

ORIGINAL

STATE OF CONNECTICUT
SITING COUNCIL

* * * * *

CONNECTICUT LIGHT & POWER COMPANY *
AND UNITED ILLUMINATING COMPANY *

JUNE 16, 2004
(10:30 A.M.)

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 *

DOCKET NO. 272

RECEIVED
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CONNECTICUT
SITING COUNCIL

* * * * *

BEFORE: PAMELA B. KATZ, CHAIRMAN

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12th SEN. DISTRICT

AN INTERVENOR, JOSEPH CRISCO, JR., STATE REP.
17th SEN. DISTRICT

AN INTERVENOR, LEONARD FASANO, STATE REP.
34th SEN. DISTRICT

HEARING RE: CL&P and UI
JUNE 16, 2004

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 June 16, 2004 at 10:30 a.m., at which time the parties
8 were represented as hereinbefore set forth . . .

9

10

11 CHAIRMAN PAMELA B. KATZ: Okay, this is
12 the resumption of the Public Hearing for Docket 262. The
13 first thing I'd like to do is get some new exhibits into
14 the record.

15 Quickly, Dr. Ginsberg, if you could come
16 up to that microphone. Dr. Ginsberg, we have prefiled by
17 you an exhibit, Testimony of Gary Ginsberg, Ph.D.
18 Toxicologist, dated May 6, 2004. Mr. Haines, can we get
19 that verified.

20 COURT REPORTER: I need your name, and
21 spell it too please.

22 DR. GARY GINSBERG: Yeah. Gary Ginsberg,
23 G-i-n-s-b-e-r-g.

24 CHAIRMAN KATZ: Dr. Ginsberg, we already

HEARING RE: CL&P and UI
JUNE 16, 2004

1 sworn you in, correct?

2 DR. GINSBERG: Yes.

3 CHAIRMAN KATZ: Okay.

4 MR. JOHN HAINES: Alright. How do you
5 normally do this because this is my first --

6 CHAIRMAN KATZ: Oh, okay --

7 (Pause)

8 MR. HAINES: Dr. Ginsberg, regarding your

9 --

10 AUDIO TECHNICIAN: Mr. Haines, please just
11 grab that microphone.

12 MR. HAINES: Thank you. Dr. Ginsberg,
13 regarding your prefiled testimony dated May 6, 2004, do
14 you adopt that today as your testimony?

15 DR. GINSBERG: I do.

16 MR. HAINES: And are there any changes to
17 that prefiled testimony?

18 DR. GINSBERG: No, there aren't.

19 MR. HAINES: Thank you very much.

20 CHAIRMAN KATZ: Thank you. Any objection
21 to making that a full exhibit? Hearing none, it's a full
22 exhibit.

23 (Whereupon, Siting Council Exhibit No. 5
24 was received into evidence as a full exhibit.)

HEARING RE: CL&P and UI
JUNE 16, 2004

1 CHAIRMAN KATZ: Mr. Schaefer, we have from
2 our witnesses -- where's Mr. Schaefer -- there you are --
3 we -- if you could identify your new exhibits and we'll
4 get those verified.

5 MR. DAVID A. SCHAEFER: Sure.

6 CHAIRMAN KATZ: And these four gentlemen
7 have all been sworn, correct?

8 MR. SCHAEFER: That is correct.

9 CHAIRMAN KATZ: Good.

10 MR. SCHAEFER: The new exhibits -- there
11 is supplemental testimony concerning laboratory studies
12 of the effects of EMF that is testimony of Drs. Bell,
13 Rabinowitz, Baum, and Carpenter. Dr. Carpenter was not --
14 -- and we informed staff in advance, was not able to be
15 here today for medical reasons, and that Dr. Baum was not
16 able to be here for business reasons. So this is
17 testimony that is being sponsored by Drs. Bell and
18 Rabinowitz, who are here today. I can -- and Drs. Bell
19 and Rabinowitz, are you the authors of this testimony?

20 DR. LEONARD BELL: Yes, we are.

21 DR. PETER RABINOWITZ: Yes, we are.

22 MR. SCHAEFER: Okay. And do you sponsor
23 that as your testimony?

24 DR. BELL: Yes, we do.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. RABINOWITZ: Yes, we do.

2 MR. SCHAEFER: Okay. I don't know if you
3 want anything further.

4 CHAIRMAN KATZ: Is there any objection to
5 making No. 4 a full exhibit? Hearing none, it will be a
6 full exhibit.

7 (Whereupon, Ezra Academy Et Al Exhibit No.
8 4 was received into evidence as a full exhibit.)

9 MR. SCHAEFER: And Madam Chairman, No. 5
10 is simply the appendix to that testimony.

11 Again, Drs. Bell and Rabinowitz, did you
12 put together that appendix?

13 DR. BELL: Yes, we did.

14 DR. RABINOWITZ: Yes.

15 MR. SCHAEFER: And do you sponsor that
16 document?

17 DR. BELL: Yes.

18 DR. RABINOWITZ: Yes.

19 CHAIRMAN KATZ: Is there any objection to
20 making No. 5 a full exhibit? Hearing none, 5 is a full
21 exhibit.

22 (Whereupon, Ezra Academy Et Al Exhibit No.
23 5 was received into evidence as a full exhibit.)

24 CHAIRMAN KATZ: And 6 and 7 we'll do

HEARING RE: CL&P and UI
JUNE 16, 2004

1 later, correct?

2 MR. SCHAEFER: Correct.

3 CHAIRMAN KATZ: Okay. Mr. Fitzgerald.

4 MR. ANTHONY FITZGERALD: I believe that
5 there is supplemental testimony of Drs. Bell and others
6 concerning buffer zones dated May 11, 2004? I don't see
7 it listed here --

8 CHAIRMAN KATZ: Yes, you're right, it's
9 not on the hearing program. Mr. Schaefer, can we add
10 that to the hearing program?

11 MR. SCHAEFER: Sure, no problem

12 CHAIRMAN KATZ: And we'll call that No. 8,
13 May 11th buffer zones. And we'll verify that at this
14 time?

15 MR. SCHAEFER: Fine. Drs. Bell,
16 Rabinowitz and Gerber, are you the authors of the
17 testimony dated May 11, 2004 entitled Supplemental
18 Testimony Concerning Buffer Zones?

19 DR. BELL: Yes.

20 DR. RABINOWITZ: Yes.

21 DR. ALAN GERBER: Yes.

22 MR. SCHAEFER: Okay. And do you sponsor
23 that testimony and ask the commission to consider it?

24 DR. BELL: Yes.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. RABINOWITZ: Yes.

2 DR. GERBER: Yes.

3 CHAIRMAN KATZ: Any objection to making
4 that -- No. 8 a full exhibit? Hearing none, it's a full
5 exhibit.

6 (Whereupon, Ezra Academy Et Al Exhibit No.
7 8 was received into evidence as a full exhibit.)

8 MR. SCHAEFER: And Madam Chairman, there's
9 an appendix to that testimony, which in your practice
10 you've been listing separately --

11 CHAIRMAN KATZ: So do you want to make
12 that No. 9?

13 MR. SCHAEFER: That would be appropriate.
14 And again I'll ask Drs. Bell, Rabinowitz and Gerber, did
15 you put together that appendix to your testimony?

16 DR. BELL: Yes.

17 DR. RABINOWITZ: Yes.

18 DR. GERBER: Yes.

19 MR. SCHAEFER: And do you sponsor that
20 document?

21 DR. BELL: Yes.

22 DR. RABINOWITZ: Yes.

23 DR. GERBER: Yes.

24 CHAIRMAN KATZ: Any objection to making

HEARING RE: CL&P and UI
JUNE 16, 2004

1 No. 9 a full exhibit? Hearing none, it's a full exhibit.

2 (Whereupon, Ezra Academy Et Al Exhibit No.
3 9 was received into evidence as a full exhibit.)

4 AUDIO TECHNICIAN: Dr. Gerber, you can
5 pull that microphone right over to you.

6 DR. GERBER: Okay. Sorry about that.

7 CHAIRMAN KATZ: Any --

8 AUDIO TECHNICIAN: You don't have to lean
9 into it --

10 DR. GERBER: Okay.

11 CHAIRMAN KATZ: Any procedural matters
12 before we proceed with cross-examination? Yes?

13 MR. FITZGERALD: May it please the
14 Council, I have a request for administrative notice.
15 This is provoked in part by the new statutory provision
16 about noticing EMF research. There's been a whole lot of
17 it that's been put in the record already, but in light of
18 that, what I did was to get copies of the major reviews
19 of the studies that in some cases have been referenced
20 and in some cases have been partially put before the
21 Council by having chapters or summaries put in as
22 exhibits --

23 (Interruption, cell phone)

24 CHAIRMAN KATZ: Take that person out and

HEARING RE: CL&P and UI
JUNE 16, 2004

1 shoot them. (Laughter).

2 MR. FITZGERALD: But the full reports were
3 actually in the Council's offices. In some cases there
4 are full copies of reviews that have come in by other
5 means and I haven't included them in this -- in this
6 request.

7 CHAIRMAN KATZ: Okay.

8 MR. FITZGERALD: But I'd like to hand up
9 the request to Mr. Cunliffe. There's two copies of these
10 documents that are listed in the request on the table
11 there. I gave one set to Mr. -- as a courtesy to Mr.
12 Schaefer yesterday -- or at least I think it was suppose
13 to be delivered to your office.

14 CHAIRMAN KATZ: What I'd like to do then
15 is let's leave them on the table, give people a chance
16 during the lunch break to take a look at them, and take
17 this up right after lunch to take administrative notice
18 of them, to see if there's any objection. Is everyone --
19 is there anyone who is not agreeable to that plan? Okay,
20 so we will do that, we will give everybody an opportunity
21 to take a look at them. And remind me, Mr. Fitzgerald,
22 and we'll take that up right after lunch.

23 MR. FITZGERALD: Thank you.

24 CHAIRMAN KATZ: Any other procedural

HEARING RE: CL&P and UI
JUNE 16, 2004

1 matters before we proceed with cross-examination?

2 Hearing none, Mr. Fitzgerald.

3 MR. FITZGERALD: Thank you.

4 CHAIRMAN KATZ: And I will go through the
5 entire list on cross-examination.

6 MR. FITZGERALD: Okay. Good morning,
7 gentlemen.

8 When we were last together, we were
9 reviewing your testimony concerning some of the
10 individual epidemiological studies that you had chosen to
11 include in the appendix to your March 16th testimony. We
12 had just finished a discussion of the study by Linnet and
13 others. And now I'd like to pick up with your testimony
14 about the report of Green and others, which is in
15 Reference 13 to your March 16th testimony. And there is a
16 question about that -- your discussion of it in your
17 testimony starts with the question did Green, et al
18 observe a positive relationship between EMF and childhood
19 leukemia and your answer is yes, Green and others
20 observed that for children younger than six years at
21 diagnosis, outside perimeter measures of the residence
22 greater than or equal to .15 micro-tesla were associated
23 with a significantly increased leukemia risk. Have I
24 correctly read your testimony?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 CHAIRMAN KATZ: The first time each of you
2 speak today just give your name.

3 DR. GERBER: Dr. Gerber. Yes, that -- you
4 correctly read the testimony.

5 MR. FITZGERALD: Thank you. Now in fact,
6 what Green reported was that that elevated risk looking
7 just at children less than six years of age at diagnosis
8 was not statistically significant, isn't that right?

9 DR. GERBER: I'll read directly from
10 Green's abstract. Here's the relevant quotation, for
11 children younger than six years at diagnosis, outside
12 perimeter measurements of the residence greater than .15
13 micro-tesla were associated with increased leukemia risk,
14 odds ratio 3.45. That's a 245 percent excess case --

15 MR. FITZGERALD: Doctor --

16 DR. GERBER: I'm almost finished --

17 MR. FITZGERALD: No, no --

18 DR. GERBER: -- with a 95 percent
19 confidence interval ranging from 1.14 to 10.45. So at
20 the five percent level that is statistically significant.

21 MR. FITZGERALD: Did Green report -- Green
22 and others report that their results did not attain
23 statistical significant, doctor?

24 DR. GERBER: No, I'm -- I'm answering your

HEARING RE: CL&P and UI
JUNE 16, 2004

1 question specifically. It's completely unambiguous --

2 MR. FITZGERALD: Okay, would you -- would
3 you please --

4 DR. GERBER: -- if the confidence interval
5 does not include one, the 95 percent confidence interval
6 --

7 MR. FITZGERALD: Would you --

8 DR. GERBER: -- it is statistically --

9 MR. FITZGERALD: Would you --

10 DR. GERBER: -- significant.

11 MR. FITZGERALD: Would you please get out
12 the Green report.

13 DR. GERBER: Yeah, I'm looking right at it
14 --

15 DR. BELL: We've all got it right in front
16 of us --

17 CHAIRMAN KATZ: One -- just one --

18 DR. GERBER: Here you go --

19 CHAIRMAN KATZ: One at a time please.

20 MR. FITZGERALD: Page 164.

21 A VOICE: What tab number?

22 DR. GERBER: I'm looking at the abstract,
23 which is --

24 MR. FITZGERALD: No, please get the report

HEARING RE: CL&P and UI
JUNE 16, 2004

1 --

2 DR. GERBER: Certainly, certainly. Okay,
3 where would you like me to look?

4 MR. FITZGERALD: Look at page 164.

5 DR. GERBER: Okay.

6 MR. FITZGERALD: Age at diagnosis the
7 right-hand column.

8 DR. GERBER: Age -- I don't --

9 DR. BELL: Mr. Fitzgerald, if I could
10 assist you, on Table 4, page 165, it lays out all the
11 data and all the --

12 MR. FITZGERALD: Please --

13 DR. GERBER: Yeah, no, no --

14 MR. FITZGERALD: Please --

15 DR. GERBER: -- I'm happy --

16 MR. FITZGERALD: -- please --

17 DR. GERBER: -- I'm happy to --

18 MR. FITZGERALD: -- please review --

19 (Gavel)

20 DR. GERBER: Okay, where would you --
21 where are we reading?

22 MR. FITZGERALD: Page 164.

23 DR. GERBER: Okay.

24 MR. FITZGERALD: Alright. The right-hand

HEARING RE: CL&P and UI
JUNE 16, 2004

1 column.

2 DR. GERBER: Oh, you're looking -- this is
3 -- okay, I think I see what you're saying -- this relates
4 specifically to the wire code portion of the study.
5 That's what the VHCC means. So you're really quoting one
6 particular subset of Green's results.

