

12 DR. BAILEY: I was asked by the Applicant
13 to help them out in particular matters, yes.

14 MR. SCHAEFER: Right. So you -- you've
15 been involved in the preparation of this application even
16 before it was submitted?

17 DR. BAILEY: For the parts that we were
18 responsible for, yes.

19 MR. SCHAEFER: Right. And one of those
20 parts is the portion of the application that's found in
21 Volume 6 that deals with EMF?

22 DR. BAILEY: That's correct.

23 MR. SCHAEFER: Alright. And specifically
24 there's been reference that the Attorney General made to

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1 it, but pages -- do you have Volume 6 in front of you?

2 DR. BAILEY: Yes.

3 MR. SCHAEFER: Alright. So pages 81
4 through page 105, is that something you were involved in
5 the preparation of?

6 DR. BAILEY: Yes.

7 DR. COLE: And in fact, were you the
8 principal person responsible for it?

9 DR. BAILEY: I was -- yes.

10 MR. SCHAEFER: Alright. And Miss Shanley,
11 I don't want to ignore you down there totally, my
12 understanding is --

13 MS. SHANLEY: That's quite alright.

14 (Laughter).

15 MR. SCHAEFER: You're happy to stay out of
16 the line of fire I'm sure, but --

17 MS. SHANLEY: I'm used to it, Mr.

18 Schaefer.

19 MR. SCHAEFER: Okay. But you're an
20 employee of the United Illuminating Company, is that
21 correct?

22 MS. SHANLEY: That's correct.

23 MR. SCHAEFER: And your testimony deals
24 with your interaction with customers on the issue of EMF,

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1 isn't that correct?

2 MS. SHANLEY: That's part of it, that's
3 correct.

4 MR. SCHAEFER: Right. Okay -- but you
5 don't hold yourself out as an expert on epidemiology, do
6 you?

7 MS. SHANLEY: I do not.

8 MR. SCHAEFER: And on cancer biology?

9 MS. SHANLEY: I do not.

10 MR. SCHAEFER: Okay. And Mr. Carberry, is
11 that true of you as well?

12 MR. CARBERRY: That's correct.

13 MR. SCHAEFER: Okay. Now, Mr. Cole, if I
14 could start with you and start on the epidemiology
15 questions. First of all, when were you retained by the
16 Applicants?

17 DR. COLE: Well, I don't recall exactly.
18 I think I was approached by Mr. Fitzgerald perhaps a
19 month or so ago.

20 MR. SCHAEFER: Okay. So by that, it's
21 clear you weren't involved in the preparation of anything
22 having to do with the application, is that correct?

23 DR. COLE: That's correct.

24 MR. SCHAEFER: Alright. And you're

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1 obviously here testifying, is that -- you're -- I won't
2 even ask that -- I assume if you're here testifying, that
3 you spent some time with counsel for the Applicants in
4 preparation, isn't that correct?

5 DR. COLE: Well, I spent a very small
6 amount of time with them. I spent most of the time on my
7 own.

8 MR. SCHAEFER: Alright. And have you --
9 in terms of your preparation was that in reviewing
10 literature that you had seen before but just refreshing
11 yourself?

12 DR. COLE: That was part of it. Also I
13 was sent some documents by Mr. Fitzgerald.

14 MR. SCHAEFER: Okay. And can you tell the
15 Council what you were sent by Mr. Fitzgerald?

16 DR. COLE: Well, I really don't recall
17 everything or its name --

18 (Voices in background, indiscernible)

19 DR. COLE: Shall I -- do I continue?

20 MR. SCHAEFER: Please --

21 CHAIRMAN KATZ: Just give us a moment.

22 (Pause). Mr. Schaefer, I'm just going to ask you to sort
23 of take a direct route to your point, so -- but please
24 proceed.

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1 MR. SCHAEFER: Well -- sir, if you could
2 tell me what you -- what materials were given to you by
3 the Applicant to review in preparation for your
4 testimony?

5 DR. COLE: I was given a number of
6 documents. I have at least some of them in front of me.
7 I can just read you their titles I guess. One is called
8 Electric and Magnetic Field Assessment, Middletown and
9 Norwalk Transmission Reinforcement.

10 MR. FITZGERALD: That's -- for the record,
11 that's Volume 6 of the application.

12 CHAIRMAN KATZ: Thank you.

13 DR. COLE: Applicants' Prefiled Direct
14 Testimony Concerning Power Frequency Electric and
15 Magnetic Fields. These documents are my own. The State
16 of Connecticut -- I'm sorry -- transcript of additional
17 statements of speakers taken outside of hearing room.
18 And I was also --

19 MR. FITZGERALD: If I may. Those were --
20 just to try and move things along, those were excerpts
21 from the public hearings --

22 CHAIRMAN KATZ: Yes, the outside
23 transcriptionist, yes.

24 DR. COLE: And the --

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1 CHAIRMAN KATZ: We didn't think you had a
2 mic in the men's room. (Laughter).

3 DR. COLE: Well, I wondered about that.
4 The other document that I recall is the document that was
5 -- I guess -- you'll excuse me if I don't label it
6 correctly, but it was the prefiled testimony of experts -
7 - well that statement that included for example Dr.
8 Bell's statement --

9 MR. SCHAEFER: Fine --

10 DR. COLE: -- and others.

11 MR. SCHAEFER: Fine.

12 MR. SCHAEFER: And so how many hours would
13 you estimate that you spent on this assignment to date?

14 DR. COLE: Not counting today --

15 MS. RANDELL: Madam Chairman, this is --
16 this may be normal in a court proceeding. I haven't ever
17 seen it in a Siting Council proceeding. And again, I
18 would request that Mr. Schaefer get to where he's going
19 if there's a point to this.

20 CHAIRMAN KATZ: Yeah, can you just sort of
21 maybe enlighten us on sort of where you're heading on
22 this line of questioning?

23 MR. SCHAEFER: Sure. I believe this
24 witness has a long history of bias, of being employed by

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1 one side of this controversy, and taking positions that
2 haven't stood up in the light of day. And so I think his
3 -- what actions he's taken, how he's formed his opinion,
4 how much he's been paid for those opinions over time are
5 relevant.

6 CHAIRMAN KATZ: Can you give me a moment
7 please.

8 MR. SCHAEFER: Sure.

9 (Pause)

10 CHAIRMAN KATZ: Under our procedures you
11 are allowed to ask questions that indicate whether the
12 witness has a bias. And so we're going to allow that,
13 but I'm going to ask you to take a direct approach. But
14 I'm also going to allow the Applicant to do a redirect if
15 they so feel after this line of questioning.

16 MR. SCHAEFER: Yeah, I -- I'd only ask
17 that I -- that I be able to complete my line of
18 questioning --

19 CHAIRMAN KATZ: Yes --

20 MR. SCHAEFER: -- before the redirect --

21 CHAIRMAN KATZ: Yes --

22 MR. SCHAEFER: Okay. Sir, how many hours
23 have you spent on your work on this assignment?

24 DR. COLE: Not counting today --

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1 MR. SCHAEFER: Yes --

2 DR. COLE: -- about eight hours.

3 MR. SCHAEFER: Okay. And how much are you
4 being paid for your appearance here today?

5 DR. COLE: Four hundred dollars per hour.

6 CHAIRMAN KATZ: Is this a good time to say
7 what a Siting Council member gets a day -- (laughter) --
8 never mind. Keep going.

9 MR. SCHAEFER: Dr. Cole, you've testified
10 on behalf of public utilities on this issue before, have
11 you not?

12 DR. COLE: Yes.

13 MR. SCHAEFER: Okay. In fact, you've been
14 doing it for over 22 years, isn't that correct?

15 DR. COLE: No, that's not correct.

16 MR. SCHAEFER: Okay. Do you recall the
17 first time you testified on behalf of a public utility on
18 this?

19 DR. COLE: Yes.

20 MR. SCHAEFER: And when was that?

21 DR. COLE: I believe that was 1987 or
22 1988.

23 MR. SCHAEFER: Okay. Let me see if I can
24 refresh your recollection. Do you remember being

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1 contacted by a Dr. David Carpenter in 1982 and being
2 asked if you would serve on a panel for the State of New
3 York?

4 DR. COLE: Yes.

5 MR. SCHAEFER: And do you recall that you
6 were asked to sign a conflict of interest statement
7 saying that you hadn't taken a position and be paid for
8 it by any of the parties, namely the public utilities or
9 environmentalists?

10 DR. COLE: I do --

11 MR. SCHAEFER: Do you recall that?

12 DR. COLE: I do recall being asked to sign
13 a conflict of interest statement --

14 MR. SCHAEFER: Right --

15 DR. COLE: -- I don't recall, it being
16 more than 20 years now, anything about the specifics of
17 that conflict of interest statement.

18 MR. SCHAEFER: Well, do you recall telling
19 Dr. Carpenter that you couldn't sign the conflict of
20 interest statement because you were already testifying at
21 that time for a Florida utility on the EMF issue?

22 DR. COLE: No.

23 MR. SCHAEFER: Okay.

24 DR. COLE: I told Dr. Carpenter that I do

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1 not sign conflicts of interest statements --

2 MR. SCHAEFER: Right --

3 DR. COLE: -- I had not been approached by
4 the Florida Power and Light Company until 1986.

5 MR. SCHAEFER: Alright. How many times
6 have you testified on behalf of power -- electric
7 utilities on the issue of EMF?

8 DR. COLE: Let me just ask a question for
9 clarification. Testified on behalf meaning at hearings
10 such as this and also at issues that were in litigation,
11 both or --

12 MR. SCHAEFER: Right, where you testified
13 in public and were a paid expert witness for a public
14 utility?

15 DR. COLE: Oh, I would say perhaps 15 or
16 20 times --

17 MR. SCHAEFER: Okay --

18 DR. COLE: -- over some 20 or so years.

19 MR. SCHAEFER: Have you also received any
20 other financial benefits from the electric power
21 industry?

22 DR. COLE: I'm not sure what you're
23 referring to?

24 MR. SCHAEFER: Well, have you ever done

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1 research that the industry has funded?

2 DR. COLE: No. I have done research and
3 published papers that -- three papers, two of which were
4 not funded by anyone, and one that was funded by IBM.
5 You mentioned utilities, obviously they're not a utility,
6 but I just offer that in the interest of full disclosure
7 here.

8 MR. SCHAEFER: Okay. But you can't -- in
9 terms of -- did you ever serve on any panels or councils
10 in which you were compensated for your service where the
11 money came in part from the electric power industry?

12 DR. COLE: Yes.

13 MR. SCHAEFER: Okay. And what would those
14 be?

15 DR. COLE: I served for several years, I
16 don't recall now how many years, two or three I think, on
17 -- I've also forgotten the exact name of the committee,
18 but something like epidemiology advisory committee of
19 EPRI, Electric Power Research Institute.

20 MR. ASHTON: I got that one in.

21 DR. COLE: Okay.

22 MR. SCHAEFER: The advisory council on
23 epidemiology of the Electric Power Research Institute?

24 DR. COLE: Yes.

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1 MR. SCHAEFER: Alright. And who funds
2 that institute?

3 DR. COLE: I believe it's funded by
4 various utility companies around the United States.

5 MR. SCHAEFER: Alright. Now, you say in
6 your testimony, and I'll -- do you have your testimony in
7 front of you --

8 DR. COLE: Yes --

9 MR. SCHAEFER: -- your prefiled testimony?

10 DR. COLE: Um-hmm.

11 MR. SCHAEFER: Okay. I'd like to point
12 out to you on page 2 that --

13 DR. COLE: Please give me just a minute --

14 MR. SCHAEFER: Sure --

15 DR. COLE: -- it seems to have gotten away
16 here somehow --

17 MR. SCHAEFER: -- I'll be glad to --

18 DR. COLE: I've got it, it's here. Sir.

19 MR. SCHAEFER: And if you could turn to
20 page 2 please, sir.

21 DR. COLE: Two, okay.

22 MR. SCHAEFER: In the middle of the page
23 you were asked by your counsel has any of your work
24 involved EMF and your answer is yes, the health effects

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1 of electric and magnetic fields has been one of my
2 research interests. Do you see that?

3 DR. COLE: Yes.

4 MR. SCHAEFER: Okay. What research have
5 you done on that subject?

6 DR. COLE: I've published three papers on
7 this question. I don't have my CV in front of me --
8 well, maybe it is in front of me --

9 MR. SCHAEFER: Yeah, I think it's part of
10 that same packet. Why don't you take a look at that --

11 DR. COLE: Let's see --

12 MR. SCHAEFER: -- and if you could go to
13 your curriculum vitae and tell me what numbers on the
14 list of 191 publications which three were the ones that
15 dealt with EMF?

16 DR. COLE: Yes, I will. I will take a
17 minute.

18 MR. SCHAEFER: Sure -- well, let -- I
19 might be able to help you. I was able to identify two I
20 think, 143 and 144. Do those look like ones that fit
21 within this category?

22 DR. COLE: Mr. Schaefer, give me a minute
23 --

24 MR. SCHAEFER: Sure --

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1 DR. COLE: -- you have the pages and the
2 numbers in front of you and I don't -- 143 and 144?

3 MR. SCHAEFER: Yeah. I'm just -- just by
4 the titles. I haven't read them, so you'll tell me.

5 DR. COLE: Yes, those -- those are two.

6 MR. SCHAEFER: Okay. Could you find the
7 third one --

8 DR. COLE: Let me just mention that I
9 received on compensation for that work.

10 MR. ASHTON: I know the feeling.

11 (Laughter).

12 DR. COLE: And there will be one in here -
13 - perhaps you can help me find it -- I believe the first
14 author would be Beall, B-e-a-l-l, a much more recent --

15 MR. SCHAEFER: Are these in any
16 chronological order --

17 MR. ASHTON: One --

18 DR. COLE: Yes, they're --

19 MR. ASHTON: -- 158 -- 158 --

20 DR. COLE: I have a lot of help here, but
21 no one is turning the pages -- yes, 158. I'd like to say
22 that that was funded by IBM, but I received no money from
23 that. That was funded through a contract with the
24 University of Alabama --

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1 MR. SCHAEFER: Okay --

2 DR. COLE: -- at Birmingham.

3 CHAIRMAN KATZ: Just --

4 MR. SCHAEFER: Well, let's look at --

5 CHAIRMAN KATZ: Don't -- try not to lean
6 away from the mic if you --

7 DR. COLE: Okay. Sorry.

8 MR. SCHAEFER: Sir, if we could look at
9 143 and 144 just on the list of your publication, your
10 co-authors on those articles were T.L. Jones, C.H. Shee,
11 and D.H. Thurston, is that correct?

12 DR. COLE: Yes.

13 MR. SCHAEFER: Okay. And that's on both
14 of those papers?

15 DR. COLE: Yes.

16 MR. SCHAEFER: Okay. And those were both
17 -- both of those papers were done in 1993, is that
18 correct?

19 DR. COLE: Well, the work was actually
20 done in '91 and '92.

21 MR. SCHAEFER: And the papers were
22 published in '93?

23 DR. COLE: Yes, sir.

24 MR. SCHAEFER: Alright. And if you could

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1 look at your curriculum vitae again, and then where you
2 have letters of miscellany, there -- No. 22 appears to be
3 related to this field, it's a letter to the editor of the
4 Forum for Applied Research and Public Policy in 1989?

5 DR. COLE: Yes.

6 MR. SCHAEFER: Okay. And would you have
7 saved a copy of that in your files?

8 DR. COLE: I might.

9 MR. SCHAEFER: Okay. And I don't know if
10 we have to make a formal discovery request, but we'd like
11 a copy of that. It's not available as far as we know
12 elsewhere.

13 DR. COLE: I would just like to point out
14 since we are looking at that, that that was a commentary
15 written by the invitation of the editor of that journal.

16 MR. TAIT: Do you know whether or not you
17 have a copy?

18 DR. COLE: I'm pretty sure I can come up
19 with one. I can't say for absolute certain that I do,
20 but if I can't get it from my own files, I'll get it from
21 the journal.

22 MR. TAIT: Okay. The document ought to be
23 -- Tony -- Mr. Fitzgerald --

24 MR. FITZGERALD: Sir?

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1 MR. TAIT: When available, that should be
2 passed around by the service list.

3 MR. FITZGERALD: To the service list,
4 alright.

5 MR. TAIT: And do you have an idea of how
6 long it might take you to get that copy?

7 MR. FITZGERALD: Just -- just a moment, if
8 I might -- I'm having trouble finding it in the
9 curriculum vitae -- oh, here it is, here's letters of
10 miscellany -- what number under letters of --

11 DR. COLE: Twenty --

12 MR. SCHAEFER: No. 22.

13 MR. TAIT: Twenty-two.

14 MR. FITZGERALD: Yeah.

15 MR. MARCONI: Does anybody have any idea
16 how long the requested document is so that we're not
17 talking about something book length?

18 DR. COLE: That document is just a page or
19 two.

20 MR. MARCONI: Okay, sir.

21 MR. SCHAEFER: And sir, the second one is
22 a letter with the same three authors of your two articles
23 we talked about before, Jones, Shee and Thurston, isn't
24 that correct?

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1 DR. COLE: Yes.

2 MR. TAIT: Do you have a number for that?

3 MR. SCHAEFER: That's No. 28. And isn't
4 it true that two of the authors, Jones and Shee, are
5 employees of the American Electric Power Company?

6 DR. COLE: I know for a fact that at that
7 time Jones was.

8 MR. SCHAEFER: Okay.

9 DR. COLE: Whether the others were or not,
10 I don't know --

11 MR. SCHAEFER: Okay. And --

12 DR. COLE: -- it will probably specify
13 that on the articles themselves.

14 MR. SCHAEFER: Okay. And Thurston was an
15 employee of the Columbus Southern Power Company, isn't
16 that correct?

17 DR. COLE: I don't know that it is or
18 isn't.

19 MR. SCHAEFER: Okay. And your testimony
20 is, to your recollection, that you were not compensated
21 for your role in those articles?

22 DR. COLE: I was not.

23 MR. SCHAEFER: Okay. Now, have you --
24 you've talked about the advisory council on epidemiology

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1 that's associated with the electric power industry. Have
2 you served on councils for other industries?

3 DR. COLE: You mean with regard to issues
4 other than --

5 MR. SCHAEFER: EMF --

6 DR. COLE: -- electromagnetic fields --

7 MR. SCHAEFER: -- that is correct.

8 DR. COLE: I'm sorry, Mr. Schaefer, could
9 you repeat the first part of the question again --

10 MR. SCHAEFER: Sure --

11 DR. COLE: -- what is it that you're
12 asking --

13 MR. SCHAEFER: I'm asking you whether you
14 served on councils sponsored by other industries other
15 than the electric power industry?

16 DR. COLE: There is one other body that I
17 served on. We didn't call it a council, but its function
18 was very similar to that for EPRI, so I will mention it
19 at this time --

20 MR. SCHAEFER: And what was that?

21 DR. COLE: That was the advisory board on
22 health and safety of the General Motors Corporation.

23 MR. SCHAEFER: Okay. How about the
24 American Council on Science and Health Committee on --

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1 phylates (phonetic) is it, am I pronouncing it right?

2 DR. COLE: Yes.

3 MR. SCHAEFER: Okay. Did you serve on
4 that?

5 DR. COLE: Yes, but that's not an
6 industry.

7 MR. SCHAEFER: So to your knowledge this
8 is not a body that's sponsored by the vinyl plastic
9 industry?

10 DR. COLE: The American Council on Science
11 and Health, at least to my knowledge, is a recipient of
12 financial resources from many different kinds of
13 entities. I really don't know who funds any particular
14 activity of theirs.

15 MR. SCHAEFER: Okay.

16 DR. COLE: It is certainly not parallel to
17 EPRI or the General Motors committee that I served on.

18 MR. SCHAEFER: Okay. If -- do you think
19 it's a fair characterization of you made by some
20 commentators --

21 MR. FITZGERALD: Whatever that is --

22 CHAIRMAN KATZ: Yeah, it's not starting
23 well.

24 MR. SCHAEFER: Okay. Let me ask you if

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1 you think it's a fair characterization of yourself that
2 you're, quote, "solidly skeptical about new claims of
3 environmental health dangers"?

4 DR. COLE: Yes. I think -- I'll make that
5 statement of myself.

6 MR. SCHAEFER: Fine. Now in forming your
7 opinion that you've expressed in your written testimony,
8 is that -- did you take into account the several dozen
9 published clinical studies of the possible association
10 between EMF and health?

11 DR. COLE: Before I answer directly, let
12 me just comment on the use of the word clinical. I
13 noticed it was used very freely in the direct testimony
14 of -- again that document whose name I don't know but
15 which included Dr. Bell, Dr. Carpenter and others. I
16 don't believe any of us is actually referring to clinical
17 studies. Clinical studies usually implies studies of
18 persons in hospital or under medical care and related to
19 the effects of their medical care. So in that sense, the
20 answer to your question is no, I do not review clinical
21 studies.

22 If I understand your question instead to
23 mean have I reviewed the epidemiologic studies, then my
24 response is that I believe that as of this day I have

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1 published -- I have reviewed every single epidemiologic
2 study that has been published in the English language --

3 MR. SCHAEFER: Okay. And would this
4 include --

5 DR. COLE: -- and -- excuse me, I'm not
6 finished -- and it may very well be true that there have
7 been a few published within the last few weeks or months
8 that have not yet come to my attention, but I make it my
9 concern to remain current with the literature, yes.

10 MR. SCHAEFER: And would this include the
11 Wertheimer and Leeper study?

12 DR. COLE: Are you speaking about the 1979
13 paper?

14 MR. SCHAEFER: I am -- exactly.

15 DR. COLE: Oh, yes.

16 MR. SCHAEFER: Alright. And would it
17 include the Savitz paper?

18 DR. COLE: Yes.

19 MR. SCHAEFER: Okay. And would it include
20 the Linet paper?

21 DR. COLE: Yes.

22 MR. SCHAEFER: And the Green paper?

23 DR. COLE: Do you mean Greenland?

24 MR. SCHAEFER: No, I mean --

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1 DR. COLE: Martin --

2 MR. SCHAEFER: -- Lois M. Green --

3 DR. COLE: Yes --

4 MR. SCHAEFER: -- Anthony B. Miller --

5 DR. COLE: Yes --

6 MR. SCHAEFER: -- you've reviewed that
7 one, and the Rome study?

8 DR. COLE: Yes.

9 MR. SCHAEFER: And the Los Angeles study?

10 DR. COLE: The paper by London?

11 MR. SCHAEFER: By Thomas Bowman, Cheng, I
12 believe --

13 DR. COLE: Okay. Yes. that was an
14 exposure assessment component of the London study.

15 MR. SCHAEFER: Okay. And also you, I
16 think yourself, made reference that there were a number
17 of scientific MEDA analyses done in this area. Is that
18 correct?

19 DR. COLE: I don't remember my exact
20 language, but, yes, there were three.

21 MR. SCHAEFER: Okay. And that would be
22 Ahlbom, Greenland, and Wartenberg?

23 DR. COLE: Yes.

24 MR. SCHAEFER: And you're familiar with

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1 those as well?

2 DR. COLE: Yes.

3 MR. SCHAEFER: Alright. And isn't it true
4 that each of these three studies shows a statistically
5 significant increase risk of childhood leukemia with
6 elevated EMF levels?

7 DR. COLE: No.

8 MR. SCHAEFER: Okay. Now, you also are
9 aware of a number of independent scientific panels that
10 have looked at the issue of the relationship between EMF
11 and cancer or childhood leukemia?

12 DR. COLE: Yes.

13 MR. SCHAEFER: Okay. And that would
14 include the National Research Council?

15 DR. COLE: Yes.

16 MR. SCHAEFER: The National Institute for
17 Environmental Health Sciences of the National Institute
18 of Health Working Group?

19 DR. COLE: I think the letters maybe
20 reversed there --

21 MR. SCHAEFER: NIEHS?

22 DR. COLE: Well if we're referring to the
23 report that's already been discussed this morning, the
24 answer is yes.

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1 MR. SCHAEFER: Alright, okay. The
2 National Radiological Protection Board?

3 DR. COLE: Yes.

4 MR. SCHAEFER: The International Agency
5 for Research on Cancer?

6 DR. COLE: Yes.

7 MR. SCHAEFER: Which is sometimes referred
8 to as the IARC?

9 DR. COLE: Yes, even I-ARC.

10 MR. SCHAEFER: Okay. The International
11 Commission for Non-Ionizing Radiation Protection?

12 DR. COLE: Yes.

13 MR. SCHAEFER: And you're familiar with
14 the work of the World Health Organization in this area?

15 DR. COLE: Yes.

16 MR. SCHAEFER: Okay. And so, therefore,
17 you took the results of these studies into account when
18 you formulated your opinion?

19 DR. COLE: Yes.

20 MR. SCHAEFER: Okay. And your opinion
21 that you express at page 2 of your written testimony on
22 the bottom is that available evidence does not support
23 the view that magnetic fields from power lines cause
24 cancer, including childhood leukemia. Is that correct?

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1 DR. COLE: Yes, sir.

2 MR. SCHAEFER: Alright. And then you say
3 on page 3 -- and if you could look at the second
4 paragraph -- no scientific or regulatory body --

5 DR. COLE: I'm sorry, I'm --

6 MR. SCHAEFER: I'm sorry, the second
7 paragraph, the second sentence.

8 DR. COLE: Okay.

9 MR. SCHAEFER: No scientific or regulatory
10 body, including the International Agency for Research on
11 Cancer, the cancer research arm or the World Health
12 Organization, has categorized EMF as a carcinogen for
13 human beings. Is that correct?

14 DR. COLE: Yes.

15 MR. SCHAEFER: Alright. Now, would you
16 agree with me that the International Agency for Research
17 on Cancer classifies EMF as a possible carcinogenic to
18 humans?

19 DR. COLE: Yes.

20 MR. SCHAEFER: It's under Group 2B --

21 DR. COLE: That's --

22 MR. SCHAEFER: -- is that correct?

23 DR. COLE: Yes.

24 MR. SCHAEFER: Okay. Are you aware of the

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1 report by the State of California on the issue of EF --
2 I'm sorry -- EMF and the relationship to childhood
3 leukemia?

4 DR. COLE: Yes.

5 MR. SCHAEFER: Okay. And isn't it true --

6 DR. COLE: May I just -- may I just ask a
7 question --

8 CHAIRMAN KATZ: Wait before you do that,
9 can we just have a better reference on what this is? Is
10 this something we've taken administrative notice of?

11 MR. SCHAEFER: I don't know what your
12 procedure is, so I don't know. It is one of the sources
13 that our witnesses relied on and we filed it in an
14 appendix that was filed with the Council. I don't know
15 if it was on the utility --

16 A VOICE: It was --

17 MR. SCHAEFER: It was on their list? It's
18 on their list as well --

19 MR. FITZGERALD: Excuse me. Did -- I
20 didn't know that there was any filing with the Council
21 other than the testimony. Was there -- there was an
22 appendix --

23 CHAIRMAN KATZ: Mr. Cunliffe, was there an
24 appendix with their prefiled testimony?

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1 MR. FRED O. CUNLIFFE: Correct. There was
2 two volumes.

3 CHAIRMAN KATZ: Was it bulk filed?

4 MR. SCHAEFER: It was a bulk file with a
5 letter to the whole service list informing everybody that
6 it had been bulk filed --

7 CHAIRMAN KATZ: Is it filed with the
8 Applicant?

9 MR. SCHAEFER: Correct.

10 CHAIRMAN KATZ: Okay.

11 MR. SCHAEFER: And it was -- it just
12 contains a copy of the articles referenced in the
13 testimony.

14 CHAIRMAN KATZ: Okay. I'm going to give
15 them a moment --

16 MS. RANDELL: Could we just clarify --

17 CHAIRMAN KATZ: Yes. I'm going to give
18 you --

19 MS. RANDELL: -- what Mr. Schaefer served
20 either United Illuminating or Connecticut Light & Power
21 with that bulk?

22 CHAIRMAN KATZ: Mr. Schaefer.

23 MR. SCHAEFER: No, we didn't serve you
24 with the bulk. We served you with a letter notifying you

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1 that we had filed the bulk filing with the Commission,
2 which we understood the procedure to do.

3 MS. RANDELL: Could we then make the
4 request that the information be provided to us.

5 CHAIRMAN KATZ: I think it's fair to give
6 the Applicant a copy.

7 MR. SCHAEFER: Okay. As long as it's
8 reciprocal, we'll be glad to cooperate with them.

9 CHAIRMAN KATZ: Well --

10 MR. SCHAEFER: And I'm told that the
11 California report is referenced in their application.

12 CHAIRMAN KATZ: Did you take
13 administrative notice of the California report?

14 MR. FITZGERALD: I don't believe we did,
15 no. But it is true that it is referred to in Dr.
16 Bailey's --

17 CHAIRMAN KATZ: Okay --

18 MR. FITZGERALD: -- in Volume 6.

19 CHAIRMAN KATZ: Okay.

20 MR. FITZGERALD: -- but it is not -- it is
21 neither included, nor did we ask the Council to take --

22 CHAIRMAN KATZ: Is it called the
23 California report in Dr. Bailey's testimony --

24 MR. FITZGERALD: I don't believe so --

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1 DR. LEONARD BELL: (Indiscernible) --

2 CHAIRMAN KATZ: Sir, can you pull that mic
3 closer.

4 DR. BELL: Sorry -- sorry, Chairwoman
5 Katz. It's referred to by Dr. Bailey in his description
6 as Neutra, et al, and Dr. Bailey quotes liberally from
7 that report in the application, Volume 6.

8 CHAIRMAN KATZ: Okay. As long as we're
9 all on the same page literally.

10 MR. LYNCH: In the same document.

11 CHAIRMAN KATZ: In the same document.
12 Okay, at this point, Mr. Schaefer, it's my understanding
13 you will provide a copy to the Applicant of the bulk
14 filing.

15 MR. SCHAEFER: No problem.

16 CHAIRMAN KATZ: Okay.

17 COURT REPORTER: One moment please.

18 (Pause). Thank you.

19 CHAIRMAN KATZ: Yes.

20 MR. SCHAEFER: Dr. Cole, isn't it true
21 that in the State of California study, they declared EMF
22 a probable cause of acute childhood leukemia?

23 DR. COLE: I want to be sure that I
24 understand exactly what document you're referring to.

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1 MR. SCHAEFER: Sure. Could I show --

2 DR. COLE: May I -- may I just
3 characterize it and then you can tell me whether or not I
4 have it correctly?

5 MR. SCHAEFER: Or -- no, what I can do is
6 just provide you with a copy. Why don't I do that --

7 CHAIRMAN KATZ: Why don't we do both. Dr.
8 Cole, first why don't you characterize what document you
9 think he's referring to.

10 DR. COLE: Well, actually if he's going to
11 ask me questions about the document and he has a copy to
12 give me, I'd just as soon see it --

13 CHAIRMAN KATZ: Okay --

14 DR. COLE: -- and that will remove
15 ambiguity --

16 CHAIRMAN KATZ: Why don't we just take a
17 moment as they say and get that in front of you and --
18 yeah, we'll be off the record.

19 (Off the record)

20 CHAIRMAN KATZ: We have a question
21 pending?

22 MR. SCHAEFER: I do have copies for the
23 commission --

24 CHAIRMAN KATZ: Yes --

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1 MR. SCHAEFER: -- if you'd like --

2 CHAIRMAN KATZ: -- we always appreciate
3 that. It's even three-hole punched. I like people who
4 are quick learners.

5 MS. RANDELL: Madam Chairman, could the
6 witness have the entire report --

7 DR. COLE: I have it --

8 CHAIRMAN KATZ: Yes --

9 DR. COLE: -- I do have it.

10 MS. RANDELL: Thank you.

11 CHAIRMAN KATZ: Yeah, we'll go back off
12 the record while everyone gets settled in with the paper.

13 (Off the record)

14 CHAIRMAN KATZ: Mr. Schaefer --

15 MR. SCHAEFER: Sir --

16 CHAIRMAN KATZ: -- if you could ask your
17 question again.

18 MR. SCHAEFER: Thank you. Isn't it true
19 that this report by the State of California declared EMF
20 a probable cause of acute childhood leukemia?

21 DR. COLE: Would you point me to the
22 statement that you're quoting?

23 MR. SCHAEFER: No, I'm asking you based on
24 your knowledge of this report whether that is an accurate

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1 summary of the conclusions of the report?

2 DR. COLE: As the panel can clearly see,
3 this document is about that thick --

4 CHAIRMAN KATZ: Yeah. I think it's fair
5 to give -- to give him a little more direction of where
6 in the document you're referring to. Is it conclusions
7 or --

8 MR. SCHAEFER: Well, I gave him the
9 statement to the public, that is the first page of --
10 well --

11 DR. COLE: It's page 119 that you gave me
12 --

13 MR. SCHAEFER: Correct --

14 DR. COLE: -- but I do have the whole
15 document --

16 MR. SCHAEFER: -- which is the first page
17 I have of the report. I --

18 CHAIRMAN KATZ: So your question is in
19 reference to page 119?

20 MR. SCHAEFER: Correct.

21 CHAIRMAN KATZ: Okay.

22 MR. ASHTON: I have a little problem in
23 asking him to characterize a printed document. Why
24 doesn't -- if you want to ask him something about a

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1 quotation from the document, that's fine, but the
2 document is the document is the document.

3 CHAIRMAN KATZ: Yeah --

4 A VOICE: It speaks for itself.

5 CHAIRMAN KATZ: Right. Let's -- can you
6 rephrase that, Mr. Schaefer.

7 MR. SCHAEFER: Dr. Cole, I understood --
8 (indiscernible) --

9 COURT REPORTER: Whoa --

10 MR. SCHAEFER: Doctor -- all set? Is
11 everybody all set? Referring to the first paragraph of
12 this page that's in front of you, using the traditional
13 guidelines of the International Agency for Research on
14 Cancer, do you see that?

15 DR. COLE: Yes.

16 MR. SCHAEFER: Okay. That the panel in
17 California classifications range from human carcinogen --

18 DR. COLE: No, no, wait -- no, wait a
19 minute. The first paragraph says nothing about the panel
20 in California --

21 MR. SCHAEFER: Okay --

22 MR. TAIT: That's IARC.

23 DR. BELL: (Indiscernible) -- that's not -

24 -

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1 CHAIRMAN KATZ: Just --

2 MR. SCHAEFER: Isn't it true, sir, that it
3 starts -- the introductory sentence is the reviewers
4 express their judgments using two distinct sets of
5 guidelines to evaluate the evidence --

6 DR. COLE: Yes --

7 MR. SCHAEFER: -- do you see that?

8 DR. COLE: Yes, I do.

9 MR. SCHAEFER: And then it says using the
10 traditional guidelines of the International Agency for
11 Research on Cancer for childhood leukemia, their --
12 referring to the reviewers --

13 DR. COLE: The three -- yes, I'm with you
14 now --

15 MR. SCHAEFER: -- correct --

16 DR. COLE: -- I do understand that.

17 MR. SCHAEFER: -- classifications for EMFs
18 range from human carcinogen to probable human carcinogen
19 to possible human carcinogen?

20 DR. COLE: Yes. Now may I respond
21 further?

22 CHAIRMAN KATZ: Well, I don't think
23 there's a question yet, is there?

24 MR. SCHAEFER: There's no question.

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1 A VOICE: There's no question --

2 MR. SCHAEFER: Now, I'd like to ask you
3 about the National Research Council. You're familiar
4 with --

5 DR. COLE: Well, no, wait a minute. There
6 may not be a question, but you have cited from a document
7 that is I think three or four hundred pages long one
8 particular statement. I will represent to this panel
9 that that is a misrepresentation of what follows even on
10 that one page --

11 MR. SCHAEFER: Well, sir --

12 CHAIRMAN KATZ: Well --

13 DR. COLE: -- much less of the rest of the
14 -- the rest of the document.

15 CHAIRMAN KATZ: I appreciate that, Dr.
16 Cole --

17 DR. COLE: Okay --

18 CHAIRMAN KATZ: -- but it's still cross-
19 examination and he still gets to ask you a question.

20 MR. SCHAEFER: I'm sure you'll have an
21 opportunity to make whatever comments you want.

22 CHAIRMAN KATZ: Yeah.

23 MR. SCHAEFER: Sir, I'd like to bring your
24 attention to the report of the National Research Council

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1 --

2 DR. COLE: Okay, are we done with this one
3 for now?

4 MR. SCHAEFER: For now.

5 CHAIRMAN KATZ: Just have --

6 MR. TAIT: What's the date of this
7 document?

8 CHAIRMAN KATZ: The date of this document,
9 the California document?

10 DR. BELL: June 2002 --

11 CHAIRMAN KATZ: Thank you --

12 DR. BELL: -- I'm sorry, June 2002.

13 CHAIRMAN KATZ: Okay.

14 MR. ASHTON: That's the date at the bottom
15 of the page that you handed out. Is that the date that
16 this document was prepared or is that simply the date of
17 a last revision or whatever --

18 DR. BELL: It's the date that it was
19 published, sir.

20 MR. ASHTON: That was the publication --

21 MS. RANDELL: Madam Chairman --

22 CHAIRMAN KATZ: Yes.

23 MS. RANDELL: -- it's my understanding
24 that the gentleman to Mr. Schaefer's right, Dr. Bell,

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1 will be a witness in this proceeding --

2 CHAIRMAN KATZ: Right.

3 MS. RANDELL: -- and it's highly unusual
4 to have him answering questions not as a sworn witness --

5 CHAIRMAN KATZ: Yeah, Dr. Bell --

6 MS. RANDELL: -- so could I ask that Mr.
7 Schaefer do the talking.

8 CHAIRMAN KATZ: Right. Dr. Bell, my
9 understanding of your role at this part in the proceeding
10 is that you were going to help Mr. Schaefer with
11 questions that he had, that he needed to present as the
12 cross-examiner. So, I'm going to ask you to supply --
13 and we'll wait and you'll get your turn.

14 DR. BELL: Thank you.

15 DR. COLE: Madam Chairman, may I offer one
16 comment just as a matter of fact?

17 CHAIRMAN KATZ: Well -- what -- the way I
18 had envisioned doing this, Dr. Cole, is I was going to
19 give Mr. Fitzgerald an opportunity to do a redirect after
20 Mr. Schaefer has concluded to sort of get your points in
21 at that time.

22 DR. COLE: I understand that, but an
23 assumption has been made by one of the panel members
24 which is incorrect and which Mr. Fitzgerald would have no

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1 way of knowing is incorrect.

2 CHAIRMAN KATZ: Well, I'm going to give
3 you --

4 MR. FITZGERALD: We'll talk -- we'll talk
5 --

6 CHAIRMAN KATZ: Yeah, you're going to have
7 a moment --

8 MR. ASHTON: Yeah, you'll have a chance.

9 CHAIRMAN KATZ: Yes. If you --

10 DR. COLE: Okay.

11 CHAIRMAN KATZ: You weren't here
12 yesterday, but I provided the Office of Consumer Counsel
13 that same opportunity, to take a break and confer before
14 redirect, and you will get that same opportunity.

15 DR. COLE: Thank you.

16 CHAIRMAN KATZ: But I want to let Mr.
17 Schaefer do his thing at this point.

18 MR. ASHTON: And the Council also gets a
19 lick at this too, so that --

20 CHAIRMAN KATZ: Yeah.

21 DR. COLE: Thank you.

22 MR. SCHAEFER: Dr. Cole, you said that
23 you're familiar with the National Institute for
24 Environmental Health Sciences of the National Institute

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1 of Health Workers Group Report, I think we've referred to
2 that previously?

3 DR. COLE: Yes. I --

4 MR. SCHAEFER: Okay --

5 DR. COLE: -- I think I understand which
6 document you mean.

7 MR. SCHAEFER: Alright. And in fact, do
8 you have that in front of you?

9 DR. COLE: I think -- I did have it in
10 front of me. It's been taken away. Maybe we can get it
11 back. Mr. Schaefer, there's some lack of clarity about
12 exactly which document you're referring to. There are
13 two that --

14 MR. SCHAEFER: It's the one that's
15 prepared in response to the 1992 Energy Policy Act. It
16 is NIH Publication No. 99-4493.

17 CHAIRMAN KATZ: Mr. Schaefer, are your
18 comments or questions sort of grouped by document?

19 MR. SCHAEFER: No.

20 CHAIRMAN KATZ: Oh.

21 MR. SCHAEFER: They're grouped by subject
22 matter --

23 CHAIRMAN KATZ: Okay. Then you're going
24 to have to give the witness a little time to do some

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1 shuffling --

2 MR. SCHAEFER: No problem.

3 CHAIRMAN KATZ: Okay.

4 A VOICE: (Indiscernible) -- what are we
5 looking for --

6 MR. SCHAEFER: May -- May -- 1999 --

7 CHAIRMAN KATZ: Off the record.

8 (Off the record)

9 CHAIRMAN KATZ: Let's go on the record.

10 And why don't you, Dr. Cole, indicate what document you
11 think you're being asked about?

12 DR. COLE: I think he's referring to
13 something that I call the NIEHS Working Group Report. I
14 heard him say working group.

15 CHAIRMAN KATZ: Mr. Schaefer, is that the
16 document you want to ask the witness about?

17 MR. SCHAEFER: Let me show him a copy so
18 that --

19 DR. COLE: Okay, that's a different one,
20 that's this one.

21 MR. SCHAEFER: Sir, to make sure that
22 we're both talking about the same report, does it have a
23 cover letter Dear Reader, dated May 4, 1999?

24 DR. COLE: Yes.

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1 MR. SCHAEFER: Alright, so now we're on
2 the same report. And sir, isn't it true that one of the
3 conclusions reached in this report is that EMF is a
4 possible human carcinogen?

5 DR. COLE: Could you point me to that?

6 MR. SCHAEFER: Sure. It's -- it's in the
7 -- well, it's on page 35, conclusions and
8 recommendations.

9 MR. ASHTON: Page 35 --

10 A VOICE: This report?

11 MR. SCHAEFER: Yes --

12 MR. EDWARD S. WILENSKY: Which report is
13 that in?

14 MR. SCHAEFER: Well, I have some copies I
15 can provide to the panel, excerpts --

16 MR. JAMES J. MURPHY, JR.: All we've got
17 here is --

18 MR. WILENSKY: There's no 35 in this --

19 MR. ASHTON: Ours are labeled with small
20 Roman numeral letters --

21 MR. SCHAEFER: Well, if --

22 CHAIRMAN KATZ: Don't speak away from the
23 microphone.

24 MR. SCHAEFER: Sorry.

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1 MR. ASHTON: Let's get the copies out --
2 we're confused here.

3 CHAIRMAN KATZ: We'll pass out some
4 copies. Okay, does the witness have page 35 in front of
5 him?

6 DR. COLE: I do, ma'am.

7 CHAIRMAN KATZ: Thank you.

8 (Off the record)

9 CHAIRMAN KATZ: Okay, we're back on the
10 record. Mr. Schaefer, you have a question.

11 MR. SCHAEFER: Dr. Cole, isn't it true
12 that this report reached the conclusion that EMF is a
13 possible carcinogenic to humans?

14 DR. COLE: No.

15 MR. SCHAEFER: Okay.

16 DR. COLE: What the report concluded is
17 encompassed in their statement on that page --

18 MR. SCHAEFER: Okay --

19 DR. COLE: -- and it says none of the
20 working group considered the evidence strong enough to
21 label ELF-EMF exposure as a known or probable human
22 carcinogen --

23 MR. SCHAEFER: Keep reading --

24 DR. COLE: -- however a majority, not a

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1 unanimity, of this working group, 19 out of 28 concluded
2 that exposure to the power line frequency ELF-EMF is a
3 possible. That is to say a majority put it in the lowest
4 category that was available to them.

5 MR. SCHAEFER: Right. And you disagree
6 with that conclusion, don't you?

7 DR. COLE: No, no, I will -- given that
8 you have those three categories, that is where I would
9 put it.

10 MR. SCHAEFER: You would put it in
11 possible?

12 DR. COLE: Given that I have those three.

13 MR. SCHAEFER: Aren't there lower
14 categories, sir?

15 DR. COLE: In the IARC system there is,
16 but there's only one or two agents in it.

17 MR. WILENSKY: What is the IARC?

18 CHAIRMAN KATZ: Can you just repeat it
19 again? I know you gave it before, but if you could
20 repeat again the IARC acronym?

21 DR. COLE: Yes. International Agency for
22 Research on Cancer. It is the cancer research arm of the
23 World Health Organization. I think I was asked, I'm not
24 sure, what is the system used by IARC. It is an

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1 extremely complex system, but somewhat simplified by
2 saying it consists of five categories, 1 -- and I'm going
3 to give you my own words to summarize it -- known human
4 carcinogen, 2A is probable, 2B is possible, 3 is evidence
5 is insufficient to allow a judgment, and category 4 in
6 which there are only two or three agents and could be
7 described as unlikely to prove to be.

8 CHAIRMAN KATZ: So they could have given
9 this a 3, but chose to make it a 2B?

10 DR. COLE: Well, they really couldn't give
11 it a 3, madam, given that there are 150 studies. They
12 couldn't say the evidence is inadequate. That category
13 is essentially reserved for bodies of knowledge which are
14 very thin or very sparse. I guess the literal answer to
15 your question is yes they could have put it in 3, but
16 there would be no precedent for that.

17 CHAIRMAN KATZ: If they did not think it
18 was a human -- any possibility of being a human
19 carcinogen, what category would they put it in?

20 DR. COLE: Four.

21 CHAIRMAN KATZ: Thank you.

22 MR. SCHAEFER: Now, going on into
23 conclusions just where you were reading, the next
24 sentence says this decision was based largely on, quote,

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1 "limited evidence of increased risks of childhood
2 leukemias" --

3 DR. COLE: May -- may I ask where you are?

4 MR. SCHAEFER: I'm in the sentence after
5 you just read on page 35 --

6 DR. COLE: Okay.

7 MR. SCHAEFER: -- just continuing on.

8 That this decision was based largely on, quote, "limited
9 evidence of an increased risk for childhood leukemias
10 with residential exposure and increased occurrence of
11 chronic lymphocytic leukemia associated with occupational
12 exposure", is that correct?

13 DR. COLE: You have read it correctly.

14 MR. SCHAEFER: Alright. And the next
15 sentence -- the next paragraph reads the NE -- the NIEHS
16 agrees that associations reported for childhood leukemia
17 and adult chronic lymphocytic leukemia cannot be
18 dismissed easily as random or negative findings. Do you
19 agree with that conclusion?

20 DR. COLE: No, not at present.

21 MR. SCHAEFER: Okay. The --

22 CHAIRMAN KATZ: Turn your -- put your mic
23 between you and Mr. Schaefer -- can you sort of push your
24 mic that way -- great --

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1 DR. COLE: How's this? I disagree with
2 that statement at present.

3 MR. SCHAEFER: Alright. And then I'd like
4 you to go down a couple of paragraphs --

5 CHAIRMAN KATZ: Just --

6 MR. FITZGERALD: Couldn't he read the next
7 sentence?

8 CHAIRMAN KATZ: Yes. Just a second, I'm
9 going to let Mr. Emerick --

10 MR. BRIAN EMERICK: Did you at one point
11 ever agree with that statement?

12 DR. COLE: I think that there was a time
13 when the information on childhood leukemia could not be
14 dismissed lightly -- actually, I don't like the word
15 lightly at all of course, but could not be dismissed.

16 MR. EMERICK: Well, seeing that time has a
17 lot to do with the way we develop our judgments --

18 DR. COLE: Very much --

19 MR. EMERICK: -- when this statement was
20 made in --

21 DR. COLE: '98.

22 MR. EMERICK: In '98. Could you agree
23 with it in '98?

24 DR. COLE: No, I would not have agreed

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1 with it even then.

2 MR. EMERICK: When would you have ever
3 agreed with it?

4 DR. COLE: As late as 1988.

5 MR. O'NEILL: Was there a MEDA study --

6 DR. COLE: Pardon?

7 MR. O'NEILL: -- that was done that
8 convinced you to your current position?

9 DR. COLE: I wouldn't say that there was
10 any one study, but the London study of -- I believe it
11 was 1989 or '90, London being the author of the study
12 being done in Los Angeles, was in my judgment a
13 persuasively negative study on childhood leukemia. The
14 subsequent studies have all been negative.

15 MR. O'NEILL: What was it in that report
16 that made you change your mind or adopt a new point of
17 view? Was it the --

18 DR. COLE: I'm sorry, sir, I can't hear --

19 MR. O'NEILL: Was it -- was it the quality
20 of research in that report that convinced you to come to
21 this conclusion?

22 DR. COLE: Yes.

23 CHAIRMAN KATZ: Mr. Emerick.

24 MR. EMERICK: I'm getting the timetable

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1 mixed up here as well. The statement that was just read
2 that's in 1992 --

3 A VOICE: No --

4 MR. EMERICK: No?

5 A VOICE: '99.

6 DR. COLE: Excuse me, let me just get it
7 straight --

8 MR. EMERICK: Yeah.

9 DR. COLE: The date given on the document,
10 the only date that I see is 1999 --

11 MR. EMERICK: Okay --

12 DR. COLE: -- and that's in the cover
13 letter of transmission. It says prepared in response to
14 a 1992 Energy Policy Act, but the document itself -- well
15 if we look at NIH publication on the cover, it's clearly
16 a 1999 document.

17 MR. EMERICK: A 1999 document, but when
18 did this group conclude it given that we've already
19 recognized a couple of years may elapse between a finding
20 and when it's published? And I find it ironic that in
21 '99 we had this statement, back in '89 I think you said
22 you would have agreed with it, and 10 years later you
23 don't, and I'm kind of wondering was this statement made
24 maybe in 19 -- I don't know --

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1 DR. COLE: I think it was made -- I think
2 it was made in 1992. There's a statement here executive
3 summary, it says in 1992, and then the rest of it says in
4 a sense this committee was pulled together.

5 MR. SCHAEFER: Sir, I want to make sure
6 your testimony -- you understand that you're giving sworn
7 testimony here. Are you saying that you believe that
8 this study was done in 1992?

9 DR. COLE: Well firstly, my swearing of it
10 -- I'm trying to tell you the truth here and the
11 circumstances as best I understand them. If you want to
12 press the issue, then I'll say I have no idea when this
13 was done. I believe it was published in 1992.

14 MR. SCHAEFER: You believe that this study
15 was published in 1992?

16 DR. COLE: Yes. I'm -- I'm sorry, 1999.

17 MR. SCHAEFER: Thank you, sir.

18 DR. COLE: It was commissioned in 1992.

19 CHAIRMAN KATZ: Mr. Schaefer, we allow
20 witnesses to be mistaken on factual things without
21 questioning their ability to determine the difference
22 between telling the truth and telling an untruth --

23 MR. SCHAEFER: Okay --

24 CHAIRMAN KATZ: -- so just give him that

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1 benefit please.