7 MR. FITZGERALD: No --

8 DR. GERBER: Green summarized their
9 results in their abstract more comprehensively.

10 DR. BELL: I'd also like to note that --

11 MR. FITZGERALD: No doctor --

12 CHAIRMAN KATZ: Wait --

13 MR. FITZGERALD: Please --

14 CHAIRMAN KATZ: You just --

15 DR. BELL: Okay, I'm sorry.

16 CHAIRMAN KATZ: Let him ask you a
17 question.

18 DR. BELL: I'm sorry.

19 MR. FITZGERALD: Let's look at what they
20 said. Age at diagnosis --

21 DR. GERBER: Sure --

22 MR. FITZGERALD: -- do you see that --
23 alright. Now, what they're talking about there is age at
24 diagnosis, right?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. GERBER: That's correct.

2 MR. FITZGERALD: On ratios for selected
3 indices of EMF exposure for children less than six years
4 of age at diagnosis are presented in Table 6, right?

5 DR. GERBER: That's what it says right
6 there, yes, that's correct.

7 MR. FITZGERALD: For these younger
8 children the odds ratios for magnetic field exposure
9 inside the home increased with higher exposures but none
10 attained statistical significance, correct?

11 DR. GERBER: I'm sorry, let me check Table
12 6. (Pause). Okay, I believe you're talking about the
13 interior average, is that correct? I'm -- again you're --
14 -

15 MR. FITZGERALD: Well --

16 A VOICE: Yes --

17 DR. GERBER: That's right, so --

18 MR. FITZGERALD: Yes --

19 DR. GERBER: -- but for the -- right --
20 that's right, the -- the quotation from the abstract
21 refers to outside perimeter measurements. And it appears
22 that -- that when you look specifically at the interior
23 average, you get elevated risks, but not elevated enough
24 for there to achieve statistical significance. Is that

HEARING RE: CL&P and UI
JUNE 16, 2004

1 the -- is that -- is that correct?

2 MR. FITZGERALD: I'm not testifying,
3 doctor.

4 DR. GERBER: Well, I'm -- I'm -- I
5 apologize, but I'm trying to be responsive to your
6 question. It appears that there are multiple ways in
7 which magnetic fields were measured and you're referring
8 to one specific measure used by Green.

9 MR. FITZGERALD: I am -- if we look at
10 Table 6, we see that it relates to measured fields and it
11 shows for measured fields a child's bedroom, interior
12 average and outside, right?

13 DR. GERBER: Okay.

14 MR. FITZGERALD: And then the authors
15 discuss -- I'm sorry, it also shows results for two kinds
16 of wire code approaches. That's Table 6, right?

17 DR. GERBER: That's correct.

18 MR. FITZGERALD: Okay. And in
19 characterizing their own results, first of all, they take
20 one slice, which is the children who are diagnosed under
21 six, not all children, just children diagnosed under six,
22 alright, and for that slice they say odds ratios for
23 selected indices of EMF exposure for children less than
24 six years of age at diagnosis are presented in Table 6,

HEARING RE: CL&P and UI
JUNE 16, 2004

1 for these younger children the odds ratios for magnetic
2 field exposure inside the home increased with higher
3 exposures, but none attained a statistical significance,
4 okay. That's -- that's inside the home, less than six
5 years, not statistically significant. Right so far?

6 DR. GERBER: I think -- are -- are you --
7 I apologize, but are you just -- are you reading page
8 164?

9 MR. FITZGERALD: Yes.

10 A VOICE: (Indiscernible) -- is there a
11 question --

12 DR. GERBER: If that's what it says on
13 page 164.

14 MR. FITZGERALD: Okay, fine --

15 DR. GERBER: But actually, can I -- can I
16 just make a --

17 MR. FITZGERALD: No --

18 DR. GERBER: -- a point -- can I in
19 response -- okay, I'm sorry.

20 MR. FITZGERALD: They go on to say in
21 contrast to the estimates for all ages, the odds ratio
22 adjusted for children diagnosed at less than six years of
23 age in very high current configuration -- that's VHCC
24 which stands for very high current configuration --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 residences occupied during the longest etiological period
2 was elevated, but the precision of these estimates were
3 poor. Right?

4 DR. GERBER: That's what it says, that's
5 correct.

6 MR. FITZGERALD: Okay. And then
7 corresponding analyses using the Kahn and Savitz code
8 were similarly elevated and non-significant, right?

9 DR. GERBER: That's correct, that's what
10 it says.

11 MR. FITZGERALD: And then when they looked
12 at putting all of the children together, looking not just
13 at those who were diagnosed under six and looking at the
14 measured fields, associated with measured fields, they
15 found no significant elevations of risk?

16 DR. GERBER: That's actually false --

17 MR. FITZGERALD: Okay --

18 DR. GERBER: -- and I'd like to -- I'd
19 like to explain what I think is going on in the study.
20 There's a -- there's an error in their description of
21 their own findings, and I think --

22 MR. FITZGERALD: Okay, fine let's --

23 DR. GERBER: -- it's rather odd --

24 MR. FITZGERALD: Doctor --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. GERBER: -- but on Table 4 --

2 MR. FITZGERALD: Doctor --

3 DR. GERBER: -- it says very clearly that

4 --

5 (Gavel)

6 MR. FITZGERALD: Doctor, there's no

7 question --

8 DR. GERBER: -- if you look at Table 4,

9 that relates --

10 MR. FITZGERALD: There's no question

11 pending, doctor. You're going to get a chance to

12 speechify --

13 DR. GERBER: No, but --

14 MR. FITZGERALD: -- when you're --

15 DR. GERBER: -- I'm actually saying that

16 your conclusion is --

17 COURT REPORTER: One at a time please --

18 (Gavel)

19 DR. GERBER: I apologize, but your

20 conclusion is false.

21 MR. FITZGERALD: No, what you said was

22 that -- and I accept -- I accept this is your testimony,

23 what you said was that the authors' own description of

24 their results is false, right?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. GERBER: They refer to the wrong
2 table.

3 MR. FITZGERALD: Fine --

4 DR. GERBER: But the --

5 MR. FITZGERALD: We'll move on --

6 DR. GERBER: -- the data looks fine. It's
7 just they referred to the wrong table.

8 MR. FITZGERALD: We'll move on. Item No.
9 14 in your appendices is a piece of epidemiological
10 research that Mr. Schaefer referred to in his questioning
11 of you -- I'm sorry his questioning of the Applicants'
12 EMF panel as the Rome Study. Are you familiar with that
13 -- well, I assume you are because it's in your
14 appendices, so let's do whatever you need to do to answer
15 some questions on it. This was a piece of original
16 epidemiological research that involved adult and
17 childhood leukemia in subjects who lived near the Vatican
18 radio station, right?

19 DR. GERBER: I would say I'm slightly less
20 familiar with that piece because it wasn't included in
21 the META analyses, but I'm happy to answer questions --

22 MR. FITZGERALD: Well, whoever --

23 DR. GERBER: -- if no one else has more
24 expertise on it.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: Whoever -- whoever is
2 responsible for putting this study in your appendices of
3 significant studies and testifying about it, I'd like to
4 ask questions to.

5 DR. BELL: Sure, Mr. Fitzgerald, I'd be
6 glad to field your questions.

7 MR. FITZGERALD: Okay. So it's related to
8 the Vatican --

9 DR. BELL: Sorry. It's Dr. Bell, B-e-l-l.

10 MR. FITZGERALD: It's related to the
11 Vatican radio station, is that right?

12 DR. BELL: I'm sorry, what -- my name is
13 related to the Vatican radio station or --

14 MR. FITZGERALD: The study?

15 DR. BELL: I'm sorry, the study. Yes,
16 it's related to the proximity to the higher power radio
17 station in the Vatican.

18 MR. FITZGERALD: Alright. And this is
19 described as a powerful station that transmits all over
20 the world, correct?

21 DR. BELL: I think that's how it's
22 described. I'm not sure if that's what it is, but yes.

23 MR. FITZGERALD: Okay. And the authors
24 state the frequency ranges for the emissions from the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 station in the study?

2 DR. BELL: Yes. They're generally very
3 high frequency.

4 MR. FITZGERALD: Four-thousand-five to
5 21,850 kilohertz, is that right?

6 DR. BELL: I think I'm looking at the
7 Figure 1 description?

8 A VOICE: Yeah, that's --

9 MR. FITZGERALD: Look at the --

10 DR. BELL: Oh, I'm sorry, the --

11 MR. FITZGERALD: -- look at the text at
12 the very bottom of page 1096.

13 (Gavel)

14 CHAIRMAN KATZ: Excuse me, everybody --

15 DR. BELL: (Indiscernible) -- as well --

16 CHAIRMAN KATZ: Excuse me. Everybody,
17 you're stepping on each others' words. I'm ready to give
18 the Navajo speech in a minute.

19 MR. FITZGERALD: Right. I will --

20 CHAIRMAN KATZ: So please --

21 MR. FITZGERALD: You don't need to -- you
22 can consider it incorporated by reference.

23 CHAIRMAN KATZ: Thank you.

24 DR. BELL: Yes, that's what it says, 100

HEARING RE: CL&P and UI
JUNE 16, 2004

1 kilohertz to 300 gigahertz.

2 MR. FITZGERALD: What is that in hertz?

3 DR. BELL: Well, a kilohertz is a thousand
4 hertz.

5 MR. FITZGERALD: So that is more than
6 350,000 times higher than the frequency of 60 hertz
7 fields, right?

8 DR. BELL: That's correct.

9 MR. FITZGERALD: What does that have to do
10 with a 60 hertz field?

11 DR. BELL: It actually is in the range
12 that was considered by the Applicants' testimony the last
13 time regarding the NIEHS working group that looked at the
14 range of different EMFs that are associated with
15 genotoxic effects in which the NIEHS concluded that
16 higher range doses are associated with cancer causing
17 effects in pre-clinical studies but remain to be shown
18 whether the lower range dose is closer to 60 hertz, as
19 you were saying, Mr. Fitzgerald, are associated with
20 cancer.

21 MR. FITZGERALD: So you consider this a
22 frequency range that is close to 60 hertz?

23 DR. BELL: No, it's actually certainly
24 much higher than 60 hertz as you described. I would

HEARING RE: CL&P and UI
JUNE 16, 2004

1 agree with your description. I would also state though -
2 - or restate that it's within the range described by the
3 National Institutes of Environmental Health Sciences in
4 their assessment of the possible cancer causing effects.

5 MR. FITZGERALD: You mean that it's lower
6 than a range than a -- it's lower than a threshold that
7 the NIEHS study drew in describing an area where there
8 was limited evidence of effects in lab studies versus an
9 area where the evidence was less than limited? Is that -
10 - is that what you mean?

11 DR. BELL: I'm not sure, but I think what
12 actually it is is that it's above the threshold, so it's
13 actually further away as you're suggesting, which I agree
14 with your suggestion --

15 MR. FITZGERALD: Oh, okay --

16 DR. BELL: -- it's further away from the
17 environmental levels, but within the range described by
18 the NIEHS as being cancer causing.

19 MR. FITZGERALD: Okay. And the conclusion
20 of the authors of this radio frequency short-wave study
21 said our findings along with previous results from
22 similar studies do not yield conclusive evidence of a
23 causal association between residential exposure to radio
24 frequency and increase in leukemia incidents, the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 scientific knowledge on this topic is still limited, but
2 the possibility of an effect cannot be excluded with
3 certainty, right?

4 DR. BELL: Actually, I can't attest to
5 that. You're reading some statement -- I'm actually
6 reading a different statement. But given the treatment
7 of Dr. Gerber, I won't read it.

8 MR. FITZGERALD: Good. If -- do you have
9 the study in front of you?

10 DR. BELL: Yes, sir.

11 MR. FITZGERALD: Do you see the last
12 paragraph? It begins with the statement this study is a
13 new independent observation.

14 DR. BELL: Yes, the one that concludes
15 should clarify a possible leukomagenic effect of radio
16 frequency radiation, that additional studies are
17 required, is that the paragraph that you're referring to?

18 MR. FITZGERALD: Yeah, and I just read the
19 sentence that begins however our findings, etcetera. Do
20 you see that?

21 DR. BELL: Yes, I see that sentence.

22 MR. FITZGERALD: Does that sound like what
23 I just read?

24 DR. BELL: If you could read it again,

HEARING RE: CL&P and UI
JUNE 16, 2004

1 I'll make sure that -- since it sounds like it's a
2 reading quiz --

3 CHAIRMAN KATZ: Let's --

4 DR. BELL: -- Mr. Fitzgerald --

5 MR. FITZGERALD: Alright, let's move on --
6 (Gavel)

7 MR. FITZGERALD: Let's move on.

8 CHAIRMAN KATZ: Let's -- everyone please
9 just take a moment and let's get back to civil discourse.

10 MR. FITZGERALD: Let's move on. Let me
11 ask you a few questions that don't involve reading.
12 We've referred -- you've used the term elevated risk.
13 How does that relate to an odds ratio? It's the same
14 thing we're talking about?

15 DR. RABINOWITZ: An odds ratio is a
16 measure of risk, right.

17 MR. FITZGERALD: And -- and what does it
18 express?

19 DR. RABINOWITZ: It expresses the odds of
20 the cases being exposed versus the odds to the controls
21 being exposed to a particular hazard --

22 MR. FITZGERALD: To a particular --

23 DR. RABINOWITZ: -- so it's -- it's like -
24 - it's like odds in a horse race. It's -- if you happen

HEARING RE: CL&P and UI
JUNE 16, 2004

1 to in this case have leukemia, do you have a higher odds
2 of having been exposed to EMF.

3 MR. FITZGERALD: Alright. And I think
4 it's been agreed already that the odds ratio by itself
5 does not provide direct information about the risk?

6 DR. RABINOWITZ: It provides evidence
7 about the strength of an association.

8 MR. FITZGERALD: Right. And from time to
9 time in your testimony you make statements or quote
10 statements concerning the likelihood that an odds ratio
11 could be due to chance, correct?

12 DR. RABINOWITZ: Correct.

13 MR. FITZGERALD: And is it the case that
14 when one refers to the probability that a calculated odds
15 ratio could have been observed because of chance, what
16 one is talking about there is the chance of sampling
17 error?

18 DR. RABINOWITZ: There's a number of
19 different errors, but you're talking about random --
20 random error being one reason why you see an association.
21 We've talked before about the different reasons why you
22 see an association, and an error can be one of them.

23 MR. FITZGERALD: Well -- yeah. Actually,
24 what I'm trying to do is to see if we have a common

HEARING RE: CL&P and UI
JUNE 16, 2004

1 understanding of what kinds of errors are included in
2 that statement.

3 DR. RABINOWITZ: Okay.

4 MR. FITZGERALD: A sampling error
5 certainly is one of them?

6 DR. RABINOWITZ: Um-hmm.

7 MR. FITZGERALD: Alright.

8 COURT REPORTER: Is that a yes?

9 DR. RABINOWITZ: Yes.

10 MR. FITZGERALD: Does the statement as to
11 the -- that relates to the probability that a result is
12 due to chance include an estimate of the uncertainty
13 attributable to a measurement error?

14 DR. RABINOWITZ: The -- it really includes
15 -- if you're talking about the error around an odds
16 ratio, you're really talking about random error like
17 flipping a coin, what's the chance that you're going to
18 have an association just because of randomly getting more
19 heads than tails rather than the measurement error, is
20 this really a head or a tail. So it's really kind of a -
21 - it's an estimate of randomness.

22 MR. FITZGERALD: Right. And so it does
23 not include a -- it does not build in an estimate of
24 uncertainty attributable to measurement error?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. RABINOWITZ: It's focused on -- it's
2 focused random error.

3 MR. FITZGERALD: So we agree.

4 DR. GERBER: Just -- can I just add one
5 small point because I think your -- you know, that was a
6 good answer to the question, but the -- in some of the --
7 in some -- in some of the studies they -- they discuss
8 this issue I think, and they discuss it quite -- quite --
9 in a quite cogent way --

10 MR. FITZGERALD: Thank you --

11 DR. GERBER: -- in some of the studies
12 there's a problem with measurement error called -- in
13 particular something called non-differential measurement
14 error. That's a sort of measurement error which tends to
15 bias the results downward, so in the direction of not
16 finding an association when there really is an
17 association. So just on the subject of measurement
18 error.

19 MR. FITZGERALD: Doctor, this is a
20 question and answer session --

21 DR. GERBER: Sure --

22 MR. FITZGERALD: -- and actually there
23 will come a time when I may talk about measurement error.
24 Right now we're talking about odds ratios and what's

HEARING RE: CL&P and UI
JUNE 16, 2004

1 included and what's not, and I'd like to get through
2 that, and then perhaps we can discuss other things.

3 DR. GERBER: Certainly. I apologize. I
4 thought you were talking about how measurement error
5 affects these statistics.

6 MR. FITZGERALD: No, we were talking about
7 what is included in the -- in the statement that an
8 association has a certain probability of being due to
9 chance, what sorts of things that statement covers and
10 what it doesn't cover. And one of those things it
11 doesn't cover is measurement error. And now I'd like to
12 go on and ask my next question if that's alright with
13 you.

14 CHAIRMAN KATZ: A two-minute recess.

15 (Whereupon, a short recess was taken.)

16 CHAIRMAN KATZ: On the record. Let's
17 proceed.

18 MR. FITZGERALD: We were talking about the
19 statement that an association has a certain probability
20 of being due to chance. That statement in
21 epidemiological language does not account for uncertainty
22 in the association that is attributable to bias such as
23 selection bias from non-participation, correct?

24 DR. RABINOWITZ: Correct.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: And such a statement does
2 not include an estimate for errors or uncertainty
3 attributable to risk factors for the disease that were
4 not measured or not sought to be measured, right?

5 DR. RABINOWITZ: That's correct.

6 MR. FITZGERALD: Now -- thank you. Now,
7 I'd like to move on to the META analyses that you discuss
8 in your testimony. And these META analyses in general
9 are analyses of original studies -- the grouping together
10 the results from many studies and analyzing the studies,
11 or in some cases in the META analyses that you discuss
12 the results of all those underlying studies as a group.
13 Is that a fair statement?

14 DR. RABINOWITZ: No.

15 MR. FITZGERALD: Okay. Tell -- tell the
16 Council what a META analysis is please.

17 DR. RABINOWITZ: Basically a META analysis
18 is just where you take other studies that have been done
19 and as you said pool them together, pool the people in
20 them together so that you get larger numbers of people to
21 study, especially important when you don't have -- when
22 you have rare diseases or rare exposures that you just
23 need more people to be able to study. What -- the reason
24 I said no was that you said it's pooling the results of

HEARING RE: CL&P and UI
JUNE 16, 2004

1 those studies, and -- and in at least two of the META
2 analyses that we're talking about here, they actually
3 went back and took the original data and created their
4 own results. So it's different than other types of META
5 analysis where you actually just look at what other
6 people found and you sort of work with that. In this
7 case they went back and actually started all over again
8 just using people from these other studies.

9 MR. FITZGERALD: Alright. You discuss
10 three META analyses. And all three of these studies
11 looked at essentially the same pool of underlying data.
12 There may have been a couple of studies that were in one
13 and not the other, but essentially it was three studies
14 looking at one body of evidence. Is that fair to say?

15 DR. RABINOWITZ: Uh --

16 A VOICE: No --

17 DR. GERBER: Yeah, I think that's
18 essentially correct --

19 MR. FITZGERALD: Okay --

20 DR. GERBER: -- there are little
21 differences here and there, but essentially correct.

22 MR. FITZGERALD: It's not three different
23 pools of data?

24 DR. RABINOWITZ: More overlap than

HEARING RE: CL&P and UI
JUNE 16, 2004

1 differences between the two.

2 MR. FITZGERALD: One of these META
3 analyses the lead author was a fellow named Anders
4 Ahlbom, who also did original research in this area over
5 the years, is that right?

6 DR. GERBER: Yes, that's correct.

7 MR. FITZGERALD: And did Ahlbom and his
8 co-authors note limitations on the interpretation of
9 their analysis?

10 DR. GERBER: Yes, they did.

11 MR. FITZGERALD: Did they note that
12 exposure measurements from both calculated and measured
13 fields were subject to error?

14 DR. GERBER: Yes, they did -- I believe
15 they did. I -- I would -- I believe they did, yes. I'd
16 have to -- if you're thinking of a specific place in the
17 article, but -- it would -- I wouldn't be surprised if
18 they had in fact noted that --

19 MR. FITZGERALD: Okay --

20 DR. GERBER: -- because they typically do
21 that sort of thing. I mean these studies -- they're very
22 responsible authors and they -- you know, they talk about
23 the strengths and weaknesses of their studies, so -- so I
24 wouldn't be at all surprised.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: Did they say that they
2 had no basis for determining the pattern of measurement
3 errors in each of the underlying studies?

4 DR. GERBER: Again if you're quoting
5 directly from their work, I'll accept that they may have
6 mentioned that, yes. They may have.

7 MR. FITZGERALD: Did they conclude -- you
8 may want to look at this --

9 DR. GERBER: Yeah --

10 MR. FITZGERALD: -- this is on page 688 --

11 A VOICE: What tab --

12 MR. FITZGERALD: 17. Did they conclude
13 that the explanation for the elevated risk estimate that
14 they observed was unknown?

15 DR. GERBER: Yes, and -- that's correct,
16 the explanation for the elevated risk is unknown.

17 MR. FITZGERALD: Thank you.

18 A VOICE: (Indiscernible) -- due to --

19 DR. GERBER: But -- yeah, but unlikely to
20 be due to random variations --

21 MR. FITZGERALD: Yes --

22 DR. GERBER: -- but yeah, sure.

23 MR. FITZGERALD: Okay.

24 CHAIRMAN KATZ: Sometimes Dr. Garber --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 Dr. Gerber, it's a yes/no question.

2 DR. GERBER: Okay.

3 MR. FITZGERALD: Let's turn now to the
4 Greenland study and it's Tab 18. You -- do you recall
5 that Greenland his co-authors identified similar
6 limitations to the results that they reported?

7 DR. GERBER: Yes.

8 MR. FITZGERALD: Okay. And did
9 Wartenberg, your third META analysis, also report similar
10 limitations --

11 DR. GERBER: Yes --

12 MR. FITZGERALD: -- in their analysis?

13 DR. GERBER: Yes.

14 MR. FITZGERALD: Thank you. Now when we
15 were last together, I asked why you didn't include the --
16 well, strike that, I'm not sure I did ask why -- when we
17 were last here there was mention of the United Kingdom
18 Childhood Cancer Study, which I characterized as the
19 largest study that had been done of childhood leukemia
20 and asked whether it had been included in your materials.

21 And one of you responded no, not as an individual study,
22 but that it was included in the data that had been
23 analyzed in the META analyses. Is that a fair
24 characterization? Do you recall that exchange?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. RABINOWITZ: Yes.

2 MR. FITZGERALD: Okay. And the study that
3 I think you may have had in mind was a 1999 study, which
4 was included in the data analyzed by Ahlbom and others,
5 is that right?

6 DR. RABINOWITZ: You're referring to the
7 UK study?

8 MR. FITZGERALD: Yes.

9 DR. RABINOWITZ: Yes.

10 MR. FITZGERALD: Now, there was a
11 subsequent study by the same investigators in that 1999
12 UK study that included an additional 50 percent more
13 cases that was published in 2000, wasn't there?

14 A VOICE: Are you familiar with --

15 DR. BELL: I for one am not familiar with
16 the study.

17 MR. FITZGERALD: Okay.

18 DR. RABINOWITZ: You'd have to direct me
19 to that one. I'm --

20 MR. FITZGERALD: Alright. So the answer
21 would be -- that's fine, you are unaware of such a study.
22 If there were such a study and if that study involved
23 3,380 cases and 3,390 controls and it was negative for
24 EMF exposure in childhood leukemia, is that something

HEARING RE: CL&P and UI
JUNE 16, 2004

1 that might have affected the odds ratios reported in the
2 META analyses if it had been included in them?

3 DR. RABINOWITZ: If there were 3,000 cases
4 --

5 DR. GERBER: It's hard to answer yes or no
6 and I'm going to say -- no.

7 MR. FITZGERALD: Okay.

8 DR. GERBER: I don't think so --

9 MR. FITZGERALD: No, you --

10 DR. GERBER: -- and --

11 MR. FITZGERALD: You can say why not.

12 DR. GERBER: Okay. Here -- okay in this
13 case I can say why not? Well, there -- there is
14 something -- I mean -- first of all, I would very much
15 like, you know, like to see this piece of evidence, but
16 it -- it would explain something in the Ahlbom META
17 analysis, which is that there are more -- there are more
18 -- there's a total of -- there are more observations
19 reported in the Ahlbom META analysis for the UK child
20 cancer study than are the corresponding number of cases
21 in the Lancet study, the number of observations for that
22 study jumps from around 2,000 to around 3,000. So what
23 you're saying would actually explain a little bit why
24 there was that discrepancy that I noticed between the two

HEARING RE: CL&P and UI
JUNE 16, 2004

1 studies. So it's quite possible that the full 3,000
2 observations are in fact included in Ahlbom.
3 Furthermore, one of the co-authors of the Ahlbom study
4 was Nick Day, and he is the guy who was in charge all the
5 data for the UK child cancer study, so I would assume
6 he's bringing it all to bear in that study.

7 MR. FITZGERALD: When was the Ahlbom study
8 published?

9 DR. GERBER: It was received May 2000 by
10 the Journal -- the British Journal of Cancer

11 MR. FITZGERALD: Okay. So let's just see
12 what your testimony is. Your testimony is that maybe
13 those results were actually included in the Ahlbom META
14 analysis, although the -- although the publication is not
15 referenced there, right?

16 DR. GERBER: I -- the author of the data -
17 - I believe -- I think Nick -- this guy Nicholas Day was
18 the data manager for the UK child cancer study, he's a
19 co-author of Ahlbom.

20 MR. FITZGERALD: And so, therefore, what
21 you're saying is maybe that data is included in the
22 Ahlbom? That's your inference or speculation, you don't
23 know, but that could be?

24 DR. GERBER: That's correct.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: Alright. I want to pass
2 on now and talk about some of the reviews. Having
3 covered the individual studies, the META analyses, now
4 we're going to look at some of the multidisciplinary
5 reviews that you talk about. And I think it's the first
6 one that you discuss -- I'm not going to give you page
7 references because I think my pages are different than
8 yours, but it's reference -- your Reference 16, the
9 National Research Council. And there's a question in
10 your testimony, what was the National Research Council's
11 reports view on the overall clinical data of examining
12 EMF and childhood cancer. And then the answer refers to
13 a -- and quotes in part text accompanying a figure
14 showing the odds ratio for 53 individual studies. Now,
15 it's the case, isn't it, that that particular
16 multidisciplinary review contains a statement of the
17 conclusions of the reviewers? Right up front in the
18 executive summary there's a rather pithy summary
19 statement of the conclusions of the committee, right?

20 DR. GERBER: Yes.

21 MR. FITZGERALD: And that conclusion is --
22 the first paragraph -- based on a comprehensive
23 evaluation of published studies relating to the effects
24 of power frequency electric and magnetic fields on cells,

HEARING RE: CL&P and UI
JUNE 16, 2004

1 tissues, and organisms, including humans, the conclusion
2 of the committee is that the current body of evidence
3 does not show that exposure to these fields presents a
4 human health hazard, specifically no conclusive and
5 consistent evidence shows that exposures to residential
6 electric and magnetic fields produce cancer, adverse
7 neurobehavioral effects, or reproductive and
8 developmental defects. Correct?

9 DR. GERBER: Correct.

10 DR. BELL: We would also report that our
11 testimony is essentially their conclusion as well. They
12 saw no causation as you're saying

13 MR. FITZGERALD: The National Institutes
14 of Health is your Reference 2, and there is a question as
15 to what their findings were. And the answer observes --
16 and that the working group concluded that -- this is the
17 working group of the National Institutes for
18 Environmental Health Sciences I should say -- concluded
19 that ELF/EMF, which stands for extremely low frequency
20 electric and magnetic fields are possibly carcinogenic to
21 humans, Group 2B, right?

22 DR. BELL: Yes, sir.

23 COURT REPORTER: One moment please.

24 (Pause). Thank you.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: That is the same category
2 in which we find coffee?

3 DR. BELL: There -- there are many
4 compounds, including coffee --

5 MR. FITZGERALD: Including coffee --

6 DR. BELL: -- yes.

7 MR. FITZGERALD: Alright. And in
8 reference to the report of the NIEHS after their review
9 of the work of the working group, there is a transmittal
10 letter to Congress from the director of the agency, is
11 that right?