2 MR. SCHAEFER: Now sir, you said that
3 you're familiar with a report on this subject by the
4 National Radiological Protection Board. And I don't know
5 if you have that report in front of you, it's ELF
6 Electromagnetic Fields and the Risk of Cancer, report of
7 an advisory group on non-ionizing radiation?

8 DR. COLE: You are referring to a report
9 from the United Kingdom, is that correct?

10 MR. SCHAEFER: Correct.

11 DR. COLE: Okay. No, I don't have it in
12 front of me.

13 MR. SCHAEFER: Okay. But it is one of the
14 things that you reviewed --

15 DR. COLE: I have -- I do have it in front
16 of me now.

17 MR. SCHAEFER: Great. And it's one of --

18 CHAIRMAN KATZ: I'm glad Mr. Carberry is
19 earning his keep over there --

20 DR. COLE: He's got some help.

21 MR. SCHAEFER: And sir, that's one of the
22 things that you took into account in forming your opinion
23 didn't you?

24 DR. COLE: Oh, very much so.

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1 MR. SCHAEFER: Alright. And is it fair to
2 say that this report concluded that the consistency in
3 the data showing a positive relationship between EMF and
4 childhood leukemia was unlikely due to chance?

5 DR. COLE: Okay, may I ask where you're
6 reading?

7 MR. SCHAEFER: I'm going to point you to
8 the conclusion section, if you'll look at page 164.

9 DR. COLE: Yes, I have it.

10 MR. SCHAEFER: Again, this is a long
11 report, but I have some excerpts.

12 MS. RANDELL: Madam Chairman, while Mr.
13 Schaefer is handing them out -- (indiscernible) --

14 COURT REPORTER: Speak -- I'm sorry, get a
15 microphone please.

16 AUDIO TECHNICIAN: Speak into a microphone
17 please.

18 MS. RANDELL: Sorry, Tony.

19 CHAIRMAN KATZ: I'd just like to say in
20 preface for our May hearings, I don't like a lot of paper
21 being passed out at the last minute. And I really would
22 appreciate before the May hearings that we have these
23 things entered and prefiled. It just makes our life
24 easier and I think it makes for better -- developing a

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1 better record.

2 MR. SCHAEFER: Madam Chair, we -- these
3 are all contained in our appendix. And we can make a
4 full appendix available for each member of the Council if
5 you'd like. I understood with the bulk filing we were
6 suppose to do four, but I'd be glad to make a full
7 appendix available for each member of the Council.

8 CHAIRMAN KATZ: That would be helpful.

9 MR. ASHTON: Particularly when they're
10 only --

11 CHAIRMAN KATZ: And for the Applicant.
12 Does the witness have the document?

13 DR. COLE: Madam, I have the page of the
14 document -- I do have the whole document I think, and I
15 have the page in front of me, and I'm failing to find the
16 statement that --

17 CHAIRMAN KATZ: Okay, Mr. Schaefer, why
18 don't you lead the witness to it.

19 MR. SCHAEFER: What I'll do is come back
20 to it rather than taking the time now.

21 DR. COLE: Well then I'm going to assert
22 that it is not on that page.

23 MR. SCHAEFER: Fine, okay, and I said I'll
24 come back to it. That has the conclusions, it doesn't

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1 have that statement, so I'll come back to that when we
2 find that statement.

3 Sir, you're familiar with -- let me
4 withdraw that. I'd like to talk to you generally about
5 the field of epidemiology. Is it fair to say that this
6 is a branch of science that seeks to identify the causes
7 of diseases in human beings by studying human beings?

8 DR. COLE: Yes.

9 MR. SCHAEFER: Okay.

10 DR. COLE: I believe you're reading
11 something I wrote.

12 MR. SCHAEFER: Well -- (laughter) -- and
13 the -- the results result in -- the report results are in
14 the form of statistical associations?

15 DR. COLE: That is a true statement, but I
16 don't think I wrote that. But I won't comment on the
17 authorship further.

18 MR. SCHAEFER: And sir, would you agree
19 with me that the individual studies, the MEDA analysis,
20 and the independent scientific panels all find a
21 statistical association between EMF and childhood
22 leukemia?

23 DR. COLE: There would have been a time
24 when that statement was correct. It is not correct any

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1 more.

2 MR. SCHAEFER: Now in your testimony you
3 talk about the -- you use an example of the rooster
4 crowing. Do you remember that example?

5 DR. COLE: Yes, I do.

6 MR. SCHAEFER: Alright. And in fact, you
7 give this example of a strong association that doesn't
8 reflect a cause and effect relationship, isn't that
9 correct?

10 DR. COLE: Correct. It is a non-causal
11 association.

12 MR. SCHAEFER: Alright. And it's very
13 easy to determine that because all you have to do is
14 remove the rooster and if the sun rises, you know it's
15 not a cause and effect relationship --

16 DR. COLE: You have to --

17 MR. SCHAEFER: -- isn't that correct?

18 DR. COLE: You have to kill him.

19 MR. SCHAEFER: Or you can remove him --
20 okay, well I'm more kind -- but you -- (laughter) -- but
21 isn't it true that if you remove the rooster and the sun
22 rises, it shows you there's not a cause and effect
23 relationship?

24 DR. COLE: I don't think we have to

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1 belabor this. We all know that the rooster crowing is
2 not causing the sun to rise.

3 MR. SCHAEFER: Okay. Now is it fair to
4 say that part of the study of epidemiology or the
5 practice of it is to determine if there are factors that
6 can explain the association between two phenomena other
7 than the hypothesis or the thesis of the research,
8 something called confounding factors?

9 DR. COLE: Well, you've asked your
10 question in such a way that I can't answer it with a yes
11 or no, so let me state simply that any association that
12 is found in epidemiology or in any branch of science has
13 four possible explanations. One of them is causality.
14 And of course it is the purpose of the investigator to
15 evaluate all four. Confounding is another one of the
16 four.

17 MR. SCHAEFER: Okay. And --

18 CHAIRMAN KATZ: Okay, so what are the
19 other two?

20 DR. COLE: Chance and bias. Bias meaning
21 not prejudice in the usual lay sense, but systematic
22 error.

23 MR. SCHAEFER: Now in terms of those four
24 results or outcomes -- I don't know what you call them --

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1 DR. COLE: Alternative explanations --

2 MR. SCHAEFER: Alternative explanations.

3 In terms of the relationship between EMF and childhood
4 leukemia, are you aware of a confounding factor that
5 explains the statistical association shown in the studies
6 between EMF levels and childhood leukemia?

7 DR. COLE: No.

8 MR. SCHAEFER: Okay. In terms of chance,
9 would you agree with me that -- well, we'll go back to
10 the studies, but that a number of the studies have
11 concluded that the statistical association cannot be
12 explained by chance?

13 DR. COLE: A number of the studies had
14 findings that could not be explained by chance. Some
15 were explicable by chance, some were explicable by bias.

16 MR. SCHAEFER: How about the MEDA
17 analyses, were they -- didn't they conclude that the
18 statistical association was very unlikely to be explained
19 by chance?

20 DR. COLE: Well there are three of them.
21 Let's look first, if I may, at the Greenland result.
22 Many of their results, including their overall finding
23 was consistent with chance. They did a variety of
24 analyses and some were -- some were not consistent with

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1 chance. The other one that I happen to favor is the
2 Ahlbom MEDA analysis. That is the one you will recall
3 where they found an association only in the greater than
4 four milligauss group, that is in less than one percent
5 of the population. It was just barely statistically
6 significant yes, so it was statistically significant, but
7 they opined that some part of the finding was likely to
8 be due to what they called selection bias or as I call it
9 just generically bias. Whether or not if that bias could
10 be corrected for the residual association would remain
11 statistically significantly is highly unlikely in my
12 opinion.

13 MR. SCHAEFER: Alright. And by the way,
14 when was Ahlbom done?

15 DR. COLE: 2003.

16 MR. SCHAEFER: Okay. And in terms of --
17 do they quantify the chance that -- or the -- a
18 mathematical number that's placed on the possibility that
19 the results were explainable by chance?

20 DR. COLE: Well --

21 MR. FITZGERALD: Objection. Who do you
22 mean by they?

23 MR. SCHAEFER: The authors of the study.
24 In the study is that one of the --

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1 MR. FITZGERALD: We're talking about the
2 Ahlbom study?

3 MR. SCHAEFER: I'm talking about the
4 Ahlbom study.

5 CHAIRMAN KATZ: Mr. Fitzgerald, you're
6 going to have to lean in when you do that.

7 MR. FITZGERALD: I'm sorry.

8 DR. COLE: I'm a little confused as to
9 whether the question is a general one or whether or not
10 Ahlbom did use some quantitative description of the role
11 of chance.

12 MR. SCHAEFER: Okay. Well, I'm asking you
13 initially about Ahlbom --

14 DR. COLE: Okay. Without looking at it --
15 well, I do recall that they made a statement that that
16 particular finding that I referred to was unlikely to be
17 due to chance. There are at least two ways of describing
18 the role of chance. I can't remember which one they
19 used.

20 MR. SCHAEFER: Okay. And sir, again from
21 your memory, and if time permits we can go back through
22 the different studies, with respect to the independent
23 panels that we've referred to, do you recall whether or
24 not those panels reached conclusions as to whether or not

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1 the association of EMF and childhood leukemia could be
2 explained by chance?

3 MR. FITZGERALD: I'm going to object to
4 that question because I don't know what he means by the
5 independent panels we've referred to. I think we need a
6 more specific reference.

7 CHAIRMAN KATZ: Can you rephrase the
8 question please.

9 MR. SCHAEFER: Sure. I'm talking about
10 the National Research Council, the National Institute for
11 Environmental Health Sciences, the National Radiological
12 Protection Board, the International Agency for Research
13 on Cancer, the International Commission for Non-Ionizing
14 Radiation Protection, and the California Health and Human
15 Services Agency. I'm asking you whether or not all these
16 independent scientific panels concluded that -- (1) that
17 there was an association between -- a statistical
18 association between EMF levels and childhood leukemia?

19 DR. COLE: Mr. Schaefer, your question
20 cannot be answered because of the number of panels that
21 you have mentioned because they use different approaches
22 to describing the certainty with which they held their
23 opinion and the extent to which and the way in which they
24 describe the role of chance. For example, the California

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1 Department of Health and Human Services does not quantify
2 the role of chance but rather gives verbal descriptions,
3 which I may say differed among the three reviewers.
4 Others say that they considered it unlikely to be due to
5 chance but did not give a measure of chance, which is
6 often very difficult to do when reviewing a large number
7 of studies, and many people would say is not particularly
8 meaningful when reviewing a large number of studies. So,
9 I can't give you a yes or no to that.

10 MR. SCHAEFER: Alright. I'd like to talk
11 to you about your test -- your prepared testimony and you
12 make reference to the Hill criteria. Do you recall that
13 reference?

14 DR. COLE: Yes.

15 MR. SCHAEFER: Alright. And I believe at
16 page 5 of your prepared testimony you say that these are
17 criteria used for evaluating multiple studies of the same
18 suspected risk factor and evaluating the data by standard
19 criteria. Am I -- is that correct?

20 DR. COLE: Well just give me a moment
21 please to look at what I actually said, I just found it.
22 (Pause). Now may I ask for you to repeat your question.

23 MR. SCHAEFER: Sure. I was actually
24 reading from the first sentence of your answer to the

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1 question how do epidemiologists determine whether
2 associations that are documented by individual studies
3 are causal. And you respond these determinations are
4 made by evaluating multiple studies of the same suspected
5 risk factor and evaluating the data by standard criteria.

6 Do you see that?

7 DR. COLE: Yes.

8 MR. SCHAEFER: And you say that the
9 criteria are call the Hill criteria --

10 DR. COLE: Yes --

11 MR. SCHAEFER: -- is that correct?

12 DR. COLE: Yes, sir.

13 MR. SCHAEFER: And then there are six
14 different components of the Hill criteria, is that
15 correct?

16 DR. COLE: There are.

17 MR. SCHAEFER: Okay. One is the strength
18 of association, is that correct?

19 DR. COLE: Yes.

20 MR. SCHAEFER: One is the dose response,
21 is that correct?

22 DR. COLE: Yes, sir.

23 MR. SCHAEFER: One is the consistency of
24 the association?

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1 DR. COLE: Yes.

2 MR. SCHAEFER: One is the specificity?

3 DR. COLE: Yes, sir.

4 MR. SCHAEFER: One is the biological
5 plausibility?

6 DR. COLE: Yes, sir.

7 MR. SCHAEFER: And one is the temporal
8 relationship?

9 DR. COLE: Yes, sir.

10 MR. SCHAEFER: Alright. And then after
11 listing -- well, I guess one other thing in terms of
12 talking about the methodology used, is in order for there
13 to be a causal relationship, you don't have to satisfy
14 all six criteria, do you?

15 DR. COLE: That's true.

16 MR. SCHAEFER: Okay. And that it's a
17 matter of judgment whether or not the criteria -- enough
18 criteria have been satisfied and the degree to which
19 they're satisfied in order to make a judgment whether or
20 not there's a causal relationship?

21 DR. COLE: Exactly.

22 MR. SCHAEFER: Alright. And the only one
23 that's absolutely necessary is the temporal relationship?

24 DR. COLE: It is true that is a necessary

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1 one, but it is also true that it is a trivial one.

2 MR. SCHAEFER: Okay. And in fact, you
3 would agree with me that the temporal relationship
4 criteria is satisfied in this circumstance of EMF
5 exposure and childhood leukemia?

6 DR. COLE: Well, that's a tough one
7 because you're asking me, in effect, if was satisfied for
8 each and every one of more than 50 studies. But I will
9 say that certainly it must have been met in the vast
10 majority of them, perhaps in all of them.

11 MR. SCHAEFER: Okay. But you don't
12 believe -- your opinion is you don't believe any of the
13 other criteria are satisfied in evaluating the
14 relationship between EMF exposure and childhood leukemia,
15 is that correct?

16 DR. COLE: Hold on. These criteria or
17 guidelines, however we wish to refer to them, are to be
18 applied to each and every one individually of the
19 studies. So if you ask me if -- if the criteria are
20 evaluated collectively for the body of literature, I will
21 give you one answer. If you ask me whether the criteria
22 are met in the context of this one particular study, you
23 will get a different answer --

24 MR. SCHAEFER: Okay --

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1 DR. COLE: -- and then when you go on to
2 the next study, you may very well get yet a different
3 answer --

4 MR. SCHAEFER: Okay --

5 DR. COLE: -- so all I'm pointing out is
6 that there is a stage beyond the assessment of individual
7 studies, which we would call the assessment of the
8 general case, or as I believe you attorneys call general
9 causation, which goes beyond the information that comes
10 from any one study.

11 MR. SCHAEFER: Well, I think you're -- the
12 way you expressed your conclusion on the application of
13 the Hill criteria in your testimony, if you look at page
14 7, you -- based on -- the -- I'll read it -- as all of
15 the national and international multi-disciplinary
16 scientific bodies who evaluated the literature have
17 concluded -- that's how you gave your conclusion in terms
18 of the application of the Hill criteria, is that correct?

19 DR. COLE: Let me -- let me be clear.
20 When I was describing the criteria, I was describing how
21 they are applied to individual studies. When I was
22 applying them here on page 7, I was applying them to the
23 body of knowledge.

24 MR. SCHAEFER: Okay. And so now looking

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1 at it as an application to the body of knowledge --

2 DR. COLE: Okay --

3 MR. SCHAEFER: -- you are stating in your
4 testimony that all of the national and international
5 multi-disciplinary scientific bodies who have evaluated
6 the literature have reached these conclusions that you
7 list, that follow in your answer on page 7 --

8 DR. COLE: No, sir --

9 MR. SCHAEFER: -- is that correct?

10 DR. COLE: No, sir, that's an over-
11 interpretation. My attribution to the all of the
12 national and international multi-disciplinary scientific
13 bodies stops at the first period. Where I begin with the
14 word where an association is found, that is my
15 interpretation.

16 MR. SCHAEFER: Alright. So that that --
17 your -- your claim with respect to the unanimous finding
18 of these multi-disciplinary scientific bodies only
19 applies to the statement that the studies -- and I
20 presume you mean the individual studies and MEDA analysis
21 they are evaluating, is that correct, is that what
22 studies refer to?

23 DR. COLE: In most cases it would not have
24 included the MEDA analysis.

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1 MR. SCHAEFER: Okay. That the studies do
2 not provide a basis for concluding that there is any
3 causal association?

4 DR. COLE: Correct.

5 MR. SCHAEFER: Okay. Now, I want to
6 understand, the causal association is not solely an
7 epidemiological conclusion, is that correct?

8 DR. COLE: That is correct.

9 MR. SCHAEFER: Okay. That -- would you
10 agree with me that you can say that epidemiology as this
11 panel has divided it is epidemiology looks at whether
12 there is an association between two factors and whether
13 that association can be explained by the different
14 confounding factors, chance or bias as you've describe,
15 and then there's a separate area of inquiry that deals
16 with whether or not there's a biological explanation for
17 a causal relationship, is that correct?

18 DR. COLE: I don't know whether you're
19 attributing that to me, in which case I renounce it, or
20 to this panel, in which case I guess each person speaks
21 for himself. That is certainly not in my description of
22 what epidemiology is.

23 MR. SCHAEFER: Okay. Would you agree that
24 part of an investigation of whether something like EMF

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1 has a causal relationship with something like childhood
2 leukemia involves biological inquiry?

3 DR. COLE: Yes.

4 MR. SCHAEFER: Alright. And that is
5 looking to see if there is a biological mechanism that
6 can explain the cause of the particular cancer --

7 DR. COLE: No --

8 MR. SCHAEFER: -- that you're trying to
9 examine?

10 DR. COLE: No. That's too high a
11 standard. It doesn't have to be able to, it has to be
12 only plausible.

13 MR. SCHAEFER: Okay, that it's plausible -
14 -

15 DR. COLE: Yes.

16 MR. SCHAEFER: Fine, alright. And that's
17 not an area of your expertise, is that correct, that
18 biological investigation?

19 DR. COLE: Ordinarily it is not. In the
20 area of electromagnetic fields and childhood leukemia, I
21 consider that it is.

22 MR. SCHAEFER: I see. And have you
23 published on that?

24 DR. COLE: No.

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1 MR. SCHAEFER: Now when you use the
2 terminology, and going back to your testimony, that there
3 is no causal association --

4 DR. COLE: May I ask where we are?

5 MR. SCHAEFER: Yeah. Page 7 -- 1, 2, 3,
6 4, 5 -- it's the sixth line down on my copy -- it's the
7 beginning of the answer to the question how do the Hill
8 criteria apply to the studies of exposure to EMF and
9 cancer. Do you see that?

10 DR. COLE: I see --

11 MR. SCHAEFER: And you--

12 DR. COLE: -- that question and answer. I
13 don't see the statement that you're reading.

14 MR. SCHAEFER: Alright. Well, you told me
15 that this reference to all these national and
16 international multi-disciplinary scientific bodies refers
17 to the first conclusion, and that is the studies do not
18 provide a basis for concluding that there is any causal
19 association?

20 DR. COLE: Yes, sir.

21 MR. SCHAEFER: Alright. And when you use
22 the terminology causal association are you including
23 within that evaluation the biological research?

24 DR. COLE: No.

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1 MR. SCHAEFER: Okay.

2 DR. COLE: That is to say I am not
3 invoking the idea that these committees or scientific
4 bodies did or did not rest their case or make their case
5 to any greater or lesser degree on the epidemiology, the
6 animal studies, the sub-animal studies, or the theory.
7 This is a summary statement. It says that those bodies -
8 - on the basis of the information that those bodies, and
9 they reviewed different amounts of information, despite
10 what they did, some everything, some just the
11 epidemiology, none of them, not one of them has ever
12 concluded that there is a causal relationship between
13 electromagnetic field and any form of cancer in human
14 beings.

15 MR. SCHAEFER: Okay. And so I'm trying to
16 understand whether you use the term causal relationship
17 to mean something different in a statistical association?

18 DR. COLE: Very much so.

19 MR. SCHAEFER: Alright. And the
20 statistical association is one of the results that comes
21 out of an epidemiological study, is that correct?

22 DR. COLE: Well you know, Mr. Schaefer,
23 the thing that makes it a little difficult for me to
24 answer your questions at times is that I don't know at

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1 what level of refinement you're going next. So that
2 compels me to respond to your question in a most literal
3 sense -- now I've forgotten the question -- (laughter) --

4 COURT REPORTER: One moment please.

5 (Pause). Thank you.

6 DR. COLE: It's just that there are times
7 when every single word counts --

8 MR. FITZGERALD: No, no, there's nothing -
9 - nothing pending.

10 CHAIRMAN KATZ: Mr. Emerick.

11 MR. EMERICK: Yes, I have a question.
12 You've been using the word casual relationship and casual
13 association --

14 DR. COLE: Those -- those are the same --

15 MR. EMERICK: -- and I get flipped around
16 --

17 DR. COLE: Those are the same.

18 MR. EMERICK: They are the same. Thank
19 you.

20 MR. SCHAEFER: Okay. If you have the
21 NIEHS report that we were referring to previously, the
22 one that we said had the date of --

23 DR. COLE: This one --

24 MR. SCHAEFER: -- May 4, 1999 -- okay. If

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1 you could look at page 36 and we'll see if this will be
2 of assistance.

3 DR. COLE: Yes, I have it.

4 MR. SCHAEFER: Alright. And the first
5 full paragraph -- I believe that is one of the pages that
6 are included in the -- the first full paragraph says the
7 NIEHS agrees that the associations reported for childhood
8 leukemia and adult chronic lymphocytic leukemia cannot be
9 dismissed easily as random or negative findings. Did I
10 read that correctly?

11 DR. COLE: Yes.

12 MR. SCHAEFER: And the next sentence says
13 the lack of positive findings in animals or in
14 mechanistic studies weakens the belief that this
15 association is actually due to ELF-EMF but cannot
16 completely discount the finding. Do you see that?

17 DR. COLE: Yes.

18 MR. SCHAEFER: Alright. And when you use
19 in your testimony the language causal association, were
20 you including in reaching that conclusion in your summary
21 of these scientific findings both the first and second
22 sentence I just read?

23 MR. FITZGERALD: I -- I don't understand
24 that question, so I'm going to object --

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1 MR. SCHAEFER: I'll rephrase it. Were you
2 -- when you talk about causal association, you're not
3 just talking about what's referred to in this sentence
4 where the NIEHS talks about the associations reported for
5 childhood leukemia and adult chronic lymphocytic
6 leukemia, but you were also including within that an
7 evaluation of the findings in animals or other
8 mechanistic studies, isn't that correct?

9 DR. COLE: It doesn't matter. My
10 statement that the NIEHS did not reach a causal
11 interpretation for any form of cancer can be sustained in
12 my belief entirely by either the first sentence or the
13 two sentences.

14 MR. SCHAEFER: Got'cha, great. And then
15 when you say and it is -- I'm back to your testimony now,
16 going on -- and it is doubtful that they established any
17 real association at all, what is a real association in
18 the way you use that term?

19 DR. COLE: It means an association which
20 in the presence of all of the information is unlikely to
21 be due to bias, chance, or confounding.

22 MR. SCHAEFER: Okay. Including the
23 biological studies?

24 DR. COLE: No. The reference here is to

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1 the ultimate result, human beings.

2 MR. SCHAEFER: Alright. I guess what --
3 I'll ask it a different way, the way you just expressed
4 it, that your -- the -- the conclusion that it's doubtful
5 that they -- that these studies establish any real
6 association at all, could that conclusion be made solely
7 looking at the epidemiological studies?

8 DR. COLE: Yes.

9 MR. SCHAEFER: Okay. Now, you also say,
10 going on to deal with the other Hill criteria, that there
11 is no indication of a dose response. Do you see that?

12 DR. COLE: Yes.

13 MR. SCHAEFER: And is it your belief --

14 DR. COLE: May I remind you that this is
15 referring to the collective body of evidence now and not
16 to any one study.

17 MR. SCHAEFER: Right. Well, I want to ask
18 it in terms of the MEDA analysis. There are only three
19 of those, right?

20 DR. COLE: Yes.

21 MR. SCHAEFER: Okay.

22 DR. COLE: That's fine.

23 MR. SCHAEFER: Is it fair to say that with
24 respect to those three, that they show a relative

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1 increased risk for childhood leukemia, exposure levels
2 over 2 milligauss, 3 milligauss and 4 milligauss?

3 DR. COLE: Well, let's -- maybe the best
4 way to respond to that is to take a look at the MEDA
5 analysis. The first one that comes to hand is the
6 Ahlbom. And let's see if we can agree on which data that
7 we should be looking at because there are many. May I
8 suggest Table 4.

9 MR. SCHAEFER: Pardon?

10 DR. COLE: May I suggest Table 4 in
11 Ahlbom. It's restricted to ALL, the common form as
12 opposed to Table 5, which is all forms of leukemia. It
13 won't matter if you choose another table, that will be
14 fine.