12 DR. RABINOWITZ: Yes. I think -- is that
13 -- the one you're referring to at the beginning of our
14 appendix?

15 MR. FITZGERALD: In your -- in your Item 2

16 --

17 DR. BELL: At the very beginning?

18 MR. FITZGERALD: Yeah.

19 DR. BELL: Yes.

20 DR. RABINOWITZ: The letter from Dr. Olden
21 (phonetic)?

22 MR. FITZGERALD: Yes.

23 DR. BELL: Yes.

24 DR. RABINOWITZ: Yes.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: Alright. And in that
2 letter Dr. Olden says in my opinion the conclusion of
3 this report is insufficient to warrant aggressive
4 regulatory concern, right?

5 DR. RABINOWITZ: That's the beginning of
6 that sentence, yeah.

7 MR. FITZGERALD: Now, there's something
8 called the National Toxicological Program, right? Who --
9 who can -- let's see, Dr. Baum is the toxicologist, but
10 he's not here today, right? So can somebody else tell us
11 what that is?

12 (Pause)

13 CHAIRMAN KATZ: Why don't we take that as
14 a no.

15 MR. FITZGERALD: Okay. Well --

16 DR. RABINOWITZ: It's -- it's -- I mean
17 it's a federally funded program to review toxicologic
18 hazards in my understanding of it.

19 MR. FITZGERALD: And the -- the NTP itself
20 analyzes potential carcinogens and publishes lists of
21 agents, substances and mixtures that they classify as
22 known to be a human carcinogen or reasonably anticipated
23 to be a human carcinogen?

24 DR. RABINOWITZ: That's my understanding.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: Okay. And -- actually
2 staying with the NIEHS report, we find at page 37, and
3 this is your Reference 2, this statement, and I'd like to
4 know what you make of it -- it's the first full paragraph
5 on that page -- it says the National Toxicology Program
6 routinely examines environmental exposures to determine
7 the degree to which they constitute a human cancer risk
8 and produces the report on carcinogens, listing agents
9 that are known human carcinogens or reasonably
10 anticipated to be human carcinogens. It is our opinion
11 that based on evidence to date, ELF/EMF exposure would
12 not be listed in the report on carcinogens as an agent
13 reasonably anticipated to be a human carcinogen. This is
14 based on the limited epidemiological evidence and the
15 findings from the EMF RAPID program that did not indicate
16 an effect of ELF/EMF exposure in experimental animals or
17 a mechanistic basis for carcinogenicity.

18 So is the NIEHS saying at the same time
19 that EMF is to be classified as a possible carcinogen but
20 they recognize that it is not reasonably anticipated to
21 be a human carcinogen?

22 DR. BELL: I think that they are -- if I
23 read it correctly what you're reading as well, Mr.
24 Fitzgerald, I think what they are stating is they're

HEARING RE: CL&P and UI
JUNE 16, 2004

1 giving the view of the National Toxicology Program. And
2 I think that their conclusion, which is -- which was
3 illustrated very aptly by the Applicants' consultants
4 sometime -- or some testimony ago, is the last part there
5 where they focus on the fact that there's really no
6 mechanistic basis that they could see there, which was
7 very important to the National Toxicology Program and was
8 a significant mitigating factor in the NIH report. So, I
9 think they're reflecting the NTP's view as opposed to
10 their own view.

11 MR. FITZGERALD: Is it -- is it the case
12 that, in fact, EMF has not been listed as a carcinogen or
13 as reasonably anticipated to be a carcinogen by the NTP
14 in their most recent report, which was published in 2003?

15 DR. RABINOWITZ: I'd have to review that
16 report.

17 MR. FITZGERALD: Okay. You discuss a
18 review of the National Radiological Protection Board --
19 this is your Reference 30 -- and you say what conclusion
20 did the National Radiological Protection Board reach
21 concerning the relationship, if any, between EMF and
22 childhood leukemia. And again if we turn to the report
23 itself -- this is your 30, page 164 -- there is a rather
24 pithy statement of a general conclusion, correct?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. BELL: One moment to get to the page.

2 DR. RABINOWITZ: I'm sorry, Mr.

3 Fitzgerald, could you point out the page?

4 MR. FITZGERALD: 164.

5 DR. BELL: Yes --

6 DR. RABINOWITZ: Yes. It's a very -- a
7 very short conclusion, maybe 10, 15 lines.

8 MR. FITZGERALD: A pithy -- a pithy
9 statement, and that is laboratory experiments have
10 provided no good evidence that extremely low frequency
11 electromagnetic fields are capable of producing cancer,
12 nor do human epidemiological studies suggest that they
13 cause cancer in general. There is, however, some
14 epidemiological evidence that prolonged exposure to
15 higher levels of power frequency magnetic fields is
16 associated with a small risk of leukemia in children. In
17 practice such levels of exposure are seldom encountered
18 by the general public in the UK. In the absence of clear
19 evidence of a carcinogenic effect in adults or of a
20 plausible explanation from experiments on animals or
21 isolated cells, the epidemiological evidence is currently
22 not strong enough to justify a firm conclusion that such
23 fields cause leukemia in children. Unless, however,
24 further research indicates that the finding is due to

HEARING RE: CL&P and UI
JUNE 16, 2004

1 chance or some currently unrecognized artifact, the
2 possibility remains that intense and prolonged exposures
3 to magnetic fields can increase the risk of leukemia to
4 children. That was how they stated their conclusion,
5 correct?

6 DR. RABINOWITZ: I think that's accurate.

7 MR. FITZGERALD: Okay. You discuss a
8 review by the -- or on behalf of the International
9 Commission for Non-Ionizing Radiation Protection, your
10 Tab 31. I think that's sometimes called ICNIRP.

11 DR. RABINOWITZ: That's a tough one.

12 MR. FITZGERALD: Yeah. And the -- the
13 lead author of that review was our old friend Anders
14 Ahlbom, right?

15 DR. RABINOWITZ: He was one of the
16 authors. Also Martha Linnet, David Savitz, Anthony --
17 there were a number of authors.

18 MR. FITZGERALD: Right. I said the lead -
19 - maybe he's only the -- maybe he's only listed first
20 because he's an A rather than he was the lead author --

21 DR. RABINOWITZ: Yes, it's possible.

22 MR. SCHAEFER: They are in alphabetical
23 order.

24 MR. FITZGERALD: Hmm?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. SCHAEFER: All the authors are in
2 alphabetical order.

3 MR. FITZGERALD: Okay, fine. And you
4 characterize the -- what you say was the conclusion of
5 that group in your testimony. And you quote -- in fact,
6 you quote -- at the end of your initial question and
7 answer concerning that study, you quote the language that
8 says among all the outcomes evaluated in epidemiologic
9 studies of EMF, childhood leukemia in relation to post-
10 natal exposures above 4 milligauss is the one for which
11 there is most evidence of an association. I read that
12 correctly, didn't I?

13 DR. BELL: Yes, sir.

14 MR. FITZGERALD: And if you go to the
15 review itself, look for that language on page 930, we
16 find that the authors say this is unlikely to be due to
17 chance, but may be partly due to bias, this is difficult
18 to interpret in the absence of a known mechanism or
19 reproducible experimental support. Right?

20 DR. BELL: That partially was their
21 conclusion, yes.

22 MR. FITZGERALD: Okay. And indeed the
23 authors say that -- and I'm looking now at the little "c"
24 just above that -- in the absence of evidence from

HEARING RE: CL&P and UI
JUNE 16, 2004

1 cellular or animal studies and given the methodological
2 uncertainties and in many cases inconsistencies of the
3 existing epidemiologic literature, there is no chronic
4 disease outcome for which an etiological relation to EMF
5 exposure can be regarded as established. Right?

6 DR. BELL: We agree that's what it states.

7 MR. FITZGERALD: Okay. Now, ICNIRP has
8 recommended safety exposure guidelines for 60 hertz
9 fields, haven't they, the organization for whom this
10 review was done?

11 DR. BELL: I don't believe those
12 guidelines are on the basis of chronic health diseases
13 though.

14 MR. FITZGERALD: ICNIRP has recommended
15 safety exposure guidelines for 60 hertz fields, correct?

16 DR. BELL: Yes, sir.

17 MR. FITZGERALD: These guidelines are not
18 expressed in terms of milligauss but rather in terms of
19 induced current density in the body, right?

20 DR. BELL: Volts per meter, yes.

21 MR. FITZGERALD: And would you agree that
22 if one were to talk in terms of milligauss, the exposure
23 that would be required to exceed the ICNIRP guidelines
24 for the general public would be approximately 830

HEARING RE: CL&P and UI
JUNE 16, 2004

1 milligauss?

2 DR. BELL: I believe you'd be
3 electrocuted, yes.

4 MR. FITZGERALD: At 830 milligauss you'd
5 be electrocuted?

6 DR. BELL: No, the voltage current going
7 through you to generate that I think -- you'd get a
8 shock, you'd feel tingling sensations on your hands and
9 other physiologic effects.

10 MR. FITZGERALD: Following your discussion
11 of the ICNIRP review, you move to a discussion of a World
12 Health Organization paper. And I think we agreed that
13 when we went through the list of documents that you had
14 put in evidence, that this was really more of a policy
15 document than a --

16 DR. BELL: Not a scientific review --

17 MR. FITZGERALD: -- scientific study --

18 DR. BELL: -- yes.

19 MR. FITZGERALD: Alright. And it, in
20 fact, deals with such things as prudent avoidance and the
21 cautionary principle, right?

22 DR. BELL: As of March 2000.

23 MR. FITZGERALD: As of March 2000, yes --
24 as it was included in your testimony. And if we look at

HEARING RE: CL&P and UI
JUNE 16, 2004

1 page 4, we see that they say and prudent avoidance is
2 implemented by various countries. Prudent refers to
3 expenditures, not an attitude to risk. It does not imply
4 setting exposures at an arbitrarily low level and
5 requiring that they be achieved regardless of cost, but
6 rather adopting measures to reduce public exposure to EMF
7 at modest cost. That was the World Health Organization's
8 understanding as published in this document of what
9 prudent avoidance meant as it applied to EMF, is that
10 right?

11 DR. BELL: That's partially correct.

12 MR. FITZGERALD: And then they go on to
13 discuss something else called the precautionary
14 principle, which is a related concept, right?

15 DR. BELL: Yes, after they finish their
16 prudent avoidance discussion about schools.

17 MR. FITZGERALD: And in the precautionary
18 principle they say a principal requirement is that such
19 policies be adopted only under the condition that
20 scientific assessments of risk and science-based exposure
21 limits should not be undermined by the adoption of
22 arbitrary, cautionary approaches that would occur for
23 example if limit values were lowered to levels that bear
24 no relationship to the established hazards or have

HEARING RE: CL&P and UI
JUNE 16, 2004

1 inappropriate arbitrary adjustments to the limit values
2 to account for the extent of scientific uncertainty. Did
3 I read that correctly?

4 DR. BELL: I'm still trying to find it,
5 but it sounds correct.

6 MR. FITZGERALD: Okay. It's -- it's on
7 page -- well, I cut off the page number, but it's under -
8 - implications for guideline limits is the heading.
9 Well, it's in the --

10 DR. BELL: Okay, I'll take your word.

11 MR. FITZGERALD: Okay. I'm going to
12 change gears here and move to discuss briefly the
13 supplemental testimony concerning laboratory studies
14 recently filed, June 7th. And you start off in this
15 testimony by saying that the most recent independent
16 panel that reviewed the detailed laboratory studies was
17 the National Institute of Environmental Health Sciences
18 working group, which reviewed the interaction of
19 extremely low frequency EMF with biological systems in
20 March of 1997 and then at a final meeting in 1998. Is
21 that right, is that -- is that the last time that a
22 multidisciplinary review has reviewed the laboratory
23 science?

24 DR. BELL: It turns out to be certainly

HEARING RE: CL&P and UI
JUNE 16, 2004

1 the most comprehensive one as cited by the Applicants'
2 experts' last testimony. But I think that there is a
3 more recent one that's more cursory, but certainly more
4 recent.

5 MR. FITZGERALD: And which one is that?

6 DR. BELL: I think there's an update to
7 the UK National Radiological Protection Board.

8 MR. FITZGERALD: So your -- your -- in
9 your testimony here you really make the point that no one
10 has looked at this since the NIEHS did in 1997 and 1998
11 and here are some reports that have come along since then
12 that might change the results of a review of laboratory
13 science, is that what you're -- the point you're trying
14 to make here?

15 DR. BELL: If -- if I can answer because
16 it's going to be a subjective, you know, theme issue. I
17 think actually that's partially correct. I think more so
18 -- and this was really -- you see I learned quite a bit
19 by listening to the Applicants' experts testify the last
20 time -- I think it really is a case that in 1999 -- or
21 excuse me, published in '99, but in '98 was the
22 conference, the NIEHS group detailed whether there were
23 mechanistic -- plausible mechanisms by which EMF could
24 cause cancer. And what was striking as the Applicants'

HEARING RE: CL&P and UI
JUNE 16, 2004

1 held up the book there to describe the details of the
2 report, is the conclusion was surprising. The conclusion
3 was that very high levels of EMF, levels that none of us
4 here would consider to be appropriate, as Mr. Fitzgerald
5 and I were going back and forth about the Rome study,
6 very very high levels, irrelevant for power line issues,
7 certainly have been shown to cause cancer causing effects
8 in animal models and in cells, and the NIH actually just
9 drew a line in the sand and they said that may be true
10 there but there's no relevance to environmental exposure,
11 and because there's no relevance to environmental
12 exposure because it's so high the levels, we really cast
13 down the gauntlet and say we need to see if there are
14 experiments at less than .1 millitauss (phonetic), and if
15 those show genotoxic effects or cancer causing effects,
16 that would be relevant, but all the other higher level
17 experiments are not relevant. So with that takeoff, we
18 sought to identify whether scientists that followed up on
19 the NIHS' request to look at lower levels of EMF in
20 experimental models, particularly only lower levels of
21 EMF, to see whether they caused cancer. So that was the
22 theme for this testimony, Mr. Fitzgerald.

23 CHAIRMAN KATZ: I'm going to ask all the
24 witnesses to speak in milligausses if possible --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. BELL: Oh no. Going back and forth is
2 terrible for all of us.

3 CHAIRMAN KATZ: Yes. But I think it would
4 be helpful to the Council --

5 DR. BELL: So it would be a hundred -- a -
6 - no -- .1 millitauss is --

7 A VOICE: Is a hundred milligauss --

8 DR. BELL: A hundred milligauss --

9 MR. FITZGERALD: No --

10 DR. BELL: -- excuse me, one --
11 (indiscernible) -- thank you, Mr. Fitzgerald -- 1 gauss -
12 -

13 CHAIRMAN KATZ: Okay. Just for -- for
14 future references if you could make that conversion and
15 everyone speak in milligausses --

16 DR. BELL: Only yes --

17 CHAIRMAN KATZ: -- we'd appreciate it.

18 MR. FITZGERALD: The cutoff point that you
19 were -- so the record is clear, the cutoff point that you
20 were referencing is -- as stated in the -- in some of
21 these publications is .1 milli-tesla, which translates to
22 a thousand milligauss --

23 DR. BELL: Or one gauss --

24 MR. FITZGERALD: -- if we've got to talk -

HEARING RE: CL&P and UI
JUNE 16, 2004

1 - but if we've got to talk in milligauss --

2 DR. BELL: I agree -- that's fine, I agree
3 -- it's better to say milligauss than gauss, I agree,
4 right.

5 MR. FITZGERALD: Okay --

6 DR. BELL: I appreciate the correction.

7 MR. FITZGERALD: And -- since you
8 mentioned the Rome study again, the Rome study did not
9 just involve higher magnitudes of fields, there were
10 different frequencies --

11 DR. BELL: A much higher frequency also --

12 MR. FITZGERALD: Right, and that's --

13 DR. BELL: Two different things, both of
14 which were way above the scale for what the NIH
15 considered to be relevant for environmental exposures.

16 MR. FITZGERALD: Okay.

17 CHAIRMAN KATZ: In the Navajo culture, you
18 wait three seconds after the person finishes speaking to
19 make sure that they are really done before you begin.

20 MR. FITZGERALD: We'll try. Okay, now
21 with respect to this issue of whether there weren't any
22 reviews of this laboratory science after the NIEHS in
23 1997/1998, we have the International Association for
24 Research on Cancer in 2002, don't we?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. BELL: I believe -- I've looked at the
2 2000 version and I believe it's generally not been
3 updated from '99 to -- from '98 to 2000. So, I can't
4 speak to how updated the 2002 version is.

5 MR. FITZGERALD: Is there a 2000 version?

6 DR. BELL: Yeah. (Pause). I apologize.
7 A 2001 is what I looked at.

8 MR. FITZGERALD: Okay. You mentioned that
9 there was also a review of the National Radiological
10 Protection Board of Great Britain in 2004?

11 DR. BELL: Yes.

12 MR. FITZGERALD: Okay. And that actually
13 happens to be one of the documents that is included in my
14 request for administrative notice. And although we
15 haven't acted on that yet, perhaps I could just ask the
16 Council if you would take administrative notice of the
17 review of the National Radiological Protection Board of
18 Great Britain --

19 AUDIO TECHNICIAN: Mr. Fitzgerald, wait
20 until you get back to your microphone please.

21 MR. FITZGERALD: -- entitled Review of the
22 Scientific Evidence for Limiting Exposure to
23 Electromagnetic Fields 0 to 300 Gigahertz published in
24 2004. The document is up there on the table. I gave a

HEARING RE: CL&P and UI
JUNE 16, 2004

1 copy of it -- or had a copy of it provided to Mr.
2 Schaefer yesterday.

3 MR. COLIN C. TAIT: Mr. Schaefer, do you
4 have any objection?

5 MR. SCHAEFER: I have none.

6 MR. TAIT: Any objection to taking
7 administrative notice of just one of those reports that's
8 on the table --

9 MR. SCHAEFER: Just Item No. 8 as I
10 understand it in your list, is that correct?

11 MR. FITZGERALD: I don't have the list in
12 front of me.

13 AUDIO TECHNICIAN: Mr. Tait, could you
14 share a microphone.

15 MR. FITZGERALD: Yes, that is Item No. 8
16 in my -- in my list, yes.

17 MR. SCHAEFER: We have no objection.

18 MR. TAIT: We'll take administrative
19 notice of it.

20 MR. FITZGERALD: Did -- were you familiar
21 with this review before the last couple of days?

22 DR. BELL: Oh, I think it's less than 24
23 hours.

24 MR. FITZGERALD: Okay. Now in your -- in

HEARING RE: CL&P and UI
JUNE 16, 2004

1 the supplemental testimony concerning laboratory studies,
2 for instance you cite reports of bench studies that are
3 said to show DNA damage, one by Lei and Singh and another
4 by a fellow named Svedenstal, right?

5 DR. BELL: Actually, Svedenstal is a
6 woman, but yes.

7 MR. FITZGERALD: You scored some really
8 good points there, doctor, I have to tell you --

9 DR. BELL: Well, she had -- she had to
10 send me her paper --

11 MR. FITZGERALD: -- although she's not
12 here.

13 MR. TAIT: Gentlemen, gentlemen,
14 gentlemen. Humor is fine, but pickiness is not.

15 MR. FITZGERALD: No, but that's -- I
16 accept that correction. Let me -- let me give you --

17 DR. BELL: Thank you --

18 MR. TAIT: Mr. Fitzgerald, we're nearing
19 lunchtime. Would the witnesses need more time or do they
20 -- could you go on to something else while they might
21 look at that or --

22 MR. FITZGERALD: Oh, no, he doesn't -- he
23 won't need time --

24 MR. TAIT: Okay --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: -- I just want to call
2 his attention to one --

3 MR. TAIT: Okay --

4 MR. FITZGERALD: -- to one study. And
5 then he can -- if he wants to refer to something else
6 later on, he can -- he can do that. Would you turn to
7 page 48 of the NRBP 2004 study.

8 DR. BELL: Yes.

9 MR. FITZGERALD: And we have -- they
10 numbered the paragraphs -- paragraph 55 starts off with
11 an introductory sentence. First of all it's captioned
12 Animal Studies, and it says numerous animal studies have
13 investigated the effects of exposure on carcinogenic
14 processes, overall these studies provide no convincing
15 evidence to support the hypothesis that exposure to
16 magnetic fields can substantially increase the risk of
17 cancer. And then we go on to -- or I would like to go on
18 to the next paragraph, paragraph 56, where the authors
19 say a few animal studies have investigated the
20 possibility that magnetic fields induce DNA damage,
21 increased DNA strand breaks have been reported in brain
22 cells of exposed rodents, Lei and Singh 1997, Svedenstal
23 1999, but the results are inconclusive, IARC 2000, and
24 not supported by results from cellular studies. So some

HEARING RE: CL&P and UI
JUNE 16, 2004

1 of these studies that you are referring to in your
2 supplemental testimony have been the subject of comment
3 in later multidisciplinary reviews published since the
4 date of the NIEHS report, right?

5 DR. BELL: That's correct -- no, excuse
6 me, I was counting the three first -- Mr. Fitzgerald,
7 that would be correct -- the only thing I did have time
8 to do in the last 24 hours was to check the reference
9 list as well as to read the conclusions and the data
10 supporting that. It turns out that in this contemporary
11 2004 review they only cited one out of sixteen references
12 that we've provided to the Siting Council. I can't
13 account for how they missed 15 out of 16 references. The
14 only one that they did cite correctly was the woman from
15 Sweden, Miss -- Dr. Svedenstal. The Lei and Singh
16 reference actually that they reference here is a
17 different one than Dr. Ginsberg and we have referenced,
18 which is a 2004 reference.

19 MR. FITZGERALD: It's the same -- it's the
20 same type of experiment, isn't it?

21 DR. BELL: It's actually very important,
22 it's actually at a different lower dosing and also
23 showing mechanisms in the brain and how they cause DNA
24 damage. I would absolutely agree though the Svedenstal

HEARING RE: CL&P and UI
JUNE 16, 2004

1 one is the one out of the 16 references that we provided
2 that also is included here.

3 MR. FITZGERALD: And let's look at the --
4 what Anders Ahlbom has to say in his -- I'm sorry, the
5 Ahlbom --

6 DR. BELL: Back to --

7 MR. FITZGERALD: -- and others have to say
8 in the META analysis published in the British Journal of
9 Cancer in 2000 at -- starting on page 697, the results of
10 numerous animal experiments and laboratory studies
11 examining biological effects of magnetic fields have
12 produced no evidence to support an etiologic role of
13 magnetic fields in leukemogenesis. And then after
14 describing the animal studies, they go down and in the
15 last sentence of that paragraph, there were no
16 reproducible laboratory findings demonstrating biological
17 effects of magnetic fields below a hundred micro-tesla,
18 which would 1,000 milligauss.

19 DR. BELL: Could you -- could you point me
20 to the paragraph just so I could look --

21 MR. FITZGERALD: Yeah, sure, it's --

22 DR. BELL: -- before I agree.

23 MR. FITZGERALD: It starts -- what I read
24 started at the very bottom --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. BELL: 696?

2 MR. FITZGERALD: -- of 697 and carried
3 over.

4 DR. BELL: I think that's -- I think
5 that's correct. They cite the 1998 report as their only
6 reference. So their entire reference is the exact one
7 that we're starting with, the 1998 National Institutes of
8 Environmental Health Sciences' report. They actually
9 cite no other subsequent reports from the 1998 --

10 MR. FITZGERALD: So -- so it would be your
11 -- your understanding that the authors of the Ahlbom META
12 analysis in 2000 were ignorant of significant events that
13 had occurred since then?

14 DR. BELL: No, that wouldn't be my
15 position that they'd be ignorant.

16 MR. FITZGERALD: Okay. Now, you -- you
17 did express some puzzlement about why some of your
18 studies were not referenced in the IARC monograph. I
19 honestly don't want to talk about them all or take the
20 time, but perhaps just one or two. You refer to a study
21 by Blank and Soo in 2001?

22 DR. BELL: Yes.

23 MR. FITZGERALD: Now, that had to do with
24 the effect of a magnetic field on a reaction of inorganic

HEARING RE: CL&P and UI
JUNE 16, 2004

1 chemicals, not of biochemical reactions in living cells?

2 DR. BELL: Actually, some of the reactions
3 -- can I -- that's a tough one -- do you want me to --
4 some interactions have to do with inorganic material,
5 some have to do with the very basis for how we create
6 energy in every cell in our body called -- oxidation
7 reduction reaction it's called. It's -- the chemical
8 symbol for that is called NADPH. It's the basis by which
9 we actually generate energy in our body is through that
10 reaction, so it's a critical reaction to the body.

11 MR. FITZGERALD: So the answer as to the
12 question of whether it involved the effect of a magnetic
13 field on a reaction of inorganic chemicals rather than of
14 biochemical reactions in living cells would be yes?

15 DR. BELL: No, it would be that they --
16 both inorganic chemicals and also reactions found in
17 living cells. That would be my response, I'm sorry.

18 MR. FITZGERALD: So you would say that
19 there were living cells that were exposed to magnetic
20 fields in this study?

21 DR. BELL: No, I'm saying the reactions
22 are found in living cells. I apologize if I -- if
23 somehow I was misspeaking. So the chemicals reactions
24 are reactions that are also found in living cells.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: Oh, I see. And the study
2 by Rosenspire, that involved making measurements on cells
3 that had been shocked by the application of a pulse DC
4 electric field or an AC field produced by electrodes
5 placed in the cell medium?

6 DR. BELL: Actually, those are reactions
7 to living cells, actually white blood cells. And in
8 fact, actually it's the exact same reaction I just
9 described that Blank and Soo looked at, this so-called
10 NADPH, which is the very basis for how we generate energy
11 in every cell, and looked at very very low frequency --
12 you know -- I guess I don't know what the correct
13 terminology would be -- ultra low frequency.

14 MR. FITZGERALD: Was this a pulsed DC
15 electric field?

16 DR. BELL: No, it's actually alternating
17 current.

18 MR. FITZGERALD: There was no --

19 DR. BELL: They looked -- they looked at
20 several different experiments. I'll try and pull the
21 article out, but some of them were -- the criticism that
22 one should make actually is that the frequency of the
23 alternating current was extremely low, much lower than
24 the 60 hertz --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: Did --

2 DR. BELL: -- so they looked at DC as well
3 as AC.

4 MR. FITZGERALD: Did they place electrodes
5 in the cell medium for the alternating current experience
6 -- experiment? Place the electrodes in the medium
7 itself?

8 DR. BELL: I'll have to pull it out right
9 now to answer your question, Mr. Fitzgerald.

10 MR. FITZGERALD: And while you're doing
11 it, you could -- you referred to the very low frequency
12 of the AC field. Would you see what the frequency of the
13 applied AC electric field was?

14 DR. BELL: Oh, I think it's -- I think
15 it's like -- somewhere in the order of magnitude of --

16 MR. FITZGERALD: Well --

17 DR. BELL: -- once every 10, 20 seconds.
18 What they found actually was that -- they found a
19 frequency that resonated with the same frequency of this
20 critical life reaction in cells. And by finding that
21 frequency, found that they could make the cells produce
22 these cancer causing oxygen free radicals. So, I -- I
23 think what they describe here is --

24 CHAIRMAN KATZ: Just wait, Dr. Bell --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 wait until he puts another question on the table.

2 DR. BELL: Okay.

3 MR. FITZGERALD: The frequency of the
4 applied AC electric field?

5 DR. BELL: Is once every 22.8 seconds,
6 that's the period.

7 MR. FITZGERALD: So that was the frequency
8 of the pulses?

9 DR. BELL: That's the alternating current.
10 The oscillations in the alternating current --

11 MR. FITZGERALD: Okay --

12 DR. BELL: -- which was very --
13 (indiscernible, overlap of talking) --

14 MR. FITZGERALD: -- and what were the
15 voltages that were applied to the solutions containing
16 the cells? I think you'll find that in Figure 6.

17 DR. BELL: I'm still trying to find where
18 they put the electrodes that you originally asked. I'm
19 still searching for that and I apologize.

20 CHAIRMAN KATZ: Mr. Fitzgerald, do you
21 want to help point him to the right spot --

22 DR. BELL: No, I'm reading it -- I'm going
23 as fast as I can.

24 MR. FITZGERALD: I did -- I did. I

HEARING RE: CL&P and UI
JUNE 16, 2004

1 referred him to Figure 6.

2 CHAIRMAN KATZ: Okay.

3 DR. BELL: Maximum amplitude of 1
4 millivolt.

5 MR. FITZGERALD: No, it's between -- isn't
6 it between .1 volt per meter and 2.3 volts per meter?

7 DR. BELL: Initial application of the AC
8 voltage was begun at an NADPH minimum with a maximum
9 amplitude at 1 millivolt. Then after that, it sounds
10 like they turned it off and went even higher after that.
11 But that was the initial one, was one millivolt.