15 MR. SCHAEFER: Well, let's look -- let's -
16 - you've got Table 4 in front of you --

17 CHAIRMAN KATZ: Can you just give us a
18 reference, Table 4 where?

19 DR. COLE: This is Table 4 on page 696 in
20 the paper by Ahlbom -- that's A-h-l-b-o-m --

21 CHAIRMAN KATZ: Mr. Schaefer, is this part
22 of your bulk filing?

23 MR. SCHAEFER: It is, Your Honor -- it is,
24 sir -- Madam Chairman. Sorry. And -- Your Honor is not

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1 so bad either. And I apologize, I didn't know he would
2 be referring to this specific study --

3 CHAIRMAN KATZ: Okay --

4 MR. SCHAEFER: -- but again it will be --
5 it is in the bulk --

6 CHAIRMAN KATZ: Okay --

7 MR. SCHAEFER: -- and we will make copies
8 available.

9 DR. COLE: Wait a minute, I'm not
10 referring to an individual study, I thought you were. If
11 you don't want to refer to an individual study and you
12 want to ask me about MEDA analyses in general and whether
13 they show dose response, fine. I misunderstood.

14 MR. SCHAEFER: I believe I asked you the
15 question in general and you said let's look at the
16 specific study. Maybe I misunderstood you.

17 DR. COLE: Well, there was a little
18 misunderstanding. We'll do it whichever way you like --

19 CHAIRMAN KATZ: Let's --

20 MR. SCHAEFER: Alright. Well --

21 CHAIRMAN KATZ: Start over. Why don't you
22 ask the question again.

23 MR. SCHAEFER: Sure. Let's look at, as
24 you pointed out, Table 4. And I believe -- let's look at

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1 the bottom, all studies.

2 DR. COLE: Okay. May I -- I'm sorry,
3 maybe I'm not --

4 MR. SCHAEFER: Okay, can you tell me
5 whether or not the relative risk increased with the
6 amount of exposure to EMF?

7 DR. COLE: Okay, let me just explain since
8 the panel doesn't have this in front of them, that what
9 we are looking at is the results of a MEDA analysis. One
10 of the sets of results is showing the relative risks of
11 leukemia, actually acute lymphocytic leukemia, the common
12 leukemia of childhood, at three levels of exposure to
13 electromagnetic fields less than 2 milligauss, 2 to 4,
14 and then greater than 4. And the three results are 1.08,
15 1.12 and 2.08. And I have been asked the question as to
16 whether or not those three levels show a progression.
17 And the answer to that is not a meaningful one.

18 MR. SCHAEFER: Do they show a progression,
19 sir?

20 DR. COLE: Each one is higher than the one
21 before it --

22 MR. SCHAEFER: Right, and would that be
23 considered --

24 DR. COLE: -- but it is not what I call a

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1 dose response relationship because the magnitude of the
2 increase is not proportional to the magnitude of the
3 increase in the exposure, which is what is meant by dose
4 response.

5 MR. O'NEILL: If I may just ask a quick
6 question at this point. At what point does the dosage
7 become dangerous in your mind?

8 DR. COLE: It is not, sir, a question of a
9 dose response becoming dangerous. It is a question --
10 this becomes an issue not of public health, but of
11 science and trying to establish causality. If the dose
12 response relationship is what we call consistent, then it
13 supports causal interpretation. Then the question of
14 given there's a causal interpretation what the public
15 health implications are, that's something that has to be
16 entertained as a second order question.

17 MR. O'NEILL: Well let me ask that
18 question then. As a causal analysis is there a point at
19 which there is a point in which it becomes an elevated
20 concern?

21 DR. COLE: I'm so glad you asked that
22 question because I can in all conscience refer that to
23 Mr. Bailey -- to Dr. Bailey --

24 CHAIRMAN KATZ: Well --

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1 DR. COLE: -- and I could use a drink as
2 they say.

3 CHAIRMAN KATZ: Yeah. Well, let's -- on
4 that note, Mr. Schaefer, sometime between now and 3:00
5 o'clock I'd like to start our 10-minute afternoon break.
6 So I'd like as you do your cross-examination think about
7 when would be a good time in your questions to
8 intersperse that break.

9 MR. SCHAEFER: Anytime the panel wants is
10 fine.

11 CHAIRMAN KATZ: We will recess for 10
12 minutes.

13 (Whereupon, a short recess was taken.)

14 CHAIRMAN KATZ: I'd like to outline the
15 timetable for the rest of the afternoon --

16 MR. S. DEREK PHELPS: Do you want to do
17 this on the record, Madam Chair?

18 CHAIRMAN KATZ: Yes, let's do this on the
19 record. Mr. Schaefer, is going to continue his cross-
20 examination -- and in fact we have a question pending,
21 don't we, Mr. O'Neill?

22 MR. O'NEILL: That is correct.

23 CHAIRMAN KATZ: Okay, we'll do that. At
24 approximately 3:45 I'd like to cut off that cross-

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1 examination to be continued at a later date to allow Mr.
2 Fitzgerald to redirect on what we've heard so far if you
3 wish. And we're -- selfishly I'd like to -- if you have
4 anything on redirect on this witness that you'd like to
5 do today, I want to give you an opportunity.

6 MR. FITZGERALD: Thank you for that, but -

7 -

8 A VOICE: (Indiscernible) --

9 A VOICE: He gets a long way from that
10 mic.

11 MR. FITZGERALD: I appreciate the
12 consideration, but I think we will not take you up on
13 that --

14 CHAIRMAN KATZ: Okay --

15 MR. FITZGERALD: -- however, we do have
16 another request.

17 CHAIRMAN KATZ: Okay.

18 MR. FITZGERALD: Dr. Aaronson has an
19 appointment in New York this evening for which he would
20 like to get to New Haven for a 5:40 train --

21 CHAIRMAN KATZ: Okay --

22 MR. FITZGERALD: -- which means that he
23 would have to leave here, you know --

24 CHAIRMAN KATZ: Okay --

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1 MR. FITZGERALD: -- no later than 4:30 I
2 think.

3 CHAIRMAN KATZ: Okay, we will work that
4 in.

5 MR. FITZGERALD: So if --

6 CHAIRMAN KATZ: In fact, we will -- Mr.
7 Schaefer, do you have questions specifically for Dr.
8 Aaronson?

9 MR. SCHAEFER: I do, Your Honor -- Madam
10 Chair. And there aren't many, so I'd be glad to just do
11 those now --

12 CHAIRMAN KATZ: Okay --

13 MR. SCHAEFER: -- so that he could then
14 leave.

15 CHAIRMAN KATZ: Okay. So let me outline
16 the thing then. We'll do the questions for Dr. Aaronson
17 -- and Dr. Aaronson, if we don't get to Council questions
18 of you today, we will pick that up in May. Then I'd like
19 to do -- Mr. Earley, are you still here? Yes. Do you
20 still --

21 MR. ROBERT EARLEY: Yes, I am.

22 CHAIRMAN KATZ: -- do you have a couple of
23 questions for --

24 MR. EARLEY: Just a couple --

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1 CHAIRMAN KATZ: Okay. What we're going to
2 do then is we'll cut off around I would say 3:50, we're
3 going to let Mr. Earley get a few questions in. At 4:00
4 o'clock we are going to begin the Council questions
5 because we have ones that provide food for thought and
6 homework and I'd like to get those on the record. And
7 then at 4:45 we're going to switch gears again because I
8 want to Dr. Ginsberg sworn in and -- as a witness and let
9 him provide his exhibits and opening statement and he
10 also might have food for thought. So what I want to do
11 is sprinkle the manna out there and then -- so that we'll
12 be all prepared for the May hearings. Also at the end of
13 the afternoon before we adjourn, I will announce the
14 schedule for the April hearings, and I will also announce
15 the tentative schedule for May and June, so you will want
16 to have our calendars handy. Okay.

17 So Mr. Schaefer, I'm going to ask you at
18 this point -- I think we have one question pending, which
19 I think we'll do, and then I'm going to ask you to shift
20 your focus to Dr. Aaronson. Also if you have questions
21 that require the Applicant to think about something and
22 come back, this would be a good opportunity to also do
23 that.

24 So what question do we have out there?

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1 Mr. O'Neill, do you want to remind us.

2 MR. O'NEILL: I believe this was
3 redirected to Dr. Aaronson --

4 CHAIRMAN KATZ: Oh, okay --

5 MR. O'NEILL: -- regarding gauss exposure
6 -- milligauss exposure. Is there any point at which
7 exposure to gauss readings provokes any kind of
8 biological response that is a warning sign as far as the
9 health consequences?

10 DR. AARONSON: If it would be okay, I
11 think I would appreciate the opportunity maybe to pass
12 this to Dr. Bailey because I focused my research
13 literature --

14 MR. O'NEILL: That's fine --

15 DR. AARONSON: -- survey on the cancer
16 area.

17 DR. BAILEY: From the very early days it
18 was recognized that exposure to very intense magnetic
19 fields could induce voltages and currents within the body
20 that might stimulate tissues with potentially adverse
21 health effects. That kind of -- that level of exposure
22 might be produced for instance by the gradient fields in
23 a magnetic resonance imaging device and the responses you
24 could see at these levels would include stimulation of

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1 peripheral nerves that would be felt as a sensation, and
2 at higher exposures painful in nature.

3 MR. O'NEILL: Have there been any
4 occupational related studies let's say with linemen
5 suggesting that there's any correlation to proximity to
6 power lines that would have a causal effect for let's say
7 Lou Gehrig's Disease as well as cancers or any other
8 biological consequences? And is this subject a continual
9 study?

10 DR. BAILEY: A variety of these studies
11 have been going on since the 1960's on a variety of
12 topics. Dr. Cole will tell you about the cancer studies,
13 but a variety of potential health effects have been
14 looked at as issues have developed over time. And we are
15 engaged in an ever increasing in depth search for the
16 causes of disease and so particular populations are
17 studied to see if those populations might shed light on a
18 variety of diseases.

19 MR. O'NEILL: And have there been, to your
20 knowledge, any national or international studies
21 indicating that there's any possibility that cancer
22 clusters have a relationship with proximity to power
23 lines?

24 DR. BAILEY: There -- there have been

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1 studies of cancer clusters all over the world attributed
2 to a variety of sources, including in some cases EMF from
3 power lines or other sources, but those studies have not
4 proven informative as to the causes of human cancer.

5 MR. O'NEILL: Thank you.

6 CHAIRMAN KATZ: Thank you. Okay, Mr.
7 Schaefer, at this time I'm going to ask you to focus your
8 next questions on Dr. Aaronson.

9 MR. SCHAEFER: Yeah. I will pose a
10 number, but I assume Dr. Aaronson is going to be back the
11 next time as well?

12 CHAIRMAN KATZ: Yes.

13 MR. SCHAEFER: Alright. So, I'll just
14 pose a few and then release him --

15 A VOICE: Maybe not --

16 MR. SCHAEFER: Yeah -- I don't think so.
17 Doctor, I just want to --

18 CHAIRMAN KATZ: We can dream.

19 MR. SCHAEFER: Yeah. Just some basic
20 background information. When were you hired by the
21 Applicants?

22 DR. AARONSON: Roughly a month ago --
23 roughly a month ago.

24 MR. SCHAEFER: Okay.

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1 CHAIRMAN KATZ: You're going to have to
2 pull that mic a little closer.

3 COURT REPORTER: And speak a little
4 louder.

5 MR. SCHAEFER: So you were not involved in
6 any way in preparation of the application?

7 DR. AARONSON: No.

8 MR. SCHAEFER: And you weren't consulted
9 in any way prior to the submission of the application?

10 DR. AARONSON: No.

11 MR. SCHAEFER: Alright. And are you
12 charging for your services on an hourly rate?

13 DR. AARONSON: Indeed. And I think I
14 would like to increase my fee schedule. (Laughter).

15 MR. SCHAEFER: You want to get up to Dr.
16 Cole's level.

17 DR. AARONSON: No, I'm -- I'm close
18 enough.

19 MR. SCHAEFER: Okay. Well, what is your
20 hourly rate?

21 DR. AARONSON: Four hundred.

22 MR. SCHAEFER: Okay. And --

23 CHAIRMAN KATZ: Try having to go to the
24 legislature to get your rate increased.

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1 DR. AARONSON: But not -- not what a
2 Manhattan attorney makes.

3 MR. SCHAEFER: No -- well, I'll be glad to
4 switch with you anytime. How many hours have you spent
5 so far on this assignment prior to coming here today?

6 DR. AARONSON: You know, I keep track and
7 I -- you know, I'm not doing this often, so I -- I have
8 read a number of studies -- it's probably in the range of
9 20 hours or so.

10 MR. SCHAEFER: Okay. And you've led to
11 one of my questions. Have you testified before on the
12 issue of the causation of childhood leukemia as it
13 relates to EMF exposure?

14 DR. AARONSON: I was asked in about 1987,
15 I believe, to testify on essentially this kind of area of
16 expertise in a trial that was in the New York Power
17 Authority -- it was in a place in -- I can't remember
18 where but that was once. And then in two or three
19 hearings over the last 15 or 16 years.

20 MR. SCHAEFER: Okay. And when you were
21 asked to testify in the trial of the New York Power
22 Authority matter, who did you -- who hired you to
23 testify?

24 DR. AARONSON: It was the -- I believe it

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, the New York Power Authority.

MR. SCHAEFER: Okay. It was your understanding it was the electric utility that was a party to the case?

DR. AARONSON: It was -- it was that --
yes --

7 MR. SCHAEFER: Okay --

8 DR. AARONSON: -- the utility.

9 MR. SCHAEFER: Okay.

10 CHAIRMAN KATZ: Were you hired by the
11 State or were you hired by a utility?

12 MR. FITZGERALD: I think the answer to
13 that is both.

14 CHAIRMAN KATZ: Okay.

15 MS. RANDELL: I think the New York Power
16 Authority is a state entity.

17 CHAIRMAN KATZ: Okay.

18 MR. SCHAEFER: You understood that the
19 party you were asked to testify on was someone involved
20 in --

21 DR. AARONSON: The defense --

22 MR. SCHAEFER: -- providing electric
23 power?

24 DR. AARONSON: Yes.

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1 MR. SCHAEFER: Alright. And the two or
2 three hearings you testified at, were you hired by
3 someone to testify at those hearings?

4 DR. AARONSON: In each of those cases --
5 or situations, yes.

6 MR. SCHAEFER: And who were you hired by?

7 DR. AARONSON: By the -- I guess it was
8 the utility. Usually you would be contacted by an
9 attorney.

10 MR. SCHAEFER: Okay. But on behalf of a
11 utility?

12 DR. AARONSON: Right.

13 MR. SCHAEFER: Alright. And -- now, I'm
14 going to try to simply summarize what I think you
15 identified as the issue in your testimony and I'm taking
16 this from page 2 of your prepared testimony. I'm not
17 going to say it's a direct quotation, it may -- it may be
18 but it may not be, I don't remember, alright -- but would
19 you agree with me that the issue here is whether power
20 frequency EMF may initiate or promote cancer, i.e. cause
21 cancer?

22 DR. AARONSON: You know, that -- yes.

23 MR. SCHAEFER: Okay. And in your
24 curriculum vitae you list some 529 publications. Are any

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1 of them on this subject?

2 DR. AARONSON: I've not personally
3 performed research or published on this area.

4 MR. SCHAEFER: Okay. In preparation for
5 your testimony, did you review literature in the area?

6 DR. AARONSON: Yes, I did.

7 MR. SCHAEFER: Alright. And did counsel
8 provide you with the literature to review?

9 DR. AARONSON: Counsel provided some of
10 the --

11 MR. ASHTON: Which counsel -- which
12 counsel?

13 DR. AARONSON: That man over here.
14 (Laughter).

15 MR. ASHTON: Okay.

16 A VOICE: It's lower case --

17 MR. TAIT: It's spelled differently.

18 MR. SCHAEFER: I see. Sorry about that.
19 Did the attorney who retained you provide you with
20 identified publications for you to review?

21 DR. AARONSON: Right, related -- and many
22 of the same kinds of things that Dr. Cole mentioned --

23 MR. SCHAEFER: Okay --

24 DR. AARONSON: -- things that relate to

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1 I got my zeros wrong --

2 MR. CARBERRY: -- and I'm not familiar
3 enough with the data in this report to know precisely.
4 But in any given transmission system many lines even at a
5 loading like that -- a system condition like that could
6 be loaded well below half of their rating, others could
7 be loaded maybe at two-thirds or 70 percent of their
8 rating --

9 MR. ASHTON: And the same applies even at
10 a full load, a 27-megawatt --

11 MR. CARBERRY: Exactly --

12 MR. ASHTON: -- or 27-gigawatt because
13 you'd have a different generation dispatch then.

14 MR. CARBERRY: Right. Most lines are
15 seldom operated anywhere near their normal rating because
16 if the contingency occurs --

17 MR. ASHTON: They're in trouble.

18 MR. CARBERRY: -- then they jump up into
19 that emergency range. And the emergency range is only so
20 much above normal, so generally they're well less than
21 that. An example that was used before of a lightning
22 event, lightning almost always occurs at times when air
23 is cooling off and loads are going down somewhat. So the
24 likelihood that a rating has gone into an emergency range

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1 because one line tripped out from lightning is probably
2 pretty small.

3 MR. ASHTON: I know what Mr. Cunliffe is
4 looking for and I guess the question we really ought to
5 wrestle with a little bit is what should be the standard
6 under which we show the magnetic fields from a
7 transmission line. And I'm suggesting that we perhaps
8 use 50 percent rating and a 100 percent rating as being
9 figures that would for whatever use will show what their
10 magnetic fields are, and that would be the line rating
11 rather than --

12 MR. CARBERRY: Yeah. In the past when
13 I've answered questions like this, I've basically said
14 the 50 percent case is an average case. In a peak case,
15 the answer is -- that's normal conditions, no
16 contingencies, for most lines is in the range of two to
17 three times its 50 percent case --

18 MR. ASHTON: Yeah --

19 MR. CARBERRY: -- that gives you an
20 example of how low normal ratings, normal average
21 loadings are, two to three times. There could be some
22 that are one and a half, there could be one that's even
23 three and a half or four, but most are two to three
24 times. That will cover 99 and some high .9 percentage of

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1 the time. Now, an emergency rating is generally about a
2 third more than the top normal rating let's say, alright.

3 So we operate very seldom near that top normal rating.
4 But if you assumed we did, you know, the emergency
5 rating, you know, a third more, in that order of
6 magnitude type of thing.

7 MR. ASHTON: And that's something you try
8 to strenuously avoid?

9 MR. CARBERRY: Absolutely. It's very very
10 rare actually that lines ever operate into their
11 emergency range.

12 DR. BAILEY: I would just jump in here
13 that we're talking about something that happens for a
14 very short period of time in unpredictable intervals due
15 to a variety of multiple factors. And you know, short of
16 some kind of catastrophic event affecting the system for
17 multiple days or weeks, the impact of some contingency
18 events on a person's annual exposure or some other
19 relevant period of time is very very small, so small as
20 to be not a factor in terms of assessing their overall
21 exposure.

22 COURT REPORTER: One moment please.

23 (Pause). Thank you.

24 DR. BAILEY: And we -- we have provided

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1 the calculations at the 27-gigawatt, which is, you know,
2 representative of something that would occur even on
3 that, you know, a few days a year. So you're already
4 estimating fields based upon an infrequent loading
5 condition.

6 MR. ASHTON: And arguably under the 27-
7 gigawatt case, some line loadings may go down from what
8 they are at the 15?

9 MR. CARBERRY: Yes --

10 DR. BAILEY: Yes, it could happen.

11 MR. FITZGERALD: It might be helpful for
12 me to direct the Council's attention to our response to
13 Towns' Question 37. And in that -- in that interrogatory
14 we were asked to list, and did list, what magnetic fields
15 would be -- if the line was at 80 percent of its normal
16 rating. And before providing the requested information
17 on a theoretical basis, we explained that that in fact
18 would never happen because the ratings of the -- the
19 ratings of the cable itself is only one factor, and the --
20 - how the line loads up is another. And so that under --
21 under normal conditions, the -- that is any maximum
22 loading pre-contingency, the lines -- the different
23 conductors on the lines would be loaded from between 16.2
24 percent up to 66.2 percent of their normal rating. And

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1 one of the reasons for that is that the company specified
2 much larger conductors, so therefore have a higher
3 thermal rating than needed, because they wanted to
4 minimize the radio noise and -- radio interference and
5 audible noise.

6 MR. ASHTON: You're speaking especially,
7 Mr. Fitzgerald, about 345-kV bundle conductors, the lines
8 at 345 --

9 MR. FITZGERALD: Right --

10 MR. ASHTON: -- and I fully concur with
11 that, that to get an emergency rating loading at that
12 level is beyond my comprehension anyway. On the other
13 hand, at 115-kV that could well be a different case. And
14 they don't have to necessarily load together. In other
15 words, you might have a 345 and two 115-kV circuits on
16 the same right-of-way and each one is more or less an
17 independent element according to the network flows, so --

18 MR. TAIT: If you want to get that into
19 evidence, you will have to swear Mr. Ashton -- (laughter)
20 --

21 MR. ASHTON: Or swear at him.

22 MR. FITZGERALD: But I -- I think if you -
23 - if you look at the information you already have in
24 response to Towns' 37, which you might agree that the

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1 considerable effort of doing -- or meeting this request
2 in addition to the ones we already have, it doesn't
3 really provide any useful information.

4 MR. CUNLIFFE: Are -- have the
5 calculations taken into account any over-estimate or
6 conservative assumptions to have a buffer or is it the
7 exact number for the average load and the exact number
8 for the peak load being used in your calculations?

9 DR. BAILEY: I can't speak as to what
10 kinds of conservatives that may be built into the
11 modeling assumptions that led to the projected current
12 flows on the existing and proposed lines. But in the
13 case of the electric fields, we did assume that the
14 nominal conductor voltage would be five percent greater
15 to account for possible fluctuations in the voltage on
16 the conductors. And other than that, it was -- the
17 attempt was to produce the best estimate based upon the
18 available data.

19 MR. CUNLIFFE: Magnetic fields are a
20 function of the current flow, is that correct?

21 DR. BAILEY: Yes.

22 MR. CUNLIFFE: Current flows fluctuate
23 minute to minute, hour to hour, day to day?

24 A VOICE: Yes --

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1 DR. BAILEY: Yes, depending upon the line.

2 MR. CUNLIFFE: So the magnetic field
3 calculations while maybe static, the range of what an
4 average flow and a peak flow is what we would expect
5 could be along that right-of-way, so a particular
6 location, and I'm not pointing to one, had 10 milligauss
7 but at peak at 50, we would expect something between 10
8 and 50 anytime of the day?

9 DR. BAILEY: It could well be below that
10 if that was -- we're talking about the average system
11 loading -- yeah, there could be a wide -- depending upon
12 how that line is operated and what part of the system
13 it's in, it could have a wide range of loadings. Bob, do
14 you want to --

15 MR. CARBERRY: I would say zero is the
16 bottom end.

17 MR. CUNLIFFE: That would be the line out
18 of service?

19 MR. CARBERRY: Yes. Can I address your
20 question about conservatism just a little bit just to add
21 something? I believe in the calculations they've
22 modeled, you know, conductor elevations that model a span
23 -- basically close to the lowest it could be built
24 because that produces the highest magnetic field directly

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1 below it. And as you know, most of a span and many spans
2 have the conductors higher than that. And therefore in
3 that sense, the fields primarily on the right-of-way and
4 close to the right-of-way have been over-estimated to the
5 extent that you're at a location that does not have
6 conductors at their lowest possible clearance.

7 MR. ASHTON: Mr. Carberry, just --
8 (indiscernible) -- I understand the point you're making.
9 And also would it not be true that, depending on ambient
10 temperature, your conductor may be higher or lower for
11 the same loading?

12 MR. CARBERRY: That's correct.

13 MR. ASHTON: Given those thoughts, what
14 kind of conservatism does that build into your number?
15 If you come up with 10 milligausses under a conservative
16 -- or let's say a hundred just to make it real easy --
17 the arithmetic easy -- under a very conservative model,
18 if you -- if realism was factored into it, how much less
19 is that going to be? You know, if your conductor is 10
20 feet higher than the minimum you've chosen, if -- well,
21 whatever -- you tell me --

22 MR. CARBERRY: Alright. I mean in that
23 example that's a fairly substantial change and I'd --
24 subject to check, I'd say that the maximum field below

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1 the conductors in that case would probably drop by 25
2 percent for that type of a change --

3 MR. ASHTON: Okay, so the --

4 MR. CARBERRY: -- but I would remind you
5 again that as we move away from the line, 75 feet, 100
6 feet, that relative distance doesn't matter any more,
7 okay --

8 MR. ASHTON: Yeah --

9 MR. CARBERRY: -- so the effect is in a
10 zone --

11 MR. ASHTON: My point was that it's
12 material in terms of what you're showing as a peak figure
13 if nothing else?

14 MR. CARBERRY: That's correct.

15 MR. CUNLIFFE: Thank you. The data
16 supplied in your revised numbers, including the responses
17 to the Towns' questions giving table data, this is all
18 current numbers, correct?

19 DR. BAILEY: That's based upon the most
20 current loading projections provided by the companies.

21 MR. CUNLIFFE: I'd like to go back to the
22 previous question where I say that the loading of the
23 lines changes from day to day, the companies recognize
24 some new assumptions, they re-did their analysis on the

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1 flow, what is that not going to preclude a change in the
2 near term; i.e. you assumed Towantic was off-line,
3 tomorrow Towantic could be on-line, that's going to
4 change your load flows, how's that going to change the
5 magnetic field levels again?