12 MR. FITZGERALD: What external field would
13 be required to produce an electric field inside the body
14 of that strength?

15 DR. BELL: I'm not really familiar with --
16 I guess it depends on part on the surface area in the
17 laboratory's test siting, which I guess is a critical
18 thing, and that I don't know the answer to.

19 MR. FITZGERALD: Alright, well then I
20 won't --

21 DR. BELL: I don't know if we -- can we
22 calculate that without the surface area?

23 MR. FITZGERALD: Well, I won't pursue that
24 further then. I'm now ready to move on to the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 supplemental testimony concerning buffer zones of May
2 11th.

3 CHAIRMAN KATZ: I have a procedural
4 question on that prior to cross. Is there -- is there
5 somewhere else sort of an index on what you hope the
6 Council will glean out of the various sections. For
7 example, there's all the rules and regulations of the
8 State of Colorado. Is there somewhere else -- a document
9 that says this is the point that we want you to draw from
10 the rules and regulations of the State of Colorado that
11 you can sort of point us to, because I didn't notice any
12 highlighting or any marking in these?

13 DR. BELL: We can certainly make that more
14 clear. I think in that case we probably provided that
15 entire section of the code, is that right --

16 CHAIRMAN KATZ: Yeah --

17 DR. BELL: -- for the State of Colorado --

18 CHAIRMAN KATZ: We have like a hundred
19 page document --

20 DR. BELL: Yeah, that's unfair, I agree.

21 CHAIRMAN KATZ: Okay. We'd appreciate
22 that. I think the Council would be able to draw more --

23 DR. BELL: Yeah, make it more substantive
24 than volume.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 CHAIRMAN KATZ: Thank you.

2 MR. TAIT: Mr. Fitzgerald, one of your
3 questions involved a study in England of 2003 that these
4 doctors were not aware of?

5 MR. FITZGERALD: It wasn't a study. It
6 was a review of 2004. And they were -- he's become aware
7 of it.

8 MR. TAIT: And you -- he has become aware
9 of it?

10 DR. BELL: Gaining --

11 MR. SCHAEFER: That's the same --

12 DR. BELL: -- gaining quickly.

13 MR. SCHAEFER: That was the same thing I
14 think he took --

15 MR. FITZGERALD: Right --

16 MR. SCHAEFER: -- administrative notice
17 of.

18 MR. TAIT: That's my question.

19 MR. FITZGERALD: Right --

20 MR. TAIT: Is that the one -- the dates
21 didn't match at all -- I thought he said 2003 and this
22 was 2004 -- but that's now in evidence?

23 MR. FITZGERALD: It's now noticed.

24 MR. TAIT: Yes. I wasn't going to just

HEARING RE: CL&P and UI
JUNE 16, 2004

1 leave it hanging out there, but -- okay, thank you.

2 MR. FITZGERALD: Would you like me to go
3 on to the buffer zone testimony now or did you want to
4 take --

5 A VOICE: A break --

6 CHAIRMAN KATZ: Yes. We are going to
7 break in about seven minutes.

8 MR. FITZGERALD: Okay. Do you have your
9 buffer zone testimony?

10 DR. BELL: Yes, sir.

11 MR. FITZGERALD: Okay. We -- I think I'd
12 like to start with your question and answer concerning
13 the largest electric utility in Florida. The question is
14 has the largest electric utility in Florida stated that
15 it avoids schools in siting applications. And then you
16 have quoted an answer concerning a proposed 230-kV line
17 in Collier County, Florida. And as you say it stated, it
18 being Florida Power & Light, that the line would have,
19 quote, "relatively few homes in close proximity and avoid
20 schools", close quotes. Is that --

21 DR. BELL: Yes.

22 MR. FITZGERALD: That is a simple
23 statement of fact that the company was -- a
24 representation of fact that the company was making, isn't

HEARING RE: CL&P and UI
JUNE 16, 2004

1 it, in this website document that relates to the line?

2 DR. BELL: You know, with my background
3 from security laws, I think it was a representation in
4 promoting something to the public about what -- how the
5 public should view Florida Public Utility.

6 MR. FITZGERALD: Oh, you think --

7 DR. BELL: I believe it's a fact, I hope
8 it's a fact, but, you know, I'm not sure. That's what
9 they state is the fact.

10 MR. FITZGERALD: It was not a statement of
11 policy of a general -- of an application, was it?

12 DR. BELL: No, it was a public
13 representation by a utility.

14 MR. FITZGERALD: Okay. Again, the next
15 question has to do with the electric utility providing
16 electric transmission from the upper peninsula of
17 Michigan throughout the eastern half of Wisconsin and
18 into portions of Illinois. You say has it stated that it
19 avoids homes and schools in siting applications. And you
20 answer yes. And then you quote a statement, EMF is
21 strongest near the source of electricity flow and drops
22 off quickly as you move away from the source, so a
23 transmission line with a large flow of current produces
24 large EMF right at the line. That's one reason why these

HEARING RE: CL&P and UI
JUNE 16, 2004

1 transmission lines are placed on tall towers and are
2 constructed away from homes and schools. This helps to
3 reduce EMF from transmission lines to levels similar to
4 those measured next to some home appliances. That's --
5 right?

6 DR. BELL: Yes.

7 MR. FITZGERALD: What -- what are -- what
8 is your understanding of the EMF levels that are measured
9 next to home appliances?

10 DR. BELL: I think that we reviewed this
11 at a previous -- actually at our last meeting. It
12 depends on what the distance is and it depends on whether
13 the appliance is on or off.

14 MR. FITZGERALD: Well do you think what
15 they were talking about -- what the American Transmission
16 Company was talking about here was fields measured next
17 to appliances that were off? Do you think -- do you
18 think that would be a likely representation even by a
19 utility company?

20 DR. BELL: No, I think that's a fair
21 comment. My -- since you asked for my belief, I think
22 they're trying to represent to the public they have no
23 need to worry, that the utility company will make sure
24 they site it away from homes and schools and they're

HEARING RE: CL&P and UI
JUNE 16, 2004

1 using that as a sort of promotion to their customers.

2 MR. FITZGERALD: And if you look at the
3 values that are given commonly for values next to home
4 appliances in any of the reference works that you have
5 referenced in your testimony, you will see that they are
6 up above a hundred milligauss, won't you?

7 DR. BELL: I think that's true depending
8 on where -- how next to it it is. And I think it's part
9 of the representation by the public company to its
10 employees and its customers what they're trying to imply.

11 MR. FITZGERALD: Okay. Now -- now I'd
12 like to go on to your next reference to the State of
13 Massachusetts, and the question is in the State of
14 Massachusetts has the electric company offered to
15 purchase homes with elevated EMF levels due to power
16 facility siting? And you say yes. And there's a
17 reference to testimony of Dr. Bailey on behalf of the
18 Massachusetts Electric Company. And then you quote from
19 the -- not from Dr. Bailey but from some other source,
20 the company also stated that EMF levels due to the
21 interconnect line would affect only one residence located
22 on the alternative site itself and that the company would
23 purchase that residence in the event the proposed project
24 was to be located there. That's a correct quotation,

HEARING RE: CL&P and UI
JUNE 16, 2004

1 right?

2 DR. BELL: Yes.

3 MR. FITZGERALD: And -- and the reason
4 that you included this quotation was to prove the point
5 that an electric company offered to purchase homes with
6 elevated EMF levels in order to avoid or reduce EMF
7 exposure? Is that your -- is that your point?

8 DR. BELL: Close to that. It's actually
9 that the utility company felt there must have been some
10 level by which they'd make a financial offer to a
11 customer to relocate them.

12 MR. FITZGERALD: Okay, let's -- let's look
13 at this reference. This is your Item 5 to the
14 supplemental testimony. And when we look at that
15 reference, we see that it involved a proposal for a 360
16 megawatt electric generation plant, right, not a
17 transmission line, but a generation plant?

18 DR. BELL: I'm trying to pull it out now,
19 sir. In lieu of being able to pull it out, I'd agree
20 with you.

21 MR. FITZGERALD: Okay. And if you find
22 it, please turn to page 122, where I think we will find
23 the statement that you quote.

24 DR. BELL: I'm not going to find it, but

HEARING RE: CL&P and UI
JUNE 16, 2004

1 go ahead -- I won't be able to find it, it's not in the
2 folders in front of me.

3 MR. FITZGERALD: Well, I'll get it for
4 you.

5 DR. BELL: Thank you.

6 COURT REPORTER: One moment please.

7 (Pause). Thank you.

8 CHAIRMAN KATZ: On the record.

9 MR. FITZGERALD: Turn to page 122 and we
10 find the statement the company indicated that EMF levels
11 from the proposed interconnect line would be negligible
12 off the proposed site and along the existing NEPSCO ROW,
13 which I think means right-of-way. And then the last
14 sentence in that paragraph says the company added that
15 the interconnect line would be located entirely on the
16 proposed site and would be approximately a hundred feet
17 long. And then let's go to page 124, here's where your -
18 - here's where your quotation is. I'm sorry, it wasn't
19 in the earlier page --

20 DR. BELL: We're on the bottom part?

21 MR. FITZGERALD: No, it's actually -- 1,
22 2, 3, 4 -- five lines down from the top.

23 DR. BELL: Okay. Sorry.

24 MR. FITZGERALD: It says the company also

HEARING RE: CL&P and UI
JUNE 16, 2004

1 stated that EMF levels due to the interconnect line would
2 affect only one residence located on the alternative site
3 itself and that the company would purchase that residence
4 in the event the proposed project was to be located
5 there. Now, isn't it the case -- and you can -- you can
6 borrow that copy and look at it over lunch if you'd like
7 -- but isn't it the case that what's going on here is
8 that there's a reference to an alternative site that was
9 under consideration as a place to build a 360-megawatt
10 generating plant?

11 DR. BELL: Yes, I think that's true.

12 MR. FITZGERALD: And there was a house on
13 the site?

14 DR. BELL: I'm not sure if it was on the
15 site or very near, but in very close proximity.

16 MR. FITZGERALD: Well, didn't -- what I
17 just read was the -- it would affect only one residence
18 located on the alternative site itself. And what they're
19 saying is if we're going to build a generating plant
20 there, we've got to take the house away?

21 DR. BELL: Yes, I agree that's what
22 they're saying.

23 MR. FITZGERALD: Okay. And if we then
24 look to see what consideration there was of EMF that

HEARING RE: CL&P and UI
JUNE 16, 2004

1 would be associated with transmission lines, we see at
2 page 122 that -- a report that the company indicated that
3 the magnetic field levels at the right-of-way edges would
4 be well below the 85 milligauss threshold, which the
5 Siting Board has previously recognized, right?

6 DR. BELL: That's what -- that's what the
7 words say, yes, sir.

8 MR. FITZGERALD: And then if we were to go
9 to page 123, we would see that there were estimates with
10 respect to the two houses closest to the right-of-way
11 where the lines connecting to that plant were going to be
12 and they found that the measurements at the houses would
13 be 31 milligauss under one line configuration and -- I'm
14 sorry -- 31 milligauss under either of two potential line
15 configurations at one house and at the other house 19 and
16 12 milligauss, depending on which configuration was used,
17 right?

18 DR. BELL: Yes, I believe that's what it
19 states.

20 MR. FITZGERALD: Okay.

21 CHAIRMAN KATZ: Mr. Fitzgerald, is this a
22 good point to -- it works for us.

23 MR. FITZGERALD: Yes -- yes. Yes, it is.
24 It is.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 CHAIRMAN KATZ: Okay, we will resume at
2 1:00 o'clock. At that time we will take on the witness
3 for Representative Adinolfi. Connecticut DOT has
4 graciously agreed to be allowed to be pushed off to mid
5 afternoon. So after that, we will continue with this
6 cross-examination, and then get to DOT by mid-afternoon.
7 Chief Engineer Arthur Gruhn of DOT can only be here
8 today. So if you do have questions for DOT, please
9 consider which ones that you have to do today for him,
10 and then the rest of the DOT staff will be back tomorrow
11 afternoon, so give that some consideration. We are
12 adjourned until 1:00 o'clock.

13 (Whereupon, a luncheon recess was taken.)

14 CHAIRMAN KATZ: We are back in session.
15 At this time we'd like to welcome State Representative Al
16 Adinolfi, a frequent observer of this process. Thank you
17 for being part of this docket, Representative. And you
18 have a witness that you'd like to introduce and then
19 we're going to have him sworn.

20 REPRESENTATIVE AL ADINOLFI: Thank you,
21 Madam Chairwoman. My name is Representative Al Adinolfi,
22 103rd District, that includes Cheshire, Wallingford, and
23 Hamden, portions thereof.

24 I have with me today Mr. Douglas Vizard.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 About three or four weeks ago I was asked by the Siting
2 Council to be available for cross-examination on Mr.
3 Vizard's testimony, and basically I had submitted it in
4 his behalf. So, I have brought Mr. Vizard here today to
5 be cross-examined. Mr. Vizard is a physicist and is a
6 Ph.D. in biophysics, and he's right here to accept your
7 questions and I guess some questions from the Applicant
8 on his testimony.

9 CHAIRMAN KATZ: Thank you. Mr. Vizard, if
10 you could give your name and spell your name for the
11 court reporter.

12 MR. DOUGLAS VIZARD: My name is Douglas
13 Vizard, V-i-z-a-r-d.

14 CHAIRMAN KATZ: Thank you. If you could
15 rise, we'll have you sworn in.

16 MR. HAINES: Thank you, Mr. Vizard. Would
17 you raise your right hand please.

18 (Whereupon, Douglas Vizard was duly sworn
19 in.)

20 CHAIRMAN KATZ: Mr. Vizard, we have one
21 exhibit here listed for you, EMF testimony dated March
22 10, 2004. Do you adopt that as your testimony today?

23 MR. VIZARD: Yes.

24 CHAIRMAN KATZ: And do you have any

HEARING RE: CL&P and UI
JUNE 16, 2004

1 changes to that?

2 MR. VIZARD: No.

3 CHAIRMAN KATZ: Great. Is there any
4 objection to making Mr. Vizard's exhibit a full exhibit?
5 Hearing none, we will make that a full exhibit.

6 (Whereupon, Adinolfi Exhibit No. 1 was
7 received into evidence as a full exhibit.)

8 CHAIRMAN KATZ: Okay. Mr. Vizard, at this
9 time we're going to allow any of the parties and
10 intervenors, including the Applicant, to ask you any
11 questions they have about your testimony. And we'll
12 start with the -- we'll start with the Applicants.

13 MR. FITZGERALD: No questions.

14 CHAIRMAN KATZ: Thank you. The Town of
15 Middlefield, Attorney Knapp? Absent. Wallingford,
16 Durham, Mr. Boucher or Mr. Koutoe? Absent. Woodbridge?

17 MR. DAVID BALL: No questions.

18 CHAIRMAN KATZ: Thank you. Mr. Ball said
19 no questions. Milford, Miss Kohler?

20 MS. JULIE DONALDSON KOHLER: No questions.

21 CHAIRMAN KATZ: No questions. Orange,
22 Attorney Stone?

23 MR. BRIAN STONE: I have no questions.

24 CHAIRMAN KATZ: Mr. Stone says no

HEARING RE: CL&P and UI
JUNE 16, 2004

1 questions. Uh -- I think that covers that. The Town of
2 Westport, Attorney Cederbaum? Absent. The City of
3 Meriden, Attorney Moore? Absent. Assistant Attorney
4 General Michael Wertheimer?

5 MR. MICHAEL WERTHEIMER: No questions.

6 CHAIRMAN KATZ: Mr. Wertheimer said no
7 questions. The City of Bridgeport, Attorney Melanie
8 Howlett? Absent. Communities for Responsible Energy?
9 Absent. Office of Consumer Counsel? Absent. Woodlands
10 Coalition?

11 A VOICE: No questions.

12 CHAIRMAN KATZ: Woodlands Coalition said
13 no questions. ISO New England, Mr. Macleod? Absent.
14 DOT, Mr. Walsh, Miss Meskill?

15 MS. EILEEN MESKILL: No questions.

16 CHAIRMAN KATZ: DOT says no questions.
17 The Town of Fairfield? Wilton and Weston, we're covered
18 on that, Mr. Ball?

19 MR. BALL: We are.

20 CHAIRMAN KATZ: Great, thank you. RWA,
21 Attorney Lord?

22 MR. ANDREW LORD: No questions.

23 CHAIRMAN KATZ: Mr. Lord says no
24 questions. The Town of Cheshire, Attorney Burturla?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. RICHARD BURTURLA: No questions.

2 CHAIRMAN KATZ: Mr. Burturla says no
3 questions. The Town of North Haven? Absent. Ezra
4 Academy, et al, Mr. Schaefer, questions?

5 MR. SCHAEFER: No questions.

6 CHAIRMAN KATZ: Mr. Schaefer says no
7 questions. Okay. Mr. Cunliffe.

8 MR. FRED O. CUNLIFFE: No questions.

9 CHAIRMAN KATZ: Thank you. Council
10 members? Okay, I'll start.

11 MR. VIZARD: Gee, I was being grateful
12 there for awhile.

13 CHAIRMAN KATZ: Mr. Vizard, you said your
14 background is as a physicist. And I'm looking for your
15 thing, but I'm not finding it. Can you -- can you tell
16 us a little bit about how your background you think has
17 impacted your views on what you'd like to share with the
18 Council?

19 MR. VIZARD: I just wrote -- the point of
20 my testimony was simply a reality check. My background
21 as an educated physicist and then research in biophysics
22 put me through a regiment of not only educational but
23 research in radiation physics naturally, and so that's,
24 you know, where I'm at. I mean I'm in the -- that

HEARING RE: CL&P and UI
JUNE 16, 2004

1 terrible circumstance professionally of trying to apply
2 physics to biology, which is exactly where you shouldn't
3 be, alright, but I understand -- I understand the
4 complications of both arenas and try to put it together
5 and make sense of it as a reality check. Naturally, I --
6 as I have testified, I find a bunch of incredible and
7 misleading statements. And I guess fundamentally I'm
8 disappointed that we're all here trying to solve a
9 generation problem with a transmission solution.

10 CHAIRMAN KATZ: Thank you. Any other
11 Council members wish to ask the witness any questions?

12 MR. PHILIP T. ASHTON: May I ask one?

13 CHAIRMAN KATZ: Yes.

14 AUDIO TECHNICIAN: Mr. Ashton, grab a
15 microphone.

16 MR. ASHTON: Thank you.

17 MR. ASHTON: I'm sorry, I keep forgetting
18 that. Dr. Vizard, what branch of physics or what was
19 your primary area of interest in physics in your working
20 career?

21 MR. VIZARD: In my work career?

22 MR. ASHTON: Yeah.

23 MR. VIZARD: I was quite associated with
24 either a consultant or with my colleagues in medical

HEARING RE: CL&P and UI
JUNE 16, 2004

1 physics and radiation physics consulting to Los Alamos
2 (phonetic) National Laboratory, where I didn't -- I was
3 not employed, but certainly in the medical physics arena
4 have always been attuned to whether it be CAT scans, MRI,
5 all of those things. Currently, I'm employed by private
6 industry by Eastman Kodak Company. And -- so that's
7 where I stand. My current focus is digital imaging and
8 other aspects of medical physics.

9 MR. ASHTON: Thank you.

10 CHAIRMAN KATZ: Thank you. Mr. O'Neill.

11 MR. BRIAN O'NEILL: Yes. In the field of
12 health, I'm sure you're familiar with MRI machines. Do
13 you know the rating for the milligauss from a typical MRI
14 machine?

15 MR. VIZARD: I'm sure I knew at one time.
16 I've forgotten. And -- it is a -- certainly a bone of
17 contention. Certainly it's an acute dose rather than
18 anything long-term. And in general its benefit -- its
19 health benefit over alternatives and therapeutic index if
20 you will is recognized to be pretty high. You know, I
21 did hear -- expanding upon that point, I did hear a
22 comment from I believe the Siting Council well let's not
23 get into that data, that's too much, that's too much
24 information. I've heard that comment many many times from

HEARING RE: CL&P and UI
JUNE 16, 2004

1 the Siting Council. That worries me. That kind of
2 comment worries me very much because you are addressing a
3 very technical arena with a lot of risks. You have to
4 make decisions about abatement. That means that you
5 really have to honor the technical stuff and you really
6 have to get into it. And you have this current loads of
7 stuff out there and it's a big problem. Somebody's got
8 to do it --

9 CHAIRMAN KATZ: Thank you.

10 MR. O'NEILL: Doctor, from your point of
11 view, when we deal with possibilities versus
12 probabilities, is there an exposure in milligauss that
13 causes you a level of concern as far as biological health
14 and impact?

15 MR. VIZARD: Certainly numbers of 3 and
16 under probably don't cause me much concern on the basis
17 of a bunch of data. But you know, as I've tried to point
18 out in the segment that I call fundamentals of EMF, I
19 would have to point out what I think the California study
20 tried to point out, I'm not entirely sure the measures,
21 the physical measures are relevant. I mean after all,
22 you have had a number of people for a number of years
23 trying very very carefully to apply pure 60 cycle to
24 culture dishes, and so is that even relevant. I don't

HEARING RE: CL&P and UI
JUNE 16, 2004

1 know. I have -- the discounting of a bunch of studies on
2 the basis of the fact that they were based on wiring code
3 ratings versus EMF, well I'm not sure that the wiring --
4 the wiring code ratings aren't more relevant because they
5 would include harmonics, they would include ozone
6 emissions, they would include the real situation. And as
7 much as my education in physics tends to make me always
8 model things and always try to simplify and simplify, now
9 I find myself practicing in biology, realizing that that
10 don't cut it.

11 CHAIRMAN KATZ: Thank you.

12 MR. O'NEILL: Thank you, doctor.

13 CHAIRMAN KATZ: Thank you for your
14 testimony here today, we appreciate it. That concludes
15 cross-examination. Thank you, State Representative, we
16 appreciate you also. Thank you.

17 At this time I'd like the Woodbridge panel
18 to come back to the table if you could and we will resume
19 the Applicant's cross-examination.

20 COURT REPORTER: Off the record?

21 CHAIRMAN KATZ: Off the record.

22 (Off the record)

23 CHAIRMAN KATZ: Yes, on the record. It
24 looks like we're all settled in. We've had a request

HEARING RE: CL&P and UI
JUNE 16, 2004

1 from Mr. Schaefer -- Dr. Grubman, I guess we're going to
2 -- he has a certain specialty and we're going to try to
3 address that. Have you talked to Mr. Fitzgerald and he's
4 agreeable to this?

5 MR. SCHAEFER: I have.

6 CHAIRMAN KATZ: Great. So why don't we
7 head down that road first.

8 MR. FITZGERALD: Sure. Dr. Grubman, just
9 to orient the Council, you -- did somebody stop -- no,
10 okay -- you filed some testimony dated June -- I'm sorry,
11 March 16th. And it related to implanted cardiac devices,
12 right?

13 DR. ERIC GRUBMAN: Yes.

14 MR. FITZGERALD: And that's -- is a
15 pacemaker an example of an implanted cardiac device?

16 DR. GRUBMAN: Yes, it is.

17 MR. FITZGERALD: The -- when people talk
18 about EMF, as we previously established, it's appropriate
19 to -- when we're talking about these frequencies to refer
20 to electric fields and magnetic fields because they're
21 separate, would you agree with that, don't you?

22 DR. GRUBMAN: Yes.

23 MR. FITZGERALD: And as far as
24 interference with implanted cardiac devices are concerned

HEARING RE: CL&P and UI
JUNE 16, 2004

1 is it the magnetic field that could be associated with
2 power frequency transmission or the electric field that's
3 of concern?

4 DR. GRUBMAN: In this issue it's the
5 electric field.

6 MR. FITZGERALD: Okay. And electric
7 fields, unlike magnetic fields, can be shielded, isn't
8 that right?

9 DR. GRUBMAN: Yes.

10 MR. FITZGERALD: You state in your
11 testimony that patients have already received these
12 shocks from other sources of EMF. By these -- and by
13 these shocks you mean inappropriate shocks that are
14 caused by electrical interference with the ICD?

15 DR. GRUBMAN: No.

16 MR. FITZGERALD: No? What do you mean by
17 these shocks?

18 DR. GRUBMAN: The -- you referenced
19 pacemakers. The other piece of the puzzle is the
20 defibrillator, which is the type of pacemaker that's
21 designed to detect and treat fast heart rhythms. A
22 pacemaker, just for background, treats slow heart
23 rhythms.

24 MR. FITZGERALD: Okay.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. GRUBMAN: A defibrillator though it
2 has a pacemaker built into it, is designed for
3 potentially lethal fast heart rhythms that people, for
4 example, who have had heart attacks are at risk for. The
5 way a defibrillator treats that is by delivering a large
6 shock. That's the shock that a defibrillator can deliver,
7 so it's not actually the EMF that's the shock, it's the
8 device itself.

9 MR. FITZGERALD: But -- but when -- let's
10 see if I can find your testimony -- I think it's on --
11 you refer to your patients having received shocks from --
12 yeah, it's at the -- the question, are the projected
13 field intensities for the proposed power lines through
14 Woodbridge sufficient to pose a danger to people with
15 implanted defibrillators? And in your answer you say
16 patients have already received these shocks from other
17 sources of EMF. So it's the sources that I want to ask
18 you about. You're referring here to sources of EMF that
19 have caused --

20 DR. GRUBMAN: Okay --

21 MR. FITZGERALD: -- the implanted device
22 to deliver a painful unnecessary shock --

23 DR. GRUBMAN: Okay --

24 MR. FITZGERALD: Okay. What are those

HEARING RE: CL&P and UI
JUNE 16, 2004

1 sources? Those other sources that were -- where
2 something like this you say has actually occurred?

3 DR. GRUBMAN: Electronic theft detection
4 systems in stores, airport security gates, slot machines.
5 And there have been a couple of instances but I'm not
6 sure that the patients received shocks, it may have been
7 alternative interference in patients that worked in power
8 stations.

9 MR. FITZGERALD: Okay. Now say that --
10 what was that last one there?

11 DR. GRUBMAN: People that worked in power
12 substations.

13 MR. FITZGERALD: And what was the source
14 there?

15 DR. GRUBMAN: The -- I'm sorry? The
16 source in the power station?

17 MR. FITZGERALD: Yeah.

18 DR. GRUBMAN: The power lines.

19 MR. FITZGERALD: Well, now that's
20 interesting. There's a -- there's a database that's
21 maintained by the Food and Drug Administration that
22 tracks reported incidents of interference, problems, and
23 failures of medical devices, including pacemakers and
24 ICD's, right?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. GRUBMAN: Yeah, it's called the MAUDE,
2 M-A-U-D-E, database.

3 MR. FITZGERALD: And it would be a pretty
4 interesting finding if somebody had a shock that came
5 from power frequency exposures in a substation, wouldn't
6 it?

7 DR. GRUBMAN: Yes.

8 MR. FITZGERALD: And did you file a report
9 of that?

10 DR. GRUBMAN: It's not my patient. It's a
11 publicly -- it's a published study. It's just not in the
12 MAUDE database, I think is probably what you're --

13 MR. FITZGERALD: Yeah, is there -- are
14 there any -- are there -- are there any reports in the
15 MAUDE database of people suffering these inappropriate
16 shocks from 60 --

17 DR. GRUBMAN: Probably --

18 MR. FITZGERALD: -- from 60 hertz electric
19 fields?

20 DR. GRUBMAN: Probably not, and with good
21 reason.

22 MR. FITZGERALD: Okay. So this person
23 that you're referring to was -- I mean -- you remember I
24 was asking you about the statement --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 CHAIRMAN KATZ: Mr. Fitzgerald, I'm sorry.
2 The good reason -- what's the good reason, Dr. Grubman?

3 DR. GRUBMAN: The good reason is that
4 until I began researching this issue, I had never heard
5 of the MAUDE database. It is -- the reporting is
6 completely uneven. And the majority of published
7 articles are not -- if you -- you know, the -- the -- my
8 favorite is the four people who got shocks from slot
9 machines, I don't believe are in the MAUDE database
10 either because people don't know that it exists --
11 electro-physiologists don't know that it exists I'm sure.
12 People that maintain it know it exists.

13 MR. TAIT: They were using their charge
14 card, right -- (laughter) --

15 CHAIRMAN KATZ: Okay.

16 MR. FITZGERALD: The -- it's true, isn't
17 it, that the other sources that you mentioned, electronic
18 security devices --

19 DR. GRUBMAN: Um-hmm.

20 MR. FITZGERALD: -- ignition coils, slot
21 machines, these involve radio frequency fields or static
22 magnetic fields?