6 DR. BAILEY: Do you want to answer that --

7 MR. CARBERRY: I thought the question was
8 for you, so I wasn't paying attention. Excuse me --

9 MR. ASHTON: I think, Fred, you ought to
10 repeat it.

11 MR. CUNLIFFE: I am. I wanted to -- I
12 just don't want to beat a dead horse here -- the idea is
13 that the magnetic field levels are going to constantly
14 change and I just wanted to be able to get into the
15 record something that's somewhat true and accurate

16 MR. CARBERRY: You know -- you know,
17 you're -- I think you're getting at the point that the
18 system changes, alright. The generators that are here
19 today, may not be here tomorrow. The peak load that's
20 here today, may be different in the future. What lines
21 are here today could be different. And therefore, you
22 can only model the present case with the limited
23 foreseeable future --

24 MR. CUNLIFFE: Given --

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1 MR. CARBERRY: The way that -- one of the
2 states that has adopted a guideline many years ago in the
3 early 1990's is New York and they wrestled with this very
4 issue, and this is why the regulation they came up with
5 was why don't we make a calculation based on an
6 assumption that a line was carrying a current equal to
7 its winter normal rating, that is the highest continuous
8 current flow that could occur on any transmission line by
9 the limit imposed on it. And unless you rebuilt the
10 line, that's not going to change. And they calculated
11 that for all of their high voltage lines, 345-kV and
12 above, and found that -- they didn't find a case where at
13 the edge of the right-of-way that number came out to be
14 more than 200 milligauss. And so they adopted that as
15 their regulatory guideline, let's not build a new line
16 that on a calculated basis like that would produce more
17 than 200. At the same time they also conducted some
18 surveys and took some measurements, I believe maybe even
19 used average values and made some calculations for their
20 existing lines. And the typical numbers I remember them
21 finding for those calculations were measurements at the
22 edge of the right-of-way were about 10 percent of that.
23 So it just gives you an idea that averages that exist for
24 these lines are well below what would have occurred for

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1 that calculation model, 200 milligauss at the edge of the
2 right-of-way. But were there values -- were there lines
3 that had 35 and lines that had 10, sure. And five years
4 from now would some of those lines change in that ranking
5 order, sure.

6 MR. ZAKLUKIEWICZ: Mr. Cunliffe, did you
7 get your full answer?

8 MR. CUNLIFFE: Yes --

9 MR. ZAKLUKIEWICZ: I think the loading on
10 the lines is going to change by two factors. No. 1, the
11 amount of load that's in the load center at any given
12 minute and the generation dispatch. And by putting on a
13 Milford unit or a tripping off of a Milford unit or a
14 Bridgeport unit in Southwest Connecticut is going to
15 change dramatically the flows on the existing 115-kV
16 lines that are serving the area today, so -- or the loss
17 of an autotransformer at one of the key substations
18 feeding the area. So that -- the loading on any line
19 will change minute-to-minute by the load demands and will
20 also change if the demand was to stay the same by the
21 generation dispatch at any given minute.

22 CHAIRMAN KATZ: Let's just do maybe like
23 two more Council questions and then we're going to shift
24 gears and continue cross-examination in May.

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1 MR. CUNLIFFE: What's the difference
2 between the peak load and the cables capacity?

3 MR. ZAKLUKIEWICZ: The cables we're
4 speaking of are the cables between East Devon -- the
5 proposed cables between East Devon and Singer, in between
6 Singer and Norwalk?

7 MR. FITZGERALD: No, I think he -- I think
8 he means --

9 MR. CUNLIFFE: I'm speaking to the
10 overhead lines.

11 MR. FITZGERALD: I think he means the
12 difference between the ratings, the peak --

13 CHAIRMAN KATZ: Mr. Fitzgerald, if you're
14 attempting to be on the record, you're going to have to
15 get closer to a mic --

16 MR. ZAKLUKIEWICZ: Uh --

17 MS. RANDELL: Madam Chairman, perhaps I
18 could just help here because they kept telling me -- no
19 cable tells me you're talking underground --

20 CHAIRMAN KATZ: Yes --

21 MS. RANDELL: -- and so --

22 MR. CUNLIFFE: Conductor --

23 MS. RANDELL: -- perhaps that was the
24 miscommunication.

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1 CHAIRMAN KATZ: Okay.

2 MR. ZAKLUKIEWICZ: If we're talking the
3 345-kV overhead conductors between Beseck proposed,
4 between Beseck and East Devon, those -- those bundled
5 conductors have a rating of approximately -- where's the
6 -- (indiscernible) -- on 37 --

7 A VOICE: Here's 37 --

8 MR. ZAKLUKIEWICZ: In our -- in our
9 response to Towns' 037, the overhead conductors between
10 Beseck to East Devon have a rating of 3410 amperes. And
11 the amperes that would flow -- typically be flowing on
12 that line at the 27,700-megawatt case would be
13 approximately 1500 amperes or 44 percent of the normal
14 rating of those conductors.

15 MR. FITZGERALD: And Mr. Zak, that twenty-
16 seven-seven case was chosen because it represented the
17 anticipated peak that could occur between 2007 and 2011?

18 MR. ZAKLUKIEWICZ: That is correct.

19 CHAIRMAN KATZ: Okay. Mr. Tait, you have
20 an issue for Mr. Carberry --

21 MR. ASHTON: I think he's got another part
22 of the answer yet.

23 CHAIRMAN KATZ: Oh.

24 MR. ZAKLUKIEWICZ: What was the second

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1 part if I still have an outstanding piece?

2 MR. ASHTON: Was it the underground
3 portion, Fred?

4 MR. CUNLIFFE: No, just the overhead.

5 CHAIRMAN KATZ: So we're all set.

6 MR. ASHTON: Okay, I'm sorry.

7 CHAIRMAN KATZ: Mr. Tait.

8 MR. TAIT: Mr. Carberry, were you the one
9 that mentioned that New York has a standard of 200 at the
10 edge of the right-of-way for new lines?

11 MR. CARBERRY: They've had that guideline
12 since around 1991 or '92.

13 MR. TAIT: And I notice in the prefilled
14 testimony of Dr. Bailey, he says there are no federal
15 standards -- this is on page 6 -- there are no federal
16 standards for electric or magnetic fields. I'd be
17 interested -- and this probably a question for the
18 lawyers -- I would be interested in what figures have
19 been set by any regulatory agency in the United States or
20 the world as to electromagnetic and at what distances and
21 what powers. What actual regulations that have been
22 adopted and are in effect to regulate the industry --

23 CHAIRMAN KATZ: Or guideline --

24 MR. TAIT: -- if there are none, there are

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1 none, but if there are some, I want to know what they are
2 and --

3 CHAIRMAN KATZ: You want --

4 MR. TAIT: -- I want you to comment on
5 them.

6 CHAIRMAN KATZ: Well, New York has a
7 guideline, correct?

8 DR. BAILEY: Is this specific to
9 transmission lines?

10 CHAIRMAN KATZ: Yes --

11 MR. TAIT: Yes --

12 CHAIRMAN KATZ: -- 345 specifically.

13 MR. TAIT: I want to know -- we are being
14 asked to regulate this and we have nothing here in
15 Connecticut that tells us what to do.

16 DR. COLE: Could I just mention something?
17 There are at least four states that do have standards and
18 --

19 MR. TAIT: That's fine. We would like
20 them to -- and if there's any cases under those that
21 interpret those standards, we'd be interested in those
22 too.

23 DR. COLE: Okay. I'd just like to add
24 that a standard is not a function of the line, it is an

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1 absolute standard.

2 MR. TAIT: I think you understand my
3 question --

4 CHAIRMAN KATZ: We --

5 MR. TAIT: -- answer it as best --

6 CHAIRMAN KATZ: Answer --

7 MR. TAIT: -- I'm interested in what --

8 MR. FITZGERALD: (Indiscernible) -- before
9 you --

10 CHAIRMAN KATZ: Miss Randell is nodding
11 and that's good enough for me.

12 MS. RANDELL: Thanks.

13 CHAIRMAN KATZ: Okay, at this point
14 because we need to conclude at 5:00, we're really going
15 to shift gears and I'm going to -- the Council is going
16 to resume cross-examination of the panel in May -- and
17 Mr. Tait, one more --

18 MR. TAIT: Dr. Bailey, again on page 13,
19 you talk about ongoing studies -- analyses -- our
20 analyses are ongoing --

21 MR. ASHTON: Continuing.

22 MR. TAIT: -- should these estimates be
23 realized, the contribution, 'da-da-da-da-da -- I would
24 like a report on those continuing studies.

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1 DR. BAILEY: Yes.

2 CHAIRMAN KATZ: So for May. Okay, at this
3 point, Dr. Gary Ginsberg of the Department of Public
4 Health is a Council witness and I'm going to ask him to
5 give his name, spell it, and give his title for the court
6 reporter.

7 DR. GARY GINSBERG: I'm Gary Ginsberg.
8 I'm a -- G-i-n-s-b-e-r-g -- I'm a toxicologist for the
9 Connecticut Department of Public Health, Division of
10 Toxic Hazards.

11 COURT REPORTER: Gary is G-a-r-y?

12 CHAIRMAN KATZ: Can you --

13 MR. MARCONI: Please rise and please raise
14 your right hand.

15 (Whereupon, Dr. Gary Ginsberg was duly
16 sworn in.)

17 MR. MARCONI: Please be seated, sir.

18 CHAIRMAN KATZ: And Dr. Ginsberg, you
19 prefiled some information as your testimony, correct?

20 DR. GINSBERG: That's correct.

21 CHAIRMAN KATZ: And Mr. Marconi, can you
22 lead us through the verification.

23 MR. MARCONI: Okay. Okay, Dr. Ginsberg,
24 did you in fact prepare the prefiled testimony that's

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1 been submitted to the Council?

2 DR. GINSBERG: I helped contribute that --

3 MR. MARCONI: Okay --

4 DR. GINSBERG: -- I contributed to that.

5 MR. MARCONI: Well, let me put it this
6 way, are you totally familiar with the contents thereof?

7 DR. GINSBERG: Yes, I am.

8 MR. MARCONI: Do you swear to the best of
9 your knowledge and ability the truth of the prefiled
10 testimony?

11 DR. GINSBERG: Absolutely.

12 MR. MARCONI: And you adopt it as your
13 testimony today?

14 DR. GINSBERG: That's true.

15 MR. MARCONI: Okay. So at this point,
16 Madam Chairman, I think I would ask, subject to any
17 objections, that the prefiled testimony be admitted as
18 evidence before the Council.

19 CHAIRMAN KATZ: Thank you. Does anyone --
20 any objection to making Dr. Ginsberg's prefiled testimony
21 a full exhibit? Hearing none, it's a full exhibit.

22 (Whereupon, Siting Council Exhibit No. 1
23 was received into evidence.)

24 CHAIRMAN KATZ: What I'm going to do is --

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1 Dr. Ginsberg, I understand you have an opening statement
2 and I'm going to ask you to read that into the record.
3 And then I'm going to ask you into the record to also
4 describe a recent meeting that you attended on behalf of
5 your department, so.

6 DR. GINSBERG: Okay. Which would our
7 rather -- which would you like first?

8 MR. TAIT: I would prefer the second first
9 in case there are any objections.

10 CHAIRMAN KATZ: Okay --

11 DR. GINSBERG: Okay --

12 CHAIRMAN KATZ: -- let's do the second
13 first.

14 DR. GINSBERG: Okay. There -- the Chair --
15 - Madam Chair is referring to a meeting that was held at
16 the Connecticut Department of Public Health that was
17 requested of our Commissioner by the Towns in the path of
18 the power line -- the proposed power line --

19 MR. MARCONI: Was this meeting this Monday
20 of this week?

21 DR. GINSBERG: Yeah, it was -- this -- I
22 was going to get to that -- I believe the date was March
23 21st.

24 CHAIRMAN KATZ: Well, why don't we have

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1 Mr. Marconi sort of give you some prompting questions to
2 get this --

3 DR. GINSBERG: Sure.

4 CHAIRMAN KATZ: Okay.

5 MR. MARCONI: Well, let me see, this --
6 this Monday, what date would that be?

7 DR. GINSBERG: March 21st.

8 MR. MARCONI: Okay. And -- and was there
9 an occasion to have a meeting that afternoon?

10 DR. GINSBERG: Yes, we had a meeting that
11 afternoon.

12 MR. MARCONI: Okay. And can you please
13 tell us who were the participants at that meeting?

14 DR. GINSBERG: From the Connecticut
15 Department of Public Health there was our commissioner,
16 Commissioner Galvin. There were myself and another
17 epidemiologist from my division --

18 CHAIRMAN KATZ: Can you just give us the
19 name --

20 DR. GINSBERG: Brian Toal, T-o-a-l. Then
21 from the Department of Public Health there was also --
22 our legislative liaison was present, and another --

23 CHAIRMAN KATZ: A name --

24 MR. MARCONI: The name please.

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1 DR. GINSBERG: Yeah -- uh -- uh --

2 MR. MARCONI: If you recall?

3 A VOICE: You don't know anything --

4 DR. GINSBERG: Yeah, Karen -- Karen

5 Buckley-Bates.

6 MR. MARCONI: Okay.

7 DR. GINSBERG: I don't talk to her every
8 day. And then there were the -- a large -- a fairly
9 large contingent from representatives, many -- a number
10 of first aldermen or mayors from towns that this proposed
11 line would be running through. And I did not get many of
12 their names --

13 MR. MARCONI: Do --

14 DR. GINSBERG: -- but I do know some of
15 the towns. And in one case it was not the first alderman
16 but it was the local health director.

17 MR. MARCONI: You mean the first selectmen
18 I take it?

19 DR. GINSBERG: The first selectmen, not
20 first aldermen, I'm sorry. The first selectmen.

21 MR. MARCONI: Okay. Can you to the best
22 of your recollection tell us some of the towns at least
23 who were represented by first selectmen and/or mayors?
24 And if you could also tell us any of the attorneys that

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1 were present?

2 DR. GINSBERG: Uh -- let's see -- there
3 was Woodbridge. There was -- uh --

4 MR. MARCONI: Or if you remember names too
5 you can give us names or towns, or both?

6 MR. TAIT: Was there an attendance list
7 passed around?

8 DR. GINSBERG: There was an attendance
9 list passed around.

10 MR. TAIT: Would you produce that at some
11 point for us?

12 DR. GINSBERG: Yes. I could -- well, I
13 will try to track that down for you --

14 MR. TAIT: Yeah --

15 DR. GINSBERG: -- to the best of my
16 ability, yeah. I'm sorry, I didn't take careful notes on
17 exactly who was in attendance. But I did want to also
18 say that the group that did come brought two scientists
19 with them that had -- that wanted to present information.
20 And those scientists were --

21 MR. MARCONI: I believe there may be an
22 attendance list --

23 DR. GINSBERG: Oh --

24 MR. MARCONI: -- that we might be able to

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1 show you, if you could verify it.

2 DR. GINSBERG: Oh, excellent.

3 MR. MARCONI: If could you -- if you could
4 please -- if you could please examine that list and tell
5 me is that to your recollection a --

6 DR. GINSBERG: My name is on it --

7 MR. MARCONI: Okay -- (laughter) -- an
8 accurate list? Could you perhaps read off the names?

9 DR. GINSBERG: Yeah, that looks fairly
10 inclusive. Okay, there was Karen Buckley-Bates from the
11 Department of Public Health, Michael Milone from the Town
12 of Cheshire, Bill Dickinson from Wallingford --

13 MS. RANDELL: Could I ask --

14 DR. GINSBERG: Okay --

15 MS. RANDELL: -- that he read a little
16 more slowly --

17 MR. MARCONI: Okay. Yes. I think since
18 some of the attorneys are trying to copy this down, I'm
19 going to ask you to start from the -- start from scratch
20 and go a little slower on it.

21 DR. GINSBERG: Karen Buckley-Bates,
22 Department of Public Health, Government Relations.
23 Michael Milone, M-i-l-o-n-e.

24 MR. ASHTON: Is he the City Manager in

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1 Cheshire?

2 A VOICE: Town Manager --

3 MR. ASHTON: Or Town Manager?

4 CHAIRMAN KATZ: Just -- let's just have
5 him read the list --

6 DR. GINSBERG: The Town of Cheshire. I
7 don't know his exact job description. Bill Dickinson,
8 I'm fairly sure he's the Mayor of Wallingford.

9 A VOICE: Yes.

10 DR. GINSBERG: Maryann Boord, B-o-o-r-d,
11 from --

12 MR. ASHTON: First Selectman --

13 DR. GINSBERG: -- First Selectman of
14 Durham. That's a little hard to read -- from Wilton,
15 Connecticut -- I really can't read this person's
16 handwriting too well --

17 CHAIRMAN KATZ: Okay.

18 DR. GINSBERG: Mitch Goldblatt from the
19 Town of Orange.

20 MR. MARCONI: I believe he's First
21 Selectman.

22 DR. GINSBERG: Ruth Ann Weisenthal-Gold --

23 CHAIRMAN KATZ: Yes --

24 DR. GINSBERG: -- from the Woodlands

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1 Coalition.

2 MR. MARCONI: Yes.

3 DR. GINSBERG: Eugene Cederbaum from
4 Westport.

5 COURT REPORTER: Spell that please.

6 DR. GINSBERG: C-e-d-e-r-b-a-u-m.

7 Derrylyn Gorski, G-o-r-s-k-i, from Bethany. Mary
8 Michelle Hirschhoff, H-i-r-s-c-h-o-f-f, from Bethany.
9 Leonard Bell, M.D., from Woodbridge. Peter Rabinowitz,
10 M.D., from Woodbridge. Myself. Brian Toal, who I've
11 mentioned already. And Amy Marrella, M-a-r-r-e-l-l-a,
12 from Woodbridge.

13 MR. MARCONI: Can you tell us a bit about
14 the subject of the meeting then?

15 DR. GINSBERG: Yes. The representatives
16 from the towns wanted to debrief our commissioner and our
17 staff with some of their review and scientific
18 information in relation to electromagnetic fields, and
19 visa vie some of the concerns along this siting.

20 MR. MARCONI: Okay. Can you also advise
21 us as to whether or not your testimony was altered by the
22 results of this meeting?

23 DR. GINSBERG: No, it was not. In fact,
24 the testimony that we submitted on the docket was

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1 submitted on March 16th, which predates this meeting. And
2 we are in no way altering that. I did want to prepare --
3 I did prepare before that meeting as well, my opening
4 comments today, which are intended to more -- to provide
5 a little bit more background as to -- an explanation as
6 far as what's in our testimony but doesn't change our
7 testimony.

8 MR. TAIT: That was prepared before the
9 21st?

10 DR. GINSBERG: That's correct.

11 MR. TAIT: And has not been changed since
12 then?

13 DR. GINSBERG: I -- uh -- I have to admit
14 that I had a few mistakes on there and I -- in
15 handwriting. You can see today I scribbled some notes --

16 MR. TAIT: But it's your own correction?

17 DR. GINSBERG: It's my own corrections
18 from today's -- listening to today's --

19 MR. MARCONI: Okay. Madam Chairman, at
20 this point I would ask if Dr. Ginsberg can present his
21 opening statement. And I think obviously he'll be
22 subject to cross-examination about the meeting by any of
23 the counsel unless any of the --

24 CHAIRMAN KATZ: And his prefiled --

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1 MR. MARCONI: Unless any of the legal
2 counsel want to cross-examine him before he makes his
3 opening statement?

4 CHAIRMAN KATZ: Mr. Fitzgerald, you look
5 like you're --

6 MR. TAIT: In pain.

7 MR. FITZGERALD: Yes, I am, I am. I think
8 -- I think what we would probably like to do is not
9 cross-examine him on the substance of his opinion, but if
10 this were a court case what they'd call, you know, a
11 preliminary examination just about this event that has
12 just been disclosed to get some more information about it
13 and --

14 CHAIRMAN KATZ: Okay --

15 MR. MARCONI: So basically limited cross-
16 examination --

17 MR. FITZGERALD: So we can make our own
18 determination.

19 CHAIRMAN KATZ: Very limited cross --

20 MR. MARCONI: Yeah, limited cross-
21 examination about the event.

22 CHAIRMAN KATZ: The event in our limited
23 time.

24 MR. FITZGERALD: Is the -- is the list of

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1 people who signed up exhaustive, do you know?

2 DR. GINSBERG: I believe that's correct,
3 yes.

4 MR. FITZGERALD: So -- do you remember if
5 there were any lawyers there?

6 MR. TAIT: Well, Hirschoff is a lawyer,
7 isn't she?

8 MR. FITZGERALD: Well, I mean --

9 DR. GINSBERG: We did -- we did not go
10 through in our introductions whether someone was an
11 attorney --

12 MR. FITZGERALD: Okay --

13 DR. GINSBERG: -- I didn't hear of that
14 being mentioned.

15 MR. FITZGERALD: Was there anybody from
16 the Attorney General's Office there?

17 DR. GINSBERG: No, there was not.

18 MR. FITZGERALD: And what was your
19 understanding of how the meeting came to be?

20 DR. GINSBERG: We have a letter requesting
21 such a meeting from a -- Amy Marrella from Woodbridge
22 requesting such a meeting with our commissioner.

23 MR. FITZGERALD: And do you know -- and
24 what -- what did the commissioner tell you about his

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1 reasoning in responding affirmatively to that request?
2 And please tell us anything he told you about the
3 significance of the meeting?

4 DR. GINSBERG: He said come to the
5 meeting. (Laughter). There was -- well, the Commissioner
6 is a very busy individual and if he wants you to come to
7 a meeting, he usually doesn't provide an explanation.

8 MR. FITZGERALD: Okay. So did you have
9 any discussion with him before the meeting other than I
10 want you to come to a meeting?

11 DR. GINSBERG: No, I did not.

12 MR. FITZGERALD: Okay. What about the
13 legislative liaison, did she give you any indication of
14 what the significance or purpose of this meeting was?

15 DR. GINSBERG: No -- I wasn't even aware
16 she would be at the meeting.

17 MR. FITZGERALD: Okay. And when you came
18 into the room was everybody else there already?

19 DR. GINSBERG: People kept arriving. I
20 would say I was fifth out of the list to get there. I
21 mean --

22 MR. FITZGERALD: Okay --

23 DR. GINSBERG: -- the room was one-third
24 filled at that time.

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1 MR. FITZGERALD: And you -- you told us
2 that the representatives from the towns wanted to debrief
3 the Commissioner and you with their information visa vie
4 some of their concerns. It sounds -- did you mean that
5 they -- they wanted to give information to you or they
6 wanted to get information from you, or both?

7 DR. GINSBERG: Primarily the former.
8 There was a presentation I would say that lasted very
9 roughly speaking 15 minutes by the scientists that they
10 brought with them, as I mentioned a Dr. Bell and a Dr.
11 Rabinowitz, to go over the -- you know, to brief our
12 Commissioner and again our staff on their main points of
13 view and scientific information that they think is most
14 seminal to this issue.

15 CHAIRMAN KATZ: Dr. Ginsberg, at the time
16 they came, did they -- were they informed that you were
17 going to be the witness in this docket?

18 DR. GINSBERG: I believe they knew that.
19 I -- yes, I think so.

20 MR. O'NEILL: When you mentioned --
21 (indiscernible) -- a presentation, was it a power point
22 presentation of some kind?

23 DR. GINSBERG: No, this was all verbal.
24 There were no handouts.

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1 MR. O'NEILL: Okay.

2 MR. FITZGERALD: And what -- and can you
3 give us a very short summary of what you recall the
4 presentation was, what did they say?

5 DR. GINSBERG: Sure. They eluded to the
6 main concern out of all the end points that have been
7 measured or assessed in relation to EMF, the main concern
8 is acute lymphocytic leukemia in very young children.
9 And that the -- that the evidence -- or a number of
10 bodies, including their own review tends to rule out that
11 this association that has been seen in a number of
12 studies that it could have occurred by chance, and that -
13 - that -- that was the basic message in terms of there
14 needs to be a lot of attention paid to what they
15 considered was a strong association between EMF and
16 childhood leukemia in particular.

17 MR. FITZGERALD: And did they -- did
18 anybody at the meeting request a reaction from you to the
19 presentation?

20 DR. GINSBERG: Well this again was a
21 briefing for our Commissioner, and so the Commissioner
22 mostly took that in and then asked the epidemiologist
23 with me, Brian Toal, and myself to respond in our own
24 way, yes.

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1 MR. FITZGERALD: And did you respond in
2 your own way?

3 DR. GINSBERG: Yes.

4 MR. FITZGERALD: And what did you say?

5 DR. GINSBERG: We, basically, gave them
6 our take, so to speak, our review of some of the
7 information that they presented in terms of the
8 association not being perhaps strong but weak, the
9 association being most noticeable at higher exposure
10 levels, that our review of the literature finds rather
11 than causality or clear -- clear -- you know, clear cause
12 and effect, that the information -- that the information
13 that comes to us is really chalk full of uncertainty and
14 that amidst all that uncertainty, you know, we always
15 give advice -- we talked about our fact sheet also, which
16 is public record, and also a little bit about the
17 testimony that we submitted on March 16th, which is on the
18 public record and which we gave to them to show what we
19 intend to say, and that message of prudent avoidance, and
20 given all the uncertainty that there is in the literature
21 and why the -- and how the -- how all of the difficulties
22 in doing these kinds of epidemiology studies make it
23 difficult to see an association, and the fact that you do
24 see a signal coming out of the literature is noteworthy,

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1 so that -- I'm sorry for the long run on monologue here,
2 I'm just trying to unpack what that conversation --

3 MR. FITZGERALD: That's alright, I asked
4 you the question --

5 DR. GINSBERG: -- what that conversation
6 was like -- but given that, that we have, you know, come
7 historically, and that has now changed to a position of
8 prudent avoidance.

9 CHAIRMAN KATZ: We had a witness yesterday
10 who can beat you on run-on, so don't worry about it.

11 MR. FITZGERALD: Right.

12 DR. GINSBERG: I guess I meant more to say
13 stream of consciousness because --

14 MR. FITZGERALD: After -- after the
15 meeting was over, did you have any further discussion
16 about it with your supervisor, the Commissioner?

17 DR. GINSBERG: No.

18 MR. FITZGERALD: And what conversation did
19 you have with Attorney Blumenthal here this morning?

20 DR. GINSBERG: That -- I was just
21 chuckling because it's difficult to have even short sort
22 of informal conversations without people noticing I
23 guess, but I'm new to the process -- anyway, that
24 conversation was because reference had been made to the

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1 New York State Department of Health fax sheet to the --
2 alleging that there were something like 230 studies out
3 there that were in some phase of being done, and since we
4 have many contacts at the New York State Department of
5 Health, that since he had volunteered his agency to
6 connect with their Attorney General's Office to try to
7 get some of that information, I just volunteered that we
8 could also be of service in terms of connecting our --
9 which it sounds like it's maybe already been done for us,
10 but I was just volunteering that we could also do the
11 same thing.

12 CHAIRMAN KATZ: Great. Consider that a
13 homework assignment to get that --

14 MR. TAIT: I've got a larger homework
15 assignment --

16 CHAIRMAN KATZ: But before you do that, I
17 just want to give Mr. Fitzgerald a chance to finish his
18 inquiry.

19 MR. FITZGERALD: Okay. And I -- and I
20 will. Did the people with whom you met leave you with
21 any documents?

22 DR. GINSBERG: No, they did not. I would
23 just add though that there was to be, you know, perfectly
24 disclosure -- you know, to disclose everything about

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1 this. That we had a conversation sort of on the way out
2 the door about the amount of time that peak load could
3 occur, which is a concern to us, and we had always
4 believed that it was one percent, and they had said at
5 the -- it's something I forgot to mention, but they said
6 it could be 40 or 50 percent of the time peak load, and
7 so I questioned them about that informally on sort of the
8 way out the door, and I -- from one of the two scientists
9 I got an e-mail this week after the meeting with some
10 document saying that -- which -- which gets into that
11 issue a little bit. And I can --

12 MR. FITZGERALD: Would you -- would you --

13 DR. GINSBERG: I don't have that document.

14 --

15 MR. FITZGERALD: -- would you get Mr.
16 Marconi that e-mail please?

17 DR. GINSBERG: Can I do what?

18 MR. FITZGERALD: Could you give a copy of
19 that e-mail to Mr. Marconi?

20 CHAIRMAN KATZ: Yes --

21 DR. GINSBERG: Yeah --

22 MR. MARCONI: Yes, I would like a copy of
23 the e-mail and the attachment to it. And Attorney
24 Fitzgerald, I just wanted to interrupt for one minute. I

1 want to make clear then that as a result of this meeting,
2 you did or did not change the testimony that you filed
3 with this Council?

4 DR. GINSBERG: I did not.

5 MR. MARCONI: And you have no corrections
6 to that testimony then, right?

7 DR. GINSBERG: I do not.

8 CHAIRMAN KATZ: And you'll -- basically
9 all communications in the future must be through this
10 docket.

11 DR. GINSBERG: I understand that.

12 CHAIRMAN KATZ: Great. And I just want to
13 counsel that we are going to have a similar witness from
14 the Department of Transportation in the future. Please
15 don't meet with him. And -- so that we can operate
16 within this docket.

17 MR. MARCONI: I think Attorney Fitzgerald
18 has more questions.

19 MR. FITZGERALD: Well just one more really
20 -- I'm not speaking for Miss Randell, she may have one --
21 but I would -- we'd also like to see the letter
22 requesting the meeting.

23 CHAIRMAN KATZ: Yes. Will you please turn
24 over all those relevant documents to the Council.

1 the application, to the testimony that was filed by both
2 your side and I guess our side.

3 MR. SCHAEFER: Okay. Well, you -- you
4 didn't -- you formulated your opinion prior to seeing any
5 evidence filed by my side, isn't that correct?

6 DR. AARONSON: I formulated my opinion
7 based on the literature that I've reviewed --

8 MR. SCHAEFER: Right --

9 DR. AARONSON: -- which is, you know, at
10 this point reasonably extensive.

11 MR. SCHAEFER: Okay. But what I'm saying
12 is you didn't have an opportunity to review the testimony
13 from our experts before you formulated your opinion?

14 DR. AARONSON: No, I -- this testimony
15 that you have in front of you was filed before I actually
16 saw the other testimony.

17 MR. SCHAEFER: Right. Alright. And when
18 you were reviewing literature, did you identify any
19 studies that you wanted to review that hadn't been given
20 to you by the attorney?

21 MR. FITZGERALD: Well objection, just a
22 minute. There's no -- there hasn't -- there's no
23 testimony that he received any literature from me. He
24 said that he received the application and the copies of

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1 the testimony and so forth.

2 CHAIRMAN KATZ: Dr. Aaronson, did you
3 receive any literature from the attorney for the
4 Applicant?

5 DR. AARONSON: I do literature searches
6 based on, you know, the way a scientist does it. You
7 know, we use --

8 CHAIRMAN KATZ: Okay --

9 DR. AARONSON: -- MED, we use a variety of
10 approaches. We -- I -- when I was looking for some of
11 the literature that I needed and it wasn't readily
12 available from the literature sources that I have access
13 to, I would ask for help in obtaining some of that
14 literature. And I did receive that from as it were
15 counsel.

16 MR. SCHAEFER: Attorney we'll call him.

17 DR. AARONSON: Okay.

18 MR. SCHAEFER: Alright. Now your -- I
19 think you said previously, and tell me if I'm wrong, that
20 you don't believe it's your expertise to opine on whether
21 there's a statistical association between EMF exposure
22 and childhood leukemia, is that correct?

23 DR. AARONSON: Right. In the field of
24 epidemiology I think I've made it clear I am really not

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1 an expert.

2 MR. SCHAEFER: Alright. And so what you
3 have knowledge of is studies that are done on either rats
4 or other small animals or cell research?

5 DR. AARONSON: Yes, sir.

6 MR. SCHAEFER: Okay. And you're looking
7 for evidence of the biological mechanism that could
8 explain if exposure to EMF would have some causal
9 relationship with childhood leukemia?

10 DR. AARONSON: I'm actually looking for a
11 biological effect first, because if there's no biological
12 effect, then there's no reason to look for a mechanism --

13 MR. SCHAEFER: Okay --

14 DR. AARONSON: -- so if there were a
15 biological effect, then science tries to understand
16 mechanism.

17 MR. SCHAEFER: Okay. Now, would you --
18 this may be obvious but I think it's worth stating, that
19 we don't have the ability to do biological studies on
20 human beings, do we?

21 DR. AARONSON: Well, you know, it depends
22 on the field. If you're testing a new cancer drug,
23 you're essentially doing a biological study in a patient
24 that you're trying to help.

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1 MR. SCHAEFER: Right. But it wouldn't be
2 ethical to take a bunch of children and expose them to
3 EMF and see if they got leukemia?

4 DR. AARONSON: I don't believe that
5 studies of that nature would be approved. I mean
6 somebody wanted to set up that kind of study, it wouldn't
7 -- you know, our studies --

8 CHAIRMAN KATZ: Just -- let's just say no
9 and move on.

10 DR. AARONSON: Thank you.

11 MR. SCHAEFER: Alright. So therefore,
12 we're left with those two other means of research, which
13 is -- I guess we use rats, but it could be other small
14 animals like rats?

15 DR. AARONSON: Mice, rats --

16 MR. SCHAEFER: Mice, rats --

17 DR. AARONSON: -- are the typical.

18 MR. SCHAEFER: Okay. Or cell research?

19 DR. AARONSON: Yes, sir.

20 MR. SCHAEFER: Okay.

21 MR. ASHTON: Is there one other type of
22 study that where you would not willingly subject a broad
23 population to some agent, you may find that in that broad
24 segment of population there are individuals who are doing

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1 exactly what you want to have done? For example in the
2 EMF area there is a group of workers who regularly and
3 routinely are subject to high electrostatic, electric
4 fields and electromagnetic forces, i.e. they work in
5 manholes and underground cables, they work alongside
6 transformers, they work as linemen, what have you. Is
7 that not a fair game for research, you select a very
8 specific population that meets what your criteria are?

9 DR. AARONSON: You know, as a non-
10 epidemiologist, more as a lay-person I would say that
11 would be the kind of thing that could be very well done.

12 I mean it sounds like a logical thing scientifically and
13 -- but -- but I haven't really looked at that kind of
14 study.

15 MR. ASHTON: Okay. I'll defer to Dr. Cole
16 another time and he can make a comment on that if he
17 wants to.

18 DR. AARONSON: Yeah.

19 MR. SCHAEFER: But that would be an
20 epidemiological study --

21 DR. AARONSON: Right --

22 MR. SCHAEFER: -- as opposed to the kind
23 of study that you engage in?

24 DR. AARONSON: Right.

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1 MR. SCHAEFER: Alright. Now, isn't it
2 true, Dr. Aaronson, that sometimes things show up in
3 humans that don't show up in rats?

4 MR. FITZGERALD: Objection to the
5 question. Things is very --

6 MR. SCHAEFER: Okay, I'll -- that evidence
7 of a causal relationship between a substance and cancer
8 may show up in humans and doesn't show up in rats?

9 DR. AARONSON: I guess it would be in the
10 category of something potentially being the case. I
11 don't really know a good example of it, but then again
12 I'm always willing to learn.

13 MR. SCHAEFER: Okay. Well, aren't there
14 certain organs that humans have that rats don't have?

15 DR. AARONSON: Well, let's go through them
16 --

17 MR. SCHAEFER: Are there?

18 CHAIRMAN KATZ: Quickly.

19 DR. AARONSON: Again -- it's embarrassing
20 if you find one, but there may be, but I -- they look
21 different but I think they're often very much analogous.

22 CHAIRMAN KATZ: Is mammal physiology
23 basically mammal physiology?

24 DR. AARONSON: In general, yeah.

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1 CHAIRMAN KATZ: Okay.

2 MR. SCHAEFER: Okay. Do organs of
3 different species react differently to different
4 interventions?

5 DR. AARONSON: Do -- I'm sorry?

6 MR. SCHAEFER: Do organs of different
7 species react differently to certain interventions?

8 DR. AARONSON: Again, you know, in general
9 -- and we'd have to talk about any specifics that you
10 would want to talk about -- I think the responses are
11 mammalian. There's a pretty good correlative -- that's
12 why the National Toxicology Program uses rodents to do
13 the screening things that tell us if something is a
14 carcinogen.

15 MR. SCHAEFER: Well, let me -- let's talk
16 about -- are you familiar with the research dealing with
17 oral contraceptives?

18 DR. AARONSON: I'm not an expert on that,
19 no.

20 MR. SCHAEFER: Okay. Are you -- have you
21 -- so you haven't -- you're not familiar at all with that
22 research?

23 DR. AARONSON: You know, I read -- since
24 I've been in New York, I read the New York Times --

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1 MR. SCHAEFER: Right, okay.

2 DR. AARONSON: I used to read the
3 Washington Post.

4 MR. SCHAEFER: Okay. Well are you aware
5 that there were prior -- well are you generally familiar
6 with the process that has to be followed before a new
7 drug can be put on the market?

8 DR. AARONSON: Generally familiar.

9 MR. SCHAEFER: Okay. And there's a
10 requirement in that case for the proponent of the drug to
11 prove its efficacy and its safety, isn't that correct?

12 DR. AARONSON: There's pre-clinical work
13 in animals. And then when there is an issue that leads
14 to the next stage in humans, we call it a phase 1 kind of
15 testing of an agent --

16 MR. SCHAEFER: Okay --

17 DR. AARONSON: -- and I'm familiar with
18 that with respect to cancer.

19 MR. SCHAEFER: Okay. And the burden is on
20 the proponent of this new drug to prove its safety before
21 it can go on the market?

22 DR. AARONSON: For sure.

23 MR. SCHAEFER: Alright. And you're aware
24 that oral contraceptives have been on the market for many

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1 years?

2 DR. AARONSON: Yes. I've never taken any
3 myself.

4 MR. SCHAEFER: Okay. I won't ask if you
5 know -- if any of your best friends -- we won't go there
6 -- (laughter) --

7 CHAIRMAN KATZ: Mr. Schaefer, I'm going to
8 ask you to bring this back to EMFs real soon.

9 MR. SCHAEFER: Well -- sir, are you aware
10 that there has recently been identified a causal
11 relationship between oral contraceptives and women with
12 breast cancer at a certain age that did not show up in
13 the studies of rats years ago when that was put on the
14 market?

15 DR. AARONSON: I would have to defer to an
16 epidemiologist.

17 MR. SCHAEFER: Okay. And are you -- in
18 the case of formaldehyde, are you -- do you have any
19 knowledge of that area of research?

20 DR. AARONSON: I mean I think I have a
21 little bit of knowledge, yes --

22 MR. SCHAEFER: Alright --

23 DR. AARONSON: -- but not a lot.

24 MR. SCHAEFER: Okay. Is --

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1 MR. TAIT: He's never taken it.

2 DR. AARONSON: I've never taken it.

3 MR. SCHAEFER: Okay. Is -- is it your
4 understanding that again that that -- the effect of
5 formaldehyde in causing deformation and other medical
6 problems came up after it was in human use and did not
7 come up in the pre-released animal studies that were
8 done?

9 DR. AARONSON: I know it wasn't used -- I
10 know it was prevented from getting into the market in the
11 United States, but I don't really recall the details of
12 this.

13 MR. SCHAEFER: Alright. And do you have
14 any familiarity with dioxin?

15 DR. AARONSON: Really not -- I can try to
16 become familiar with these things before -- you know, I
17 just don't really have a background.

18 MR. SCHAEFER: Then I'm done with Dr.
19 Aaronson for now and would move --

20 DR. AARONSON: Oh, heck.

21 MR. SCHAEFER: Yeah.

22 CHAIRMAN KATZ: Before you leave, Dr.
23 Aaronson, I'm going to ask you -- what time do you have
24 to leave by?

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1 MR. FITZGERALD: 4:30 --

2 MS. RANDELL: 4:30.

3 CHAIRMAN KATZ: Okay. I'm just going to
4 ask you to hang around because I think Mr. Cunliffe might
5 have some questions for you.

6 DR. AARONSON: Sure.

7 CHAIRMAN KATZ: Okay. Mr. Schaefer,
8 should I assume you're going to resume your cross-
9 examination of this panel in May or are you don't
10 completely?

11 MR. SCHAEFER: No, I'm not done. And I
12 thought I was getting some more time other than Dr.
13 Aaronson. If you want me to stop now -- I didn't realize
14 that --

15 CHAIRMAN KATZ: Well, this -- I'd like you
16 to stop at a logical place to stop. Would you like
17 another 10 minutes or so?

18 MR. SCHAEFER: Sure, that would be --

19 CHAIRMAN KATZ: Okay --

20 MR. ASHTON: Are we going to give the
21 Council questions -- or see if there are any Council --

22 CHAIRMAN KATZ: We're going to get to that
23 --

24 MR. ASHTON: For Dr. Aaronson.

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1 CHAIRMAN KATZ: Oh, for Dr. Aaronson?

2 MR. ASHTON: Yes.

3 CHAIRMAN KATZ: Yes. Let's -- why don't
4 we take a break and we'll get some Council questions in
5 for Dr. Aaronson. Anyone -- Mr. Ashton, do you want to
6 go --

7 MR. ASHTON: I have none -- (laughter) --

8 CHAIRMAN KATZ: Okay. Mr. Cunliffe -- Mr.
9 Cunliffe, do you have questions specifically for Dr.
10 Aaronson?

11 MR. CUNLIFFE: No.

12 CHAIRMAN KATZ: Okay. Why don't you
13 continue your cross-examination and then we'll -- let's
14 say a quarter of we'll switch to get Mr. Earley up here
15 and then we're going to switch to some Council business.

16 MR. SCHAEFER: Right, okay, great. Dr.
17 Cole --

18 DR. COLE: Yes, sir.

19 MR. SCHAEFER: -- I'd just like to ask you
20 about conclusions you've reached with respect to --
21 whether or not certain products are carcinogens. Are you
22 familiar with a substance called mist containing sulfuric
23 acid and the studies of the relationship between such
24 mists of sulfuric acid and respiratory tract cancer?

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1 DR. COLE: Yes.

2 MR. SCHAEFER: And you've written on that,
3 haven't you?

4 DR. COLE: Yes, I have.

5 MR. SCHAEFER: Alright. And you published
6 an article in a publication called The Critical Review of
7 Toxicology in early 1997 on that, did you not?

8 DR. COLE: I don't recall the year, but
9 let's say yes.

10 MR. SCHAEFER: Okay. And you reached a
11 conclusion in that article that there was little evidence
12 to support a casual relationship between exposure to this
13 mist, it's called MSA. Is that -- can I refer to it as
14 MSA?

15 DR. COLE: Sure.

16 MR. SCHAEFER: Okay. That there was
17 little evidence to support a casual relationship between
18 exposure to MSA and lung cancer. Is that a fair
19 characterization of your conclusion?

20 DR. COLE: No. The conclusion was that
21 MSA by one -- as used in one particular process was not
22 associated with lung cancer, but that when used in
23 another process, the older process, it probably had
24 caused lung cancer.

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1 MR. SCHAEFER: Okay. And this is an issue
2 that was important to the Petrol Chemical industry whose
3 employees were exposed to this substance, isn't that
4 correct?

5 DR. COLE: It was an issue of great
6 importance to a number of chemical companies, some of
7 which may have been Petrol Chemical companies.

8 MR. SCHAEFER: Alright. And then within
9 six months of your article, the IARC issued a report on
10 this subject, isn't that correct?

11 DR. COLE: I don't recall.

12 MR. SCHAEFER: Okay. Do you -- you don't
13 recall the timing or you don't recall ever seeing the
14 report?

15 DR. COLE: I don't -- I don't now -- I
16 recall that there was a report, yes. I don't recall its
17 timing or its conclusion.

18 MR. SCHAEFER: Alright. And do you recall
19 that the IARC classified MSA as a Group 1 -- a Group 1 as
20 you described it, that occupational exposure to MSA is
21 carcinogenic?

22 DR. COLE: Yes. Let me remind you that so
23 had I said so --

24 MR. SCHAEFER: So you --

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1 DR. COLE: -- for one of the processes.

2 MR. SCHAEFER: On dioxin, did you -- are
3 you familiar with the research with respect to whether
4 dioxin is -- has a causal -- an exposure type -- dioxin
5 has a causal relationship to cancer?

6 DR. COLE: Are you asking me for my
7 opinion or for IARC's position?

8 MR. SCHAEFER: No, I'm asking you first of
9 all if you have -- are you familiar with the subject
10 generally?

11 DR. COLE: I consider myself quite
12 familiar with that subject.

13 MR. SCHAEFER: Okay. And are you aware of
14 the position by IARC?

15 DR. COLE: I am.

16 MR. SCHAEFER: Okay. And IARC classified
17 dioxin as a Group 1 carcinogen, did it not?

18 DR. COLE: It did.

19 MR. SCHAEFER: And you don't agree with
20 that conclusion, is that correct?

21 DR. COLE: The situation is that I have
22 published a paper which has challenged the basis by which
23 IARC used its criteria to put it into that category.

24 CHAIRMAN KATZ: Dr. Cole, just remind us

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1 the characterization, the descriptor for Group 1?

2 DR. COLE: Known to be -- actually a
3 better statement is the available evidence is sufficient
4 to consider it a human carcinogen.

5 CHAIRMAN KATZ: Thank you.

6 MR. TAIT: So your testimony is that you
7 did not say it was not a carcinogen?

8 DR. COLE: I did not. What I said was
9 that they had changed the rules that they had used up
10 until a year before then. They had previously required
11 that the available evidence in human beings be sufficient
12 in order to achieve Group 1. But for dioxin they changed
13 it and said that either it had to be so for the agent
14 itself or for a closely analogous physical agent. And it
15 was on that basis that they put dioxin in Group 1. And I
16 wrote a paper with others saying that you're changing the
17 rules here.

18 MR. SCHAEFER: Sir, but you also said that
19 there is little evidence in support of a causal
20 relationship between exposure to MSA and lung cancer, did
21 you not?

22 DR. COLE: Are you changing the subject
23 back to MSA now? We were just talking about --

24 MR. SCHAEFER: I'm sorry, I apologize. I

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1 apologize. Let me get the dioxin one.

2 DR. COLE: Yeah, I did say that with
3 regard to dioxin.

4 MR. SCHAEFER: Alright.

5 MS. RANDELL: Just to clarify, you meant
6 MSA?

7 DR. COLE: Just now --

8 MR. SCHAEFER: No --

9 DR. COLE: Just now I meant dioxin.

10 MS. RANDELL: Okay.

11 MR. SCHAEFER: Right.

12 DR. COLE: I think maybe are we getting
13 tired or --

14 MR. SCHAEFER: Yeah -- well, I apologize -
15 - do you have the dioxin one, that's the big report --
16 okay, find that for me -- let me come back to that in a
17 second. Let me ask you about smoking and tobacco.

18 DR. COLE: Um-hmm.

19 MR. SCHAEFER: Have you expressed expert
20 opinions in that area?

21 DR. COLE: By expert opinions you mean in
22 a hearing such as this or in a court?

23 MR. SCHAEFER: Or in articles?

24 DR. COLE: Well, I probably have expressed

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1 quite a few --

2 MR. SCHAEFER: Okay --

3 DR. COLE: -- opinions on smoking in
4 articles, yes.

5 MR. SCHAEFER: Alright. And in fact you
6 recommended in 1995 a national program that would
7 encourage people to switch from smoking cigarettes to
8 chewing tobacco, isn't that correct?

9 DR. COLE: Not correct.

10 MR. SCHAEFER: Okay. And --

11 DR. COLE: Can I assert my correct
12 position?

13 MR. SCHAEFER: No. You'll have an
14 opportunity I'm sure --

15 MR. FITZGERALD: Well, I think --

16 CHAIRMAN KATZ: Well when you leave it
17 hanging out that far, then you've got to let him finish.

18 DR. COLE: It is my position starting in
19 1995 and continuing to the present day that a product
20 which you refer to as chewing tobacco, but we who have
21 studied it refer to it as smokeless tobacco, is an
22 appropriate substitute not for people but for what we
23 call inveterate smokers. Their other name, the name by
24 which you may know them, is nicotine addicts. That is we

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1 think that smokeless tobacco has a place in trying to
2 wean hardcore smokers, people who have failed in
3 conventional quit smoking programs, off of their smoke by
4 giving them their nicotine. It's quite analogous to the
5 methadone programs for heroin. We do not recommend any
6 form of tobacco use for people who are not already
7 addicted to the products.

8 MR. SCHAEFER: Are you aware of whether or
9 not methadone causes cancer?

10 DR. COLE: I'm not aware that it does.

11 MR. SCHAEFER: Okay. Are you aware that
12 smokeless tobacco does cause cancer?

13 DR. COLE: It probably does not any more.

14 I acknowledge that it used to. But the new smokeless
15 products are quite different from the old ones and
16 specifically with regard to the ingredients that are
17 known to be the causes of cancer in them.

18 MR. SCHAEFER: Sir, when you made the
19 recommendation in 1995, didn't you admit that at that
20 time the evidence was clear that smokeless tobacco caused
21 cancer?

22 DR. COLE: Yes, but it causes less than
23 the smoking that we recommend it be substituted for.

24 MR. SCHAEFER: Alright. And one of the

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1 reasons that you made this recommendation to go from one
2 -- the use of one carcinogen -- known carcinogen to
3 another was that it empowers smokers and empowers society
4 to avoid burdensome and intrusive tobacco control
5 measures. Is that --

6 MR. WILENSKY: Madam Chairman, what line -
7 - what does this line of questioning --

8 CHAIRMAN KATZ: Yeah --

9 MR. WILENSKY: -- what does this have to
10 do with EMF?

11 CHAIRMAN KATZ: I'm going to ask --

12 MR. WILENSKY: -- I think we're off on a
13 tangent here --

14 CHAIRMAN KATZ: Yeah. I'm going to ask
15 you connect the dots a little sooner of getting back to
16 EMF and cancer.

17 COURT REPORTER: One moment please.

18 (Pause). Thank you.

19 CHAIRMAN KATZ: Go ahead.

20 MR. SCHAEFER: Okay. I'm sorry. Okay,
21 I'd like to go back to the question I asked you
22 previously on dioxin. And I was trying to explore
23 whether you disagreed with IARC, it's conclusion on
24 dioxin. Do you recall that questioning?

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1 DR. COLE: Yes --

2 MR. SCHAEFER: Alright --

3 DR. COLE: -- I think so.

4 MR. SCHAEFER: And if I can just give you
5 a copy of an article of yours on this subject that might
6 refresh your recollection and if you could just look at
7 the conclusion on the last -- page 386.

8 DR. COLE: Yes.

9 MR. SCHAEFER: Okay. And the conclusion
10 states it is clear from this review that the evidence
11 does not support the IARC's classification of TCDD -- is
12 that a phraseology for dioxin?

13 DR. COLE: Yes, sir.

14 MR. SCHAEFER: As a Group 1 carcinogen.
15 In fact, the evidence indicates that TCDD is not
16 carcinogenic to human beings at low levels and may not be
17 carcinogenic to them even at high levels. Was that your
18 conclusion?

19 DR. COLE: Yes, sir.

20 MR. SCHAEFER: And by the way, is dioxin
21 an example of a substance that was classified on the IARC
22 standard at lower than Group 1 and at some point years
23 later moved up to Group 1?

24 DR. COLE: Yes, it is.

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1 MR. SCHAEFER: Okay. And Group 1 is the
2 known human carcinogen, is that correct?

3 DR. COLE: Yes, it is.

4 MR. SCHAEFER: Okay. And in your
5 testimony here -- the last sentence of your testimony on
6 page 8 --

7 DR. COLE: This is -- this is -- excuse me
8 -- okay --

9 MR. SCHAEFER: Sure --

10 CHAIRMAN KATZ: After you conclude this
11 line of questioning, Mr. Schaefer, we're going to switch
12 gears.

13 MR. SCHAEFER: Do you see that?

14 DR. COLE: Yes, sir -- well, I'm on page
15 8. I'm not --

16 MR. SCHAEFER: Right. The last sentence
17 says there is on precedent for an agent that has received
18 such intense investigation and that has failed to be
19 recognized as a carcinogen subsequently to be so
20 recognized. Do you see that?

21 DR. COLE: Yes.

22 MR. SCHAEFER: Alright. And would you
23 agree with me that dioxin is a substance that was
24 thoroughly investigated, was not labeled as a Group 1

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1 carcinogen, and years later was moved up to Group 1?

2 DR. COLE: No way.

3 MR. SCHAEFER: Okay.

4 DR. COLE: This statement relates to the
5 hundreds of studies that have been done over the 25-year
6 period in the case of electromagnetic fields. And what
7 I'm saying is that there is no analogy to that -- to a
8 compound of that sort. Certainly dioxin is not in that
9 category by any means, being -- moving into a Group 1 or
10 Group A in the NTP --

11 MR. SCHAEFER: Okay --

12 DR. COLE: -- in short, I'm saying you
13 have a compound here -- you have an agent here,
14 electromagnetic fields, which have been under scrutiny
15 for 25 years, 150 studies, and can't make it. There is
16 no precedent for such a history ultimately leading to a
17 Group 1.

18 MR. SCHAEFER: Can I ask one follow-up
19 question and then --

20 CHAIRMAN KATZ: Yes.

21 MR. SCHAEFER: Okay. I'd like to just
22 give you three substances that have been moved up to
23 Group 1 by IARC --

24 DR. COLE: Um-hmm.

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1 MR. SCHAEFER: -- and see if any of them
2 you would say had been thoroughly studied in the same way
3 that you believe EMF has --
4 DR. COLE: Okay.
5 MR. SCHAEFER: -- and that is ethylene
6 oxide?
7 DR. COLE: No. It was investigated over a
8 short period of time --
9 MR. SCHAEFER: Neutrons --
10 DR. COLE: Excuse me -- it moved up very
11 quickly. That's what this is all about.
12 MR. SCHAEFER: Okay. Neutrons?
13 DR. COLE: Neutrons?
14 MR. SCHAEFER: Right.
15 DR. COLE: Neutrons are not a Group 1
16 carcinogen in IARC.
17 MR. SCHAEFER: Okay. Tetrachlor -- okay -
18 -
19 DR. COLE: Tetra --
20 MR. SCHAEFER: -- dioxin --
21 DR. COLE: Tetrachloroethylene --
22 MR. SCHAEFER: -- that's dioxin --
23 DR. COLE: -- it's a 2A -- no, no --
24 MR. SCHAEFER: What --

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1 DR. COLE: -- what is the compound --

2 CHAIRMAN KATZ: You're talking PCE?

3 DR. COLE: Are you talking about TCE?

4 MR. SCHAEFER: Yeah, I'm going to have
5 trouble with this -- hexachlorodibenzoparadioxin?

6 DR. COLE: Well, that's dioxin, that's
7 TCDD.

8 MR. SCHAEFER: Right. And that was moved
9 up to 2A to 1, is that correct?

10 DR. COLE: Yes.

11 MR. ASHTON: Is dioxin a single specific
12 compound --

13 DR. COLE: No, sir --

14 MR. ASHTON: -- or is it a family of
15 compounds?

16 DR. COLE: It's a very large class of
17 compounds.

18 MR. ASHTON: Like dibenzofurans and stuff
19 like that?

20 DR. COLE: Indeed. The dibenzofurans are
21 almost perfect analogues of the dibenzodioxins.

22 MR. ASHTON: Thank you.

23 MR. SCHAEFER: Thank you very much.

24 CHAIRMAN KATZ: Thank you. Okay -- and

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1 you would like to reserve the right to continue cross-
2 examination in May?

3 MR. SCHAEFER: Yes.

4 CHAIRMAN KATZ: So noted. Okay, at this
5 point I'm going to ask you to vacate. And Mr. Earley has
6 some -- he has indicated -- or CBIA has some --

7 (Off the record)

8 COURT REPORTER: On the record.

9 CHAIRMAN KATZ: On the record. If you
10 could just start off by introducing yourself for the
11 record.

12 MR. EARLEY: Madam Chair and members of
13 the Council, I have no questions for Dr. Aaronson. So if
14 he needs to make a train --

15 CHAIRMAN KATZ: We're -- I think we're
16 going to make him stay a few more minutes just in case.

17 MR. TAIT: Yeah, while you're having fun --
18 - (laughter) --

19 MR. ASHTON: (Indiscernible) -- how many
20 times do you get paid to -- (laughter) --

21 A VOICE: The longer --

22 MR. ASHTON: -- (indiscernible) -- get
23 paid for going to watch the opera.

24 MR. EARLEY: I have questions first for

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1 Dr. Cole. I'm approaching this from I guess a 30,000-
2 foot view --

3 DR. COLE: Sir, I'm sorry, but I can't
4 quite hear you.

5 MR. EARLEY: Sure. I'll be approaching
6 these questions looking for a 30,000-foot view if I
7 could. I'd like to know starting -- in very basic terms
8 can you tell me what ecological evidence is?

9 DR. COLE: Yeah. Ecological evidence is
10 evidence of an epidemiologic nature but in which the unit
11 of observation is not the individual human being but the
12 population. Usually the population is defined in some
13 geopolitical sense.

14 MR. EARLEY: And in your prefiled
15 testimony you discuss the connection between smoking and
16 lung cancer as it relates to ecological evidence, is that
17 correct?

18 DR. COLE: I think I did make reference to
19 that as one of the supporting areas of evidence, yes.

20 MR. EARLEY: What does that same evidence
21 tells us about the connection between EMF and childhood
22 leukemia?

23 DR. COLE: It's very supportive of the
24 idea that there is no relationship. Let me be more

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1 specific. During the 20th century in this country and in
2 much of the western world power production in the United
3 States and in most of the countries doubled every 10
4 years, so that by about 1990 you had somewhere around 20
5 times to 30 times the power production that we had in the
6 1950's, so a tremendous increase. I should have said
7 that that production was on a per capita basis. However,
8 the exposure of individuals is not a linear function of
9 the per capita production but an exponential function
10 because we are exposed to each other's electric power
11 consumption. That is the way to think of it is that we
12 don't live along lines of electricity the way we usually
13 think of it, but we live within a net of electricity, so
14 that the power that's going to your house maybe goes by
15 my house, so I'm exposed not only to the electricity
16 that's coming to me but that's going to the population.
17 In short, electromagnetic field exposure is a function
18 both of production and of population density.

19 There have been only one or two efforts to
20 estimates how much the electromagnetic field exposure of
21 a child born in the United States at different times has
22 increased, but that is on the order of some at least 20
23 times between a child born in 1950 and a child born in
24 1990. Recall that half of childhood leukemia occurs

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1 before age 5. Yes, that's right, half occurs before age
2 5. It's not really a childhood disease, it's a toddler's
3 disease. During this period of time, 1950 being about as
4 far back as we can go and have essentially perfectly
5 comparable consistent --

6 MR. TAIT: Could I just say what's the
7 outer limit of age when you say childhood --

8 DR. COLE: Fifteen.

9 MR. TAIT: Fifteen.

10 DR. COLE: We can go back to 1950 and look
11 at the statistics that have been collected -- and guess
12 where, the finest cancer registry in the world, the State
13 of Connecticut, it has the longest term compatible
14 consistent evidence on all forms of cancer at all ages.
15 What happened to leukemia over this period of time during
16 which this supposed cause was increasing 20 to 30 fold --

17 MR. ASHTON: And this is childhood
18 leukemia?

19 DR. COLE: Childhood leukemia. What
20 happened to it? Zip. So that's your ecological
21 evidence. A striking increase in the hypothetical cause,
22 zero increase in the incidents of the disease.

23 MR. LYNCH: Dr. Cole, is zip a medical
24 term?

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1 DR. COLE: No, sir -- (laughter) -- no,
2 sir.

3 MR. EARLEY: This next question -- thank
4 you, doctor -- is for both Dr. Cole and Dr. Bailey. What
5 I'd like to know is do you agree with the summary of the
6 independent scientific reviews and the epidemiological
7 studies that have been presented and submitted by the --
8 I should say submitted by the panel of witnesses
9 appearing for the Community Center and others in this
10 proceeding?

11 DR. BAILEY: Do we agree -- do I
12 understand the question do we agree with the testimony
13 that they have presented?

14 MR. EARLEY: With the studies themselves
15 and the reviews, do you believe that they are accurate?

16 CHAIRMAN KATZ: These -- are you referring
17 to what was in the bulk submittal?

18 MR. EARLEY: Yes.

19 CHAIRMAN KATZ: Okay.

20 MS. RANDELL: Madam Chairman, I'm a little
21 confused by the question --

22 MR. ASHTON: Yeah, I am too --

23 MS. RANDELL: -- I had thought Mr. Earley
24 was asking did he -- did Dr. Bailey and Dr. Cole agree

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1 with the testimony --

2 CHAIRMAN KATZ: Okay --

3 MS. RANDELL: -- of Drs. Bell, et al --

4 CHAIRMAN KATZ: Can you --

5 MR. EARLEY: I can rephrase.

6 MS. RANDELL: Okay.

7 CHAIRMAN KATZ: Please.

8 MR. EARLEY: I can rephrase. Could you
9 tell me in your opinion what you think is the largest and
10 best study on EMF and childhood leukemia?

11 DR. BAILEY: I'd say that -- probably in
12 my perspective there are two studies that stand out. One
13 is the largest study done in the United States by Martha
14 Linet and her colleagues. And the other is the largest
15 study that I believe has been done on this issue anywhere
16 in the world done by the UK cancer study group in the
17 United Kingdom.

18 DR. COLE: Well, I would agree. I happen
19 to have a personal affection and regard for the Canadian
20 study. This was the study that used children's toys to
21 hide the monitors that we use to measure the exposure. I
22 thought that was very clever and very useful. However, I
23 certainly agree with Dr. Bailey that the Linet study and
24 the United Kingdom Childhood Cancer Study Group studies

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1 are as of today state-of-the-art. And I really don't
2 know that any of these three studies have any flaw in
3 them. They have what we might refer to as a limitation,
4 which -- by which I mean it's built in, it's
5 methodological, and that is that we still don't have a
6 really fine way of integrating 24-hour -- a 24-7 so to
7 speak time weighted average exposure. But I think
8 McBride in her Canadian study came as close we're ever
9 going to get to that without a real breakthrough in
10 measurement procedures --

11 MR. EARLEY: And if I could --

12 DR. COLE: -- they're all three very good
13 studies and they're all three negative.

14 MR. EARLEY: If I could indulge the
15 Council, I just have one more --

16 CHAIRMAN KATZ: Yes.

17 MR. EARLEY: -- last follow-up question.
18 With regard to the study that you both mentioned with
19 regard to the United Kingdom, just for the sake of
20 specificity, is that the Sir Richard Doll study, is that
21 the one that you're referring to?

22 DR. COLE: Well, the -- the actual
23 authorship is attributed to a writing committee and the
24 corresponding author is a man named Richard -- Nicholas

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1 Day. However, Sr. Richard Doll, who I might just mention
2 is sort of the dean of cancer epidemiology, knighted for
3 same, was certainly a leading light in the planning
4 stages of that study. He was not heavily involved
5 towards the end as his health -- well, he's over 90 years
6 old.

7 MR. EARLEY: Thank you. I have nothing
8 further.

9 CHAIRMAN KATZ: Thank you, Mr. Earley.

10 MR. EARLEY: Thank you.

11 CHAIRMAN KATZ: Okay, at this point we're
12 going to shift gears --

13 A VOICE: Did they want any redirect on --

14 CHAIRMAN KATZ: Yeah, you don't want any
15 redirect at this time, right, Mr. Fitzgerald?

16 MR. FITZGERALD: No.

17 CHAIRMAN KATZ: Great. Thank you. What
18 we're going to do is Mr. Cunliffe is going to start the
19 questioning, but I've got something that might be a
20 potential homework assignment. So Dr. Bailey, I'm going
21 to ask you -- to make sure we get this in, I'm going to
22 ask you to look in Volume 6, page 17 -- just let me know
23 when you have it in front of you.

24 DR. BAILEY: Yes.

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1 CHAIRMAN KATZ: In that you had done a
2 magnetic field profile for Route 114 and Center Road in
3 Woodbridge. And the next page you did a similar profile
4 for High Plains Community Center in Orange. How many of
5 these profiles where you took it out some distance were
6 done?

7 DR. BAILEY: In total?

8 CHAIRMAN KATZ: Yeah.

9 DR. BAILEY: Well -- we have measurements
10 that were made -- if you go to page 13, the Scovill Rock
11 switching station --

12 CHAIRMAN KATZ: Right.

13 DR. BAILEY: -- measurements were made on
14 Black Walnut Drive, along Carpenter Lane, Route 114,
15 Route 152, Plains Road. And I believe that there were as
16 I recall one or two other locations where we took
17 measurements but were not on any of the proposed routes
18 and were not included in the application.

19 CHAIRMAN KATZ: Okay. So probably less
20 than 10 would you say of these types of magnetic
21 profiles?

22 DR. BAILEY: Yes.

23 CHAIRMAN KATZ: Okay. What I did -- and
24 my colleagues are going to kid me that I need to get a

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1 life -- but I went through Volume 9 of the application
2 where there were the aerial photographs and for -- and
3 there's roughly 45 aerial photographs that take you from
4 Middletown to the East Devon Substation. And I went with
5 the premise that after you get three or four-hundred feet
6 away from the transmission line, EMF is not really a
7 factor, just a starting place. And I used 400 feet
8 because one-inch was 400 feet in Volume 9. And I went
9 through to see how many groups of houses or schools or
10 similar structures there were on those aerial photos that
11 were in that one-inch is 400 feet of the transmission
12 line. And I got probably -- of the 45 pages probably 40
13 of them I found structures such as schools and houses
14 within that. And it looked like that if you did one of
15 these magnetic profiles in these residential areas, you
16 could probably get a pretty good descriptor I thought
17 with about 50 maybe 60 magnetic profiles of taking it
18 beyond the right-of-way but taking it to the nearest
19 house or structure. And -- because one of the issues it
20 has -- that has come up in the Health Department website
21 is saying there's no magic number on milligausses, but
22 saying if you get -- background levels in many houses
23 were up to 3 or 4 milligausses -- would you agree that's
24 probably a good number?

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1 DR. BAILEY: As an average over the
2 household --

3 CHAIRMAN KATZ: Yeah --

4 DR. BAILEY: -- it could be that high.

5 CHAIRMAN KATZ: And they're saying there's
6 really been no link below 3 or 4 milligausses to
7 childhood leukemia. So I sort of took the premise if we
8 wanted the houses not to have an increase in milligausses
9 beyond normal background, then the number I was using was
10 in that 3 or 4 milligausses, and I was curious how many
11 houses or schools in the right-of-way from Middletown to
12 East Devon would you have more than 3 or 4 milligausses
13 once you got to the house.

14 MR. TAIT: Beyond the right-of-way.

15 CHAIRMAN KATZ: Beyond the right-of-way.

16 DR. BAILEY: Yes --

17 MR. FITZGERALD: Are you -- are you
18 stopping -- you're talking about fields --

19 COURT REPORTER: A microphone please --

20 AUDIO TECHNICIAN: Mr. Fitzgerald, pull up
21 a microphone --

22 MR. FITZGERALD: Sorry. What you are
23 talking about now since you referred to those profiles
24 are 3 or 4 milligauss from the transmission line --

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1 CHAIRMAN KATZ: Correct.

2 MR. FITZGERALD: Okay.

3 DR. BAILEY: That would be existing
4 transmission lines?

5 CHAIRMAN KATZ: Well -- plus the proposed.

6 MR. FITZGERALD: Well --

7 DR. BAILEY: Well -- but we -- we're -- we
8 can only calculate what those fields might be in the
9 future from the proposed. We can take measurements --

10 CHAIRMAN KATZ: Oh -- that's what I mean.
11 I'm not asking measurement --

12 DR. BAILEY: Oh, okay --

13 CHAIRMAN KATZ: -- I'm saying proposed --

14 DR. BAILEY: Okay --

15 CHAIRMAN KATZ: -- based on the existing
16 plus new what you would extrapolate. And I was wondering
17 if those types of profiles for both the proposed and the
18 existing transmission line could be done on a more
19 extensive basis than doing what you call less than 10.

20 DR. BAILEY: Okay, now I'm beginning to
21 understand. So you're saying would it be possible to do
22 a more site specific characterization of the fields at
23 particular locations along the proposed route where there
24 might be concentrations of houses or other places, and at

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1 that site specific location do calculations of the fields
2 in a more site specific fashion than the generic
3 calculations that might apply to a section that would be
4 26 miles long or something.

5 CHAIRMAN KATZ: Correct. You -- you get
6 it better than I explained it.

7 DR. BAILEY: It's still complicated, but I
8 understand. Yes, that could be done. It's -- it
9 requires field work to go out there and actually get the
10 locations. And as you saw in response to one of the
11 interrogatories, an activity like that was undertaken, a
12 quite time consuming process, to go out and calculate and
13 -- to identify a location, identify the distance from the
14 proposed route and in a general way estimate what the
15 field levels would be. But this could be done on a site
16 specific basis as well.

17 CHAIRMAN KATZ: Well --

18 MR. ASHTON: Could that be done from an
19 aerial -- (indiscernible) --

20 CHAIRMAN KATZ: Yeah, just looking at
21 aerial --

22 COURT REPORTER: Whoa --

23 AUDIO TECHNICIAN: Mr. Ashton --

24 MR. ASHTON: Could that be done from

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1 aerial photogrammetry or the aerial photos that you have
2 in the application?

3 DR. BAILEY: Well, I'll ask Bob Carberry
4 to chime in here too, but sometimes the topography will
5 cause very different, you know, changes in elevation and
6 so on --

7 MR. ASHTON: Okay --

8 DR. BAILEY: -- and will require in a
9 particular location a different structure. So unless you
10 know what the topography is --

11 MR. ASHTON: Okay --

12 DR. BAILEY: -- you might make a
13 projection based upon an assumption of flat ground and a
14 certain type of structure when in fact if you went and
15 looked at that specific site and what structure would you
16 actually put there, you might come up with a different
17 answer to the site specific calculation --

18 MR. ASHTON: Would a flat ground
19 calculation be a worse case calculation? Not
20 necessarily?

21 MR. CARBERRY: No. What's important is
22 the distance from the line. So I guess a rising terrain
23 close to the line would be -- you'd have higher fields
24 there than if it was flat terrain close to the line. But

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1 I would like to say that when you are more than about 75
2 to 100 feet away from a right-of-way like this or lines
3 like this, the relative differences in height between the
4 conductors that are important to the fields close to the
5 line become unimportant. And therefore, beyond a
6 distance like that from the lines, all else equal, flat
7 terrain for example, you're not going to see much
8 difference as long as the lines are the same from one
9 section of this map to the next.

10 MR. ASHTON: Would a distribution line
11 along or crossing a right-of-way at that point mask the
12 magnetic field of the transmission line very quickly?

13 MR. CARBERRY: It would make a
14 contribution as another source, but I think -- again if
15 I'm talking -- once I get well away from the right-of-
16 way, probably that's disappeared as well.

17 CHAIRMAN KATZ: I guess if we wanted --
18 tell me how we can find this out, the best way to find
19 this out -- if we wanted to know let's say hypothetically
20 how many houses or schools were above let's say two-fold
21 of 3 milligausses, how would you go about doing that in
22 an efficient manner within the scope of this docket?

23 MR. CARBERRY: One could go out and make
24 the actual profiles and make some measurements, but I

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1 would caution people on that that it's a spot
2 measurement. You know, what are the line loads today and
3 how representative is that.

4 CHAIRMAN KATZ: Right.

5 MR. CARBERRY: So really the only way to
6 do what you're saying is to try to model it at every
7 location and do a calculation --

8 CHAIRMAN KATZ: So the model would be
9 based on -- the calculation would be based on the
10 existing plus the proposed line?

11 MR. CARBERRY: Whatever you choose to
12 model --

13 CHAIRMAN KATZ: Okay --

14 MR. CARBERRY: -- as in the
15 representations here both have been modeled and -- it's
16 been modeled for example in the existing lines with
17 perhaps the heights of the conductors at a representative
18 mid-span height. Now if you pick a different cross-
19 section where the heights of one line are above that
20 average and another one is lower, then surely it will
21 make some difference in a profile right there. What I'm
22 telling you is that once you start to get about a hundred
23 or more feet away from the right-of-way, that difference
24 is not showing up any more, and that the calculated

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1 profile that you already have for that type of a right-
2 of-way is fairly representative.

3 CHAIRMAN KATZ: Well that would create
4 less work for yourself because the number of structures
5 that are within that short of distance are much less I
6 would assume.

7 MR. CARBERRY: You'd think so, yes.

8 CHAIRMAN KATZ: Yes.

9 MR. ASHTON: Mr. Carberry, you've used the
10 term once you get away, a hundred feet or so from a
11 right-of-way it becomes inconsequential. Do you mean the
12 edge of the right-of-way or do you mean the centerline of
13 the conductor or the edge of the outside conductor,
14 because the distance from the conductor to the edge of
15 the right-of-way varies all over the lot?

16 MR. CARBERRY: I really mean the nearest
17 line --

18 MR. ASHTON: Okay. And that would be the
19 outside conductor, the closest conductor --

20 MR. CARBERRY: Yes --

21 MR. ASHTON: -- or the centerline of --

22 MR. CARBERRY: Right. What's important to
23 -- each wire is producing a magnetic field --

24 MR. ASHTON: Yes.

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1 MR. CARBERRY: -- and by the time you've
2 gotten that far away, a relative distance to each wire
3 isn't changing very much when you move the next foot no
4 matter whether the conductors are higher or lower, so --

5 MR. ASHTON: But we've --

6 MR. CARBERRY: -- it's this --

7 MR. ASHTON: -- we've used the term
8 centerline to the line, of a circuit, or outside
9 conductor, and there could be a 25-foot difference --

10 MR. CARBERRY: Right, I agree. I'm using
11 a round number and I'm just saying 75 to 100 feet from
12 the nearest line.

13 CHAIRMAN KATZ: Okay, so you -- it sounds
14 like you're saying that by our May hearings that you
15 could do through modeling or calculations tell us how
16 many structures would be above -- and I'm going to use
17 six -- two times three -- 6 milligausses, is that a --
18 first, is that doable and is 6 a reasonable number?

19 MR. CARBERRY: With the 15 gigawatt
20 modeling case, is that what you're asking? You're asking
21 for a model calculation and not measurements?

22 CHAIRMAN KATZ: Well, you said that you
23 can't measure the proposed?

24 DR. BAILEY: Right.

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1 MR. CARBERRY: Correct.

2 CHAIRMAN KATZ: So --

3 MR. CARBERRY: But do you want this for
4 both the existing and the proposed or only the proposed?

5 CHAIRMAN KATZ: No, the proposed.

6 MR. CARBERRY: Okay.

7 CHAIRMAN KATZ: We're living with the
8 existing.

9 MR. CARBERRY: Sure.

10 MR. WILENSKY: Madam Chairman -- Madam
11 Chairman --

12 CHAIRMAN KATZ: Is two times -- is two-
13 fold of the 3 milligauss number is that a reasonable
14 number to use for this exercise?

15 MR. CARBERRY: Whatever number you'd like.

16 CHAIRMAN KATZ: Okay. Well, let's go with
17 that one for now. Okay. Mr. Wilensky.

18 MR. WILENSKY: You're talking about
19 overhead lines. What about the magnetic fields on an
20 underground line? I mean how far does that go out? Does
21 that go out at all or just -- what kind of a -- what
22 could you give us regarding that?

23 MR. CARBERRY: Well, there's two main
24 types of underground line technology, one is the pipe

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1 type cable and the other is the solid dielectric cables.

2 And in the pipe type cable because the conductors are so
3 close together and surrounded by --

4 MR. WILENSKY: Let's say the underground
5 that you're proposing going from -- what is it --
6 Bridgeport -- or Devon to -- Devon to Norwalk?

7 MR. CARBERRY: Right, that's the 345-kV
8 pipe type cable. And I would speculate that the zone of
9 influence of the field is plus or minus 20 feet around
10 the centerline of the line, they could be down to
11 background levels very quickly --

12 MR. WILENSKY: So there would be less --
13 would there be less of a magnetic field coming from that
14 underground line than as proposed we'll say from -- going
15 through -- from Middletown to Devon?

16 MR. CARBERRY: Oh, yes. That technology
17 has fairly low magnetic fields directly above it and it
18 attenuates fairly quickly to each side, unlike the solid
19 dielectric technology which will generally have field
20 levels directly above it that are similar to what you'd
21 find directly under an overhead line can be, and -- but
22 also fall off to the sides more rapidly. The reason why
23 it falls off more rapidly is the wires are closer
24 together and there's better cancellation. And so that --

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1 that could be 50 feet perhaps in each direction.

2 MR. WILENSKY: Thank you. Thank you,
3 Madam Chairman.

4 MR. FITZGERALD: (Indiscernible) --

5 CHAIRMAN KATZ: Yes --

6 MR. FITZGERALD: -- I think we need some
7 more discussion and direction. We could do it --

8 CHAIRMAN KATZ: What I'm looking for is I
9 -- what I think the Council would like to know is above
10 certain milligausses in the -- how many structures such
11 as houses and schools --

12 MR. FITZGERALD: Would be --

13 CHAIRMAN KATZ: -- are within that -- and
14 we're going to use the number 6 milligauss level --

15 MR. FITZGERALD: Well, schools --

16 CHAIRMAN KATZ: -- of the proposed --

17 MR. FITZGERALD: For schools it's already
18 been done. The Attorney General asked the --

19 CHAIRMAN KATZ: True, good point --

20 MR. FITZGERALD: -- he asked the question
21 about schools --

22 CHAIRMAN KATZ: Yes --

23 MR. FITZGERALD: -- day are centers,
24 community centers --

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1 CHAIRMAN KATZ: Right --

2 MR. FITZGERALD: -- houses of worship,
3 etcetera, etcetera. And we -- there was a huge effort to
4 do --

5 CHAIRMAN KATZ: I --

6 MR. FITZGERALD: -- so that same data can
7 be reorganized --

8 CHAIRMAN KATZ: Right --

9 MR. FITZGERALD: -- to give you the
10 answer, you know, that you want as it relates to --

11 CHAIRMAN KATZ: Ideally I'd like it north
12 to south or south to north, not broken up by houses,
13 schools, you know, but --

14 MR. FITZGERALD: Now, if -- if we -- if we
15 now -- not extrapolate -- I just was corrected in my use
16 of that word --

17 CHAIRMAN KATZ: You can't use words like
18 that in front of all these scientists.

19 MR. FITZGERALD: Right. If you -- but if
20 you know say, okay, now we want to look at houses along
21 the right-of-way --

22 CHAIRMAN KATZ: Um-hmm.

23 MR. FITZGERALD: -- and we're going to say
24 how many houses can be expected to -- under the

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1 assumptions that we used before the 50 gigawatt case, how
2 many houses can be expected to see fields from the new
3 lines under those assumptions that are 6 milligauss or
4 above, I think that -- I think that we could do -- we
5 could produce a pretty good answer building on the
6 typical cross-sections that have already been calculated
7 without having to do the same degree of field work --

8 CHAIRMAN KATZ: Well, you're going to tell
9 us roughly where they are, right?

10 MR. FITZGERALD: Yes.

11 CHAIRMAN KATZ: Okay.

12 MR. FITZGERALD: Yes.

13 MS. RANDELL: Yeah, I think our suggestion
14 is if you could look at page 48 of Volume 6, Figure 41 --

15 COURT REPORTER: A microphone please.

16 MS. RANDELL: Sorry, Tony.

17 CHAIRMAN KATZ: Page 48?

18 MS. RANDELL: Page 48, Figure 41.

19 CHAIRMAN KATZ: Yes.

20 MS. RANDELL: The typical profile for
21 Sections 8 and 8B, which I think comprises about 20 miles
22 worth of line, we could use that as the basis for
23 identifying the houses. If that's agreeable to the
24 Council, I think that works --

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1 CHAIRMAN KATZ: Yeah --

2 MS. RANDELL: -- for getting the work
3 done.

4 CHAIRMAN KATZ: The problem with these was
5 that the vertical scale is such that it -- once you get
6 down -- that zero to 20 it's hard to read, as you --

7 MS. RANDELL: I agree. And I'm told from
8 all the nodding at that second table that the scale can
9 be changed.

10 CHAIRMAN KATZ: Okay.

11 MS. RANDELL: But if that's an agreeable
12 way of proceeding for the houses in addition to the
13 schools, day care centers and so on that Mr. Fitzgerald
14 was talking about in AG whichever --

15 CHAIRMAN KATZ: Yeah -- Council -- any
16 Council comments on that homework assignments?

17 MR. SCHAEFER: If --

18 MR. MARCONI: Attorney Schaefer has a
19 question.

20 MR. SCHAEFER: If I could just make a
21 comment -- and obviously you'll do what you want with it
22 -- but I believe the evidence is the background levels
23 are 1 to 2 and that the level that whatever you think of
24 these studies found a carcinogenic relationship was 3 to

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1 4.

2 CHAIRMAN KATZ: Right. Well, I'm -- the
3 premise I was using was two-fold 3 milligausses because 3
4 milligausses was -- well, I'm going back to a Health
5 Department thing, but that's not in evidence yet.

6 DR. BAILEY: Can I just comment on the
7 proposal? After conferring with a colleague, there will
8 -- there will be obviously some uncertainties in these
9 estimations because of things like, you know, how
10 accurate are the aerial surveys and whether something is
11 -- a structure is an occupied house or not and things
12 like. And I think for this amount of effort, I think we
13 need to make some simplifying assumptions like flat
14 terrain and that kind of thing. It would not be
15 practical to go out and survey --

16 CHAIRMAN KATZ: Okay --

17 DR. BAILEY: -- every one of those things.
18 So you know --

19 CHAIRMAN KATZ: Just --

20 DR. BAILEY: -- it potentially could be
21 done --

22 CHAIRMAN KATZ: -- include your
23 assumptions. Would it be possible to do 3 milligausses
24 instead of 6 milligausses, is it -- is it the same amount

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1 of work?

2 DR. BAILEY: It's extra work, but, you
3 know, once you're at a location and so on, half of the
4 work is done just trying to come up with that --

5 CHAIRMAN KATZ: Okay --

6 DR. BAILEY: -- particulars for that
7 location.

8 MR. FITZGERALD: It's also important to
9 understand that whether you use 3 or 6 or whatever
10 number, that's not the same number that these
11 epidemiological studies --

12 CHAIRMAN KATZ: Right. And I thought Dr.
13 Bailey went into that --

14 MR. FITZGERALD: Okay --

15 CHAIRMAN KATZ: -- in lucid detail.

16 MR. FITZGERALD: -- I just don't want it
17 to be --

18 CHAIRMAN KATZ: And we're going to --
19 we're going to go through that whole average thing --

20 MR. FITZGERALD: Okay.

21 CHAIRMAN KATZ: Okay. Okay, so we're
22 going to say 3 milligausses. If you want to do both 3
23 and 6, that's up to you.

24 Okay, I want to -- at this point what I

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1 MR. FITZGERALD: And I guess my -- my
2 wrap-up question is just -- did -- did this experience
3 leave you with the impression that there is a significant
4 political interest on the part of the Towns to which your
5 supervisor was responding and that you have been made
6 aware that there are interested parties who are following
7 closely what your testimony is seeking to influence it
8 and hoping that your supervisor will see that you are
9 responsive?

10 DR. GINSBERG: I guess the best way for me
11 to answer that is that the meeting stuck to the science
12 and not the politics or the policy, that we have been
13 involved in this issue since the early 1990's with a
14 legislative mandate to our division to be in the middle
15 of this issue and to organize task forces and make
16 reports to the legislature, and that we have maintained
17 that focus in terms of providing a public service to the
18 legislature, and in this case now to the Siting Council,
19 and we -- as an agency we really try to steer clear of
20 any, quote/unquote, "political influence" whether it's
21 from an individual or a town that may want to see
22 something happen a certain way. We certainly have the
23 State's overall public health in mind and not any one
24 particular town or area.

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1 MR. FITZGERALD: Do you have anything --

2 CHAIRMAN KATZ: Have you concluded --

3 MR. FITZGERALD: I have concluded.

4 CHAIRMAN KATZ: Mr. Wertheimer, you want
5 to be heard.

6 MR. WERTHEIMER: (Indiscernible) --

7 COURT REPORTER: Wait a minute, hold it,
8 hold it --

9 MR. WERTHEIMER: I realize it's late and I
10 don't want to take any more time than it has to and --
11 but I -- I'm completely baffled by what's going on here.

12 As far as I know Dr. Ginsberg is appearing on behalf of
13 DPH. There's no indication that there was ex parte
14 communication with the Siting Council in any way.

15 As far as I know parties are free to meet
16 with parties, other participants in the case as much as
17 they want.

18 I also know that as a public agency, DPH,
19 like my agency, like your agency, meets with members of
20 the public that are concerned about any number of issues
21 at anytime. And this sort of witch hunt and impugning
22 the integrity of DPH somehow that they're going to be
23 influenced by a meeting with the public, which is their
24 obligation as a public agency, or any sort of

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1 restrictions on parties being able to meet with other
2 participants in the case, maybe I don't fully understand
3 the nature of the concerns, but it seems to me beyond the
4 pale. I don't think any of this is necessarily
5 appropriate and I would like a chance to take this up
6 further --

7 CHAIRMAN KATZ: Well, we just thought it
8 was appropriate that since this meeting did occur that it
9 be put in the record.

10 MS. RANDELL: May I respond --

11 MR. WERTHEIMER: Well --

12 MS. RANDELL: -- to Mr. Wertheimer?

13 MR. WERTHEIMER: -- suppose I meet with
14 the Towns' doctors or someone else on anything, do I --
15 there's no obligation upon anyone to report those sort of
16 meetings. And I fail to see why this is any different.

17 MS. RANDELL: May I respond as to
18 precisely why this is different, Chairman Katz?

19 CHAIRMAN KATZ: Yes.

20 MS. RANDELL: Thank you. By a letter
21 dated February 23, 2004, this Council wrote to
22 Commissioner Galvin requesting the witness, and I quote,
23 "the Council -- this Council is requesting a member of
24 your staff to testify, on behalf of the Council, on

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1 matters of electric and magnetic fields".

2 This witness, as I'm understanding it, is
3 not an independent entity, is not a party like the Towns,
4 who are represented separately. Our understanding is
5 that the request was strictly to be as -- to testify on
6 behalf of the Council. And therefore, it is not at all
7 clear to me that ex parte rules don't apply. And that is
8 precisely why we are concerned with this. And I might
9 add that the Applicants specifically did not endeavor to
10 consult with or talk to anyone at the Department of
11 Health, specifically this witness, with respect to this
12 docket and electric and magnetic fields for that reason.

13 CHAIRMAN KATZ: Well --

14 COURT REPORTER: One moment please --

15 MR. WERTHEIMER: Well, it's my --

16 COURT REPORTER: One moment please.

17 (Pause). Thank you.

18 MR. WERTHEIMER: It's my understanding
19 that Dr. Ginsberg is testifying on behalf of DPH at the
20 invitation of the Council. And maybe it's just a
21 semantic issue. But as long as he's testifying on behalf
22 of DPH and that's who he works for, that's who he's paid
23 by, that's whose views he's representing, then I don't
24 think that any of this inquiry is relevant or

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1 appropriate.

2 CHAIRMAN KATZ: Like I said, I just
3 thought it was important since the meeting took place,
4 that it be placed on the record.

5 MR. WERTHEIMER: I appreciate that. And I
6 appreciate that however this issue is resolved, it's
7 resolved so that everyone knows the ground rules going
8 forward.

9 MR. MARCONI: And again, I just wanted to
10 say I'm not trying to suggest any lack of integrity on
11 behalf of any of the participants whether it be from the
12 State, from the municipalities, whatever. I just wanted
13 to make sure that when it came to my attention that such
14 a meeting took place, is that the fact was laid out
15 there.

16 I'm sure you all appreciate that my job in
17 part is to make sure we protect the record and make sure
18 the due process rights are preserved. And I wanted to
19 make sure that the Applicant and all other attorneys, all
20 other parties knew about this and were free to question
21 it and I wanted to make sure it was out there, and I'm
22 not suggesting anything other than that.

23 MS. RANDELL: Might I just do a few wrap-
24 up questions however.

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1 CHAIRMAN KATZ: Quickly.

2 MS. RANDELL: Thank you. Dr. Ginsberg,
3 did anyone at this meeting comment on the witnesses on
4 behalf of the Applicants, whether it's Dr. Cole, Dr.
5 Bailey, Dr. Aaronson, or any of the other witnesses?

6 DR. GINSBERG: There was one comment made
7 that we should really make sure we read -- their
8 suggestion was that we make sure that we read all of the
9 testimony by your witnesses. And I believe they
10 mentioned Dr. Cole and Aaronson in particular as relevant
11 to the issue. And you know, from our perspective we knew
12 that that was available and it wasn't new information.

13 MS. RANDELL: Thank you.

14 CHAIRMAN KATZ: Thank you. At this point,
15 Mr. Tait has a homework assignment he's going to ask you,
16 Dr. Ginsberg, and then I'm going to have you read your
17 opening statement, and then Mr. Phelps is going to
18 discuss the calendar.

19 MR. TAIT: I'm interested in the websites
20 that the State Health Departments have put out. We have
21 yours. I would like more information on the New York
22 one. I would like to know whether there are any other
23 ones out there and what they say and how -- are they
24 current or are they stale, are they reliable, or should

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1 we pay any attention to them at all? And if so, which
2 ones do you think -- I don't know how far afield to go,
3 but -- I assume California has one?

4 DR. GINSBERG: Right, exactly.

5 MR. TAIT: Do they all have them?

6 DR. GINSBERG: On this particular subject?

7 CHAIRMAN KATZ: Yes.

8 MR. TAIT: Do you have the minion that can
9 do this for you?

10 DR. GINSBERG: Yes. We can certainly look
11 --

12 MR. TAIT: Good. Have your -- have your
13 minion produce them. But I'd like your characterize of
14 them --

15 DR. GINSBERG: Sure --

16 MR. TAIT: --- would you please review
17 them and see whether you think they are accurate and
18 current.

19 DR. GINSBERG: And I take it that means
20 that if they have buttons to documents and they've done
21 analyses, etcetera, that you would like a summary of --

22 CHAIRMAN KATZ: Yes --

23 MR. TAIT: Could you put that in as one
24 document?

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1 DR. GINSBERG: We'll have to look at how
2 large a scope of review that is --

3 CHAIRMAN KATZ: Understood --

4 DR. GINSBERG: -- but we'll --

5 MR. TAIT: Do the best you can --

6 DR. GINSBERG: We will -- by May, I think
7 we can give you something.

8 MR. TAIT: Yes.

9 CHAIRMAN KATZ: Understood. Mr. O'Neill.

10 MR. O'NEILL: Yes. Doctor, at this time
11 I'd like to request --

12 COURT REPORTER: One moment please --
13 (pause) -- sorry, go ahead.

14 MR. FITZGERALD: Madam Chairman, could Dr.
15 Cole be excused?

16 CHAIRMAN KATZ: Yes. Thank you, Dr. Cole.
17 See you in May.

18 MR. O'NEILL: Doctor, we have been
19 informed that the State of Connecticut has taken a
20 proactive approach in doing studies on cancer within the
21 State of Connecticut. If there are cancer cluster zones
22 or places in the State of Connecticut which are
23 documented, perhaps you can present that to this Council.

24 DR. GINSBERG: Are you referring to

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1 childhood leukemia --

2 MR. O'NEILL: Yes, let's start with --

3 DR. GINSBERG: A type of --

4 MR. O'NEILL: -- childhood leukemia --

5 DR. GINSBERG: -- a type of childhood

6 leukemia --

7 MR. O'NEILL: Yes --

8 DR. GINSBERG: -- or all childhood

9 leukemias --

10 MR. O'NEILL: -- if there are clusters

11 which are evident in the State of Connecticut,

12 particularly along the route of this proposed

13 transmission line, I would like to see that review or

14 survey.

15 MR. TAIT: Any transmission --

16 CHAIRMAN KATZ: Or any transmission --

17 MR. O'NEILL: Or any --

18 DR. GINSBERG: Or any transmission --

19 MR. O'NEILL: Or a substation perhaps.

20 CHAIRMAN KATZ: Are there cancer clusters

21 related to childhood leukemia, I guess that's what our

22 question is.

23 MR. TAIT: And where are they located?

24 CHAIRMAN KATZ: And -- yeah. Because if -

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1 - if they are 10 of them and none of them are located
2 near transmission lines, then we need to know that too.

3 DR. GINSBERG: Yeah, I can tell you we
4 receive a lot of cancer cluster calls from the public and
5 requests by towns to do those kinds of analyses --

6 CHAIRMAN KATZ: Yeah --

7 DR. GINSBERG: -- whether it's breast
8 cancer or some rare cancer or childhood leukemia. And
9 there's maybe one cluster investigation every couple of
10 years that rise to that level where there is a likelihood
11 that there's a statistical clustering that we would go
12 further and start asking who lived where, when, and that
13 kind of thing. So within -- you know, there are
14 statistics by town to show cancers but they won't show
15 you which of those cancers was near a right-of-way, but -
16 - you know, so it's very generic kind of statistics.

17 And then there are cluster investigations
18 which are very unusual, and I can tell you now that there
19 aren't any childhood leukemia clusters that we have been
20 actively investigating at least in the last five years or
21 so, you know, within recent memory.

22 CHAIRMAN KATZ: Thank you. At this time,
23 I'm going to ask you to read your opening statement.

24 DR. GINSBERG: The Connecticut Light and

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1 Power and United Illuminating proposal for new high
2 voltage lines between Norwalk and Middletown involve the
3 potential for increased electromagnetic field exposures
4 in some areas and no change or even decreased exposures
5 in other areas. Connecticut DPH has reviewed this
6 proposal in light of the existing epidemiology and
7 biomedical literature on the possible effects of EMF on
8 health outcomes, most notably cancer.

9 The primary studies and reviews in this
10 area point to a possible link between EMF and two types
11 of human cancer, brain cancer in adult electrical workers
12 and childhood leukemia from general
13 neighborhood/household exposures. While the data are not
14 always consistent or compelling for either of these end
15 points, the fact that a number of studies have show a
16 link to childhood leukemia is of potential concern.
17 Animal toxicology studies have generally not supported a
18 carcinogenic effect of EMF, although very recent data on
19 the exposure of rats to EMF have found an increase in DNA
20 damage that would be consistent with cancer. And that
21 reference is Lay and Sing (phonetic) 2004.

22 The question of the carcinogenic effects
23 of EMF is best characterized by a high degree of
24 uncertainty. This stems in part from the difficulty in

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1 testing the EMF/cancer link in human population.
2 Quote/unquote "background" concentrations of EMF are
3 highly variable with most people being exposed to higher
4 levels for at least a portion of the day. Therefore,
5 there is no true control group with consistently low
6 exposure. Without such a comparison group, it is
7 difficult to detect an environmentally related health
8 outcome. This is compounded by the fact that the
9 reported studies generally have a low statistical power
10 to find an effect due to the small numbers of subjects in
11 the most highly exposed EMF categories. Other
12 uncertainties relate to exactly how to measure a group's
13 exposure level and whether short-term spikes in exposure
14 or the long-term average exposure is most important to
15 health risk.

16 In spite of these difficulties, the fact
17 that there are a number of studies which show a link to
18 childhood leukemia is noteworthy. The most informative
19 data are contained in two MEDA analyses which pool
20 numerous individual studies and thus provide the greatest
21 opportunity to see a statistically significant finding.
22 These MEDA analyses both found a relatively small but
23 significant association between EMF and childhood
24 leukemia. And those references -- and these are on the

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1 docket, Ahlbom, et al, 2000, and Greenland, et al, 2000.
2 Confronted with suggestive evidence and a
3 large degree of uncertainty regarding such a critical
4 health outcome as childhood cancer, the DPH recognizes
5 the need for prudent avoidance of EMF exposure to the
6 degree possible. EMF exposure of the general population
7 is highly variable with numerous peaks and valleys over
8 the course of daily activity. Time weight average,
9 background levels appear to be broadly in the 1 to 5
10 milligauss range with most homes at or below 3
11 milligauss. Studies which have shown a link to childhood
12 leukemia suggest that groups exposed to greater than 3
13 milligauss may be at somewhat elevated risk. Therefore,
14 a prudent approach would be to make every effort to keep
15 the long-term average exposure of those living near major
16 EMF sources, for example power lines and substations, to
17 be within a reasonably small factor, for example two-
18 fold, of this background range. While we have no
19 definitive evidence that exposures greater than
20 background are in fact a health risk, the certainty of
21 safety diminishes as EMF levels are allowed to
22 increasingly rise above background.

23 The specific proposal put before the
24 Connecticut Siting Council involves numerous transects

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1 with differing power line configuration and planned
2 right-of-way limits. Connecticut DPH has not reviewed
3 each transect in detail to determine whether the new
4 transmission line will increase or decrease the existing
5 EMF field, how the new field compares to background, and
6 what abutting land uses exist now or could exist in the
7 future. We know that the Connecticut Siting Council is
8 being provided much of this detailed information. We
9 encourage the Council to point out situations and
10 locations in which EMF from the transmission line could
11 substantially increase exposures above background to
12 nearby residents or to children attending school or day
13 care facilities. In those cases best management
14 practices, for example altered configuration or right-of-
15 way, etcetera, should be considered to minimize the
16 potential exposure source the transmission line
17 represents for these receptors.

18 CHAIRMAN KATZ: Thank you, Dr. Ginsberg.
19 Dr. Ginsberg will be available for cross-examination in
20 May.

21 What I'd like to do at this time if
22 there's no other business for today's session, I'd like
23 to have Mr. Phelps discuss the upcoming calendar.

24 MR. PHELPS: Thank you, Madam Chair. I'm

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1 going to go through the dates and schedule that the
2 Council has settled upon for the remainder of Docket 272.
3 And the schedule that I'm going to describe will be sent
4 out to the service list sometime in the middle of next
5 week. The --

6 A VOICE: (Indiscernible) --

7 CHAIRMAN KATZ: Yes, we'll put this on the
8 record.

9 MR. PHELPS: Docket 272 evidentiary
10 hearings will continue for Segments 3 and 4 on Tuesday
11 the 20th, Wednesday the 21st, and Thursday the 22nd of
12 April. That will be here in these facilities, CCSU, New
13 Britain, from 10:00 a.m. to 5:00 p.m. And I think may
14 wish to mark that on the third day the focus will be on
15 railroad, highway, and marine alternatives. Is that
16 right?

17 CHAIRMAN KATZ: Correct.

18 MR. PHELPS: Then the continuation of this
19 docket will occur on -- will resume on Wednesday the 12th
20 and Thursday the 13th with the subject matter focus being
21 EMF issues --

22 MR. TAIT: Of May.

23 CHAIRMAN KATZ: May.

24 MR. PHELPS: I'm sorry, Wednesday the 12th

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1 and Thursday the 13th of May, with again the subject
2 matter being EMF and the location will be here at these
3 facilities CCSU in New Britain.

4 Then Tuesday the 1st, Wednesday the 2nd, and
5 Thursday the 3rd of June, again in these facilities, CCSU,
6 New Britain, 10:00 a.m. to 5:00 p.m., with the subject
7 matter focus being Segments 1 and 2, including the East
8 Shore alternative --

9 CHAIRMAN KATZ: And under-grounding.

10 MR. PHELPS: And under-grounding. The
11 East Shore option. And --

12 CHAIRMAN KATZ: I think we're calling it
13 the East Shore route.

14 MR. PHELPS: The East Shore route. And
15 then the final dates that we have in mind are Tuesday the
16 15th, Wednesday the 16th, and Thursday the 17th, 10:00 a.m.
17 to 5:00 p.m., again the month of June, these facilities
18 CCSU, New Britain. To the extent that additional dates
19 will be necessary, that will be discussed at a later
20 time.

21 CHAIRMAN KATZ: If these dates are
22 problematic, please indicate to Mr. Phelps within the
23 next few days.

24 MR. PHELPS: Please -- yeah, please bring

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1 to our attention any significant burden or hardship that
2 these dates present to you and speak to me about that as
3 soon as you can in order that we can resolve whether
4 those issues are deal breakers as it were, because in the
5 absence of that, this will be codified in correspondence
6 that will be sent out next week.

7 CHAIRMAN KATZ: Any procedural issues we
8 need to cover before we adjourn for today? Hearing none,
9 we are adjourned.

10

11

(Whereupon, the hearing adjourned at 5:20

12

p.m.)

13

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CERTIFICATE

I, Robin L. Focht, a Notary Public in and for the State of Connecticut, and Vice President of Post Reporting Service, Inc., do hereby certify that, to the best of my knowledge, the foregoing record is a correct and verbatim transcription of the audio recording made of the proceeding hereinbefore set forth.

I further certify that neither the audio operator nor I are attorney or counsel for, nor directly related to or employed by any of the parties to the action and/or proceeding in which this action is taken; and further, that neither the audio operator nor I are a relative or employee of any attorney or counsel employed by the parties, thereto, or financially interested in any way in the outcome of this action or proceeding.

In witness whereof I have hereunto set my hand and do so attest to the above, this 2nd day of April, 2004.


Robin L. Focht
Vice President

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