23 DR. GRUBMAN: They involve static magnetic
24 fields, yes --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: Okay --

2 DR. GRUBMAN: -- it's probably not what
3 caused it.

4 MR. FITZGERALD: And what is the electric
5 field outside the body that is required to produce an
6 effect in an ICD?

7 DR. GRUBMAN: Above -- there are a number
8 of variable -- a number of variables, but 1 kilovolt per
9 meter is in the range.

10 MR. FITZGERALD: And how common is it to
11 encounter fields of 1 kilovolt per meter in the
12 environment?

13 DR. GRUBMAN: I don't know.

14 MR. FITZGERALD: It's not -- it's --

15 CHAIRMAN KATZ: Mr. Fitzgerald, can you
16 lean in a little. Thanks.

17 MR. FITZGERALD: This is -- this is
18 nothing that is -- that is unique to a 345-kV overhead
19 transmission line, is it?

20 DR. GRUBMAN: Correct.

21 MR. FITZGERALD: And you're sure that it
22 is -- that that's a reference to the exterior magnetic
23 field?

24 DR. GRUBMAN: Yes.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: What is the rate of
2 attenuation, what's the field that a 1 kilovolt per meter
3 produces inside the body?

4 DR. GRUBMAN: I don't know that answer. I
5 do know that the defibrillator -- and I don't know if
6 this is helpful -- the defibrillator is attempting to
7 detect signals on the order of a tenth of a millivolt.
8 So the rate of attenuation would have to be enormous to
9 avoid that possibility.

10 MR. FITZGERALD: That's all I have.

11 CHAIRMAN KATZ: Thank you. Is there any
12 other party or intervenor who has cross for Dr. Grubman
13 only? Mr. Ball. Can I just have a show of hands of
14 other parties and intervenors who wish to cross-examine
15 Dr. Grubman. Okay, thank you.

16 MR. BALL: David Ball for the Town of
17 Woodbridge.

18 Dr. Grubman, assuming the EMF level was
19 high enough for there to be a problem that you just
20 testified about for someone with a pacemaker or a
21 defibrillator, for what period of time would that person
22 have to be exposed for there to be an issue?

23 DR. GRUBMAN: It's -- it's a good
24 question. Well, it depends on what device they have.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 The interaction might be different. And the idea would
2 be that the EMF would be seen as heart beats. So in a
3 pacemaker, which is trying to prevent a slow heart
4 rhythm, I would say that they're basically lazy machines,
5 and so if it thinks the heart is beating, it turns itself
6 off. If the person is depending on the pacemaker to keep
7 their heart beating, they could pass out in about eight
8 seconds.

9 A defibrillator, which is looking for a
10 fast heart rhythm, might see the energy as a fast heart
11 rhythm and do something within again about eight or nine
12 seconds and give you a shock.

13 MR. BALL: And assuming that there is a
14 problem with a defibrillator or a pacemaker, what are the
15 potential effects for a person who's exposed?

16 DR. GRUBMAN: If you had a pacemaker and
17 it was turned -- and it was inhibited from pacing, told
18 not to pace because of a fast -- that a heart rhythm was
19 present, the person could pass out and it could be a life
20 threatening issue. The shocks, though they sound awful
21 and are quite painful, generally wouldn't be life
22 threatening. They could potentially cause a fast heart
23 rhythm. Obviously, just like it's not a good idea to put
24 your finger in a socket, it's not advisable to keep

HEARING RE: CL&P and UI
JUNE 16, 2004

1 getting shocked from your defibrillator, but the risk
2 would be that that shock would actually really cause a
3 fast heart rhythm, the defibrillator would then give you
4 another shock to fix it.

5 MR. BALL: Now, many of the EMF
6 measurements in this case are measured from the edge of a
7 right-of-way. Is that a relevant issue for someone who
8 has a pacemaker or a defibrillator?

9 DR. GRUBMAN: I don't know how relevant it
10 is because people are not prohibited from walking or
11 passing directly under the lines. And you know, eight
12 seconds underneath the lowest -- you know, to say that
13 it's so far away from the tower to the edge of the right-
14 of-way doesn't really take into account how far away it
15 is from the sort of lowest point of the line directly
16 beneath it.

17 MR. BALL: Are there any kind of
18 guidelines that you're aware of that relate to exposure
19 of people with pacemakers or defibrillators?

20 DR. GRUBMAN: The guideline is sort of --
21 the only one that is is that -- is the ACGIH guidelines
22 on the NIH website, it says that people should not be
23 exposed to more than 1 kilovolt per meter, and that's for
24 the pacemaker patients, but that was -- that came out

HEARING RE: CL&P and UI
JUNE 16, 2004

1 probably before the defibrillator stuff was nearly as
2 prevalent.

3 MR. BALL: Do the proposed overhead power
4 lines in this case give you a cause for concern?

5 DR. GRUBMAN: They do. I think that the
6 field strengths will be enough in several areas where
7 patients -- where large numbers of patients -- or
8 significant numbers of patients with defibrillators and
9 pacemakers congregate, that there's a real potential for
10 an interaction.

11 MR. BALL: And can you --

12 DR. GRUBMAN: And --

13 MR. BALL: -- can you give the Council any
14 kind of guidance, any recommendations that you might have
15 --

16 DR. GRUBMAN: I --

17 MR. BALL: -- on how to deal with --

18 DR. GRUBMAN: You know, our patients are
19 already cautioned. They get a list of three or four
20 things to avoid when they get defibrillators, cell
21 phones, on the same side they can't go through the metal
22 detectors in the airports. This is another potentially
23 serious problem. I think that, you know, the best thing
24 to do would be to avoid -- to keep these lines or these

HEARING RE: CL&P and UI
JUNE 16, 2004

1 electric fields as far away from the patients as
2 possible.

3 MR. BALL: I have no further questions.

4 CHAIRMAN KATZ: Thank you, Mr. Ball. Any
5 other party or intervenor who has cross-examination.
6 Miss Randell.

7 MS. LINDA RANDELL: Just a very quick
8 follow-up. Dr. Grubman, I think you said you saw a
9 published report regarding power substations. Do you
10 have a citation for that?

11 DR. GRUBMAN: I'm not sure I have it here.
12 I was going to bring it and then I got nervous because
13 the last time somebody tried to bring in a paper and it
14 got -- but I can certainly get that by tonight.

15 CHAIRMAN KATZ: We don't make people
16 nervous.

17 DR. GRUBMAN: It wasn't you, it was the --
18 but I can certainly get that --

19 CHAIRMAN KATZ: If you can have Mr.
20 Schaefer provide that to us --

21 DR. GRUBMAN: Yeah, absolutely --

22 CHAIRMAN KATZ: -- we'll -- we can take
23 administrative notice --

24 DR. GRUBMAN: Yeah --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 CHAIRMAN KATZ: -- of that perhaps --

2 DR. GRUBMAN: Um-hmm --

3 CHAIRMAN KATZ: Mr. Fitzgerald.

4 MR. FITZGERALD: I have one question that
5 was provoked by the other questions.

6 CHAIRMAN KATZ: Yes.

7 MR. FITZGERALD: Doctor, do you -- do you
8 have a written list of instructions that you give to your
9 patients --

10 DR. GRUBMAN: Yes.

11 MR. FITZGERALD: And does that list say on
12 it to avoid overhead electric transmission and
13 distribution lines?

14 DR. GRUBMAN: It says to avoid large
15 electric fields.

16 MR. FITZGERALD: Does it say anything
17 about don't walk near --

18 DR. GRUBMAN: 345 kilovolt --

19 MR. FITZGERALD: -- overhead -- overhead -
20 - well not just 345, any overhead electric lines?

21 DR. GRUBMAN: No.

22 CHAIRMAN KATZ: Thank you. Mr. Cunliffe,
23 any questions?

24 MR. CUNLIFFE: No.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 CHAIRMAN KATZ: Mr. Murphy?

2 MR. JAMES J. MURPHY, JR.: No. I thought

3 -- (indiscernible) --

4 CHAIRMAN KATZ: Mr. Emerick?

5 MR. BRIAN EMERICK: No questions.

6 CHAIRMAN KATZ: Mr. Tait? Mr. Ashton.

7 MR. ASHTON: Does the manufacturer provide
8 warnings as to what to avoid?

9 DR. GRUBMAN: To the patients? Yes --

10 MR. ASHTON: On these devices?

11 DR. GRUBMAN: Um-hmm.

12 MR. ASHTON: And what do they say?

13 DR. GRUBMAN: I'm not -- each manufacturer
14 provides a different booklet, but again they're cautioned
15 to avoid -- in addition to specific instances large
16 electric fields and magnetic fields. They're also told
17 to call the companies with any questions.

18 MR. ASHTON: Okay. Would that include
19 proximity to things like a neon sign?

20 DR. GRUBMAN: Yes. They are told -- I
21 believe so. But they're told -- I mean, for example,
22 they're -- if you call the company and asked if you could
23 go in the Hoover Dam, they would say no. That's actually
24 for the magnetic field.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. ASHTON: Interesting. How about
2 television sets?

3 DR. GRUBMAN: No. The television sets
4 there's no warnings.

5 MR. ASHTON: I'm sorry?

6 DR. GRUBMAN: There are no warnings for
7 television sets.

8 MR. ASHTON: No warning. How about
9 microwaves?

10 DR. GRUBMAN: The current microwave ovens
11 -- the problem initially was that they were fairly leaky
12 in terms of fields or energy. Currently microwaves don't
13 leak nearly as much. And current pacemakers have filters
14 specifically for that so that there shouldn't be an
15 interaction.

16 MR. ASHTON: Electric blankets?

17 DR. GRUBMAN: Nope.

18 MR. ASHTON: No prohibition on that. I
19 think that's all. Thank you.

20 CHAIRMAN KATZ: Thank you. Mr. O'Neill.

21 MR. O'NEILL: Any warnings against
22 electric can openers?

23 DR. GRUBMAN: No.

24 MR. O'NEILL: Any warnings against

HEARING RE: CL&P and UI
JUNE 16, 2004

1 standing on a railroad platform?

2 DR. GRUBMAN: That's an interesting point.
3 I had a patient who had a defibrillator implanted, he was
4 a railway worker, and he was told by MTA that he could no
5 longer be there at that point.

6 MR. O'NEILL: Thank you.

7 CHAIRMAN KATZ: Thank you. Mr. Wilensky.

8 MR. EDWARD S. WILENSKY: Yes. Dr.
9 Grubman, there are 345 lines in parts of the State and
10 all over the country. Do you know of any incidents where
11 a 345 line has created a problem for somebody with a
12 pacemaker?

13 DR. GRUBMAN: Not yet. I think that the
14 number of defibrillators that are being implanted is
15 increasing exponentially, and --

16 MR. WILENSKY: But there is no --

17 DR. GRUBMAN: Correct --

18 MR. WILENSKY: -- as far as you know,
19 doctor, there are no known incidents of anybody having
20 any problems?

21 DR. GRUBMAN: Correct.

22 MR. WILENSKY: What about the existing
23 line, the 115 line that runs in close proximity to the
24 areas that we're referring to here, do you warn your

HEARING RE: CL&P and UI
JUNE 16, 2004

1 patients to stay away from the 115 lines or away from
2 that particular area is what I should say?

3 DR. GRUBMAN: I don't because I think that
4 the field is sufficiently low that they don't need to.
5 There was an incidence a couple of years ago when one of
6 the lines fell that -- certainly that -- easily -- it
7 would be easy to imagine how that could get somebody into
8 trouble --

9 MR. WILENSKY: It fell in the Woodbridge
10 area?

11 DR. GRUBMAN: Yeah.

12 MR. WILENSKY: I see. Okay. Thank you,
13 doctor.

14 CHAIRMAN KATZ: Mr. Lynch?

15 MR. DANIEL P. LYNCH, JR.: No questions.

16 CHAIRMAN KATZ: Mr. Heffernan?

17 MR. GERALD J. HEFFERNAN: No questions.

18 CHAIRMAN KATZ: Mr. Schaefer, do you have
19 any redirect of Dr. Grubman?

20 MR. SCHAEFER: (Indiscernible).

21 CHAIRMAN KATZ: Okay. Does any party or
22 intervenor have any objection -- oh, I'm sorry -- Mr.
23 Schaefer said no redirect. Does any party or intervenor
24 have any objection if Dr. Grubman is excused at this

HEARING RE: CL&P and UI
JUNE 16, 2004

1 time? Hearing none, thank you, Dr. Grubman --

2 DR. GRUBMAN: Thank you --

3 CHAIRMAN KATZ: -- for your participation.

4 DR. GRUBMAN: Thanks.

5 CHAIRMAN KATZ: Okay, at this time, Mr.

6 Fitzgerald, we'll go back to cross-examination.

7 MR. FITZGERALD: Thank you. And we were -
8 - just to orient everybody, we were on the supplemental
9 testimony of May 11th concerning buffer zones. And is
10 there a -- is there a copy of the references over there
11 because we'll -- the appendix to the buffer zone
12 testimony?

13 DR. BELL: I think --

14 MR. FITZGERALD: Because I think you
15 brought -- you brought --

16 DR. BELL: I'm sorry, I think what I have
17 is sort of spotty.

18 MR. FITZGERALD: So here, I'll give you
19 back that --

20 DR. BELL: Thank you, Mr. Fitzgerald --
21 I'll come over and give you a break --

22 CHAIRMAN KATZ: Off -- off the record.

23 (Off the record)

24 CHAIRMAN KATZ: On the record.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: Okay. I'd like to move
2 on to the testimony concerning the State of New Jersey.
3 It's at page 4 of my set of your testimony, but yours
4 could be a page different. There's a question has the
5 State of New Jersey suggested a distance from
6 transmission lines to achieve an EMF level at or below 1
7 milligauss. And let me know when you have that question.

8 DR. BELL: I have the question in my
9 testimony and I'm opening to New Jersey in your booklet.

10 MR. FITZGERALD: Good. And the answer is
11 yes. And then you go on to characterize and quote the
12 report. And the -- publication let's call it -- in the
13 section of the report to which you refer, it's page 2 of
14 5, and the paragraph begins transmission lines carry
15 electricity over long distances and usually operate at
16 voltages of 100 kilovolts and above. Are any
17 transmission lines in New Jersey at a perpendicular
18 distance of 400 feet from the center of the line
19 configuration? The magnetic field level on the ground
20 from the line will be approximately 1 milligauss or less.
21 Distances closer than 400 feet is difficult to predict
22 what the magnetic level -- field level will be as each
23 situation becomes unique.

24 That is the statement to which you were

HEARING RE: CL&P and UI
JUNE 16, 2004

1 referring to support your answer that the State of New
2 Jersey has suggested a distance from transmission lines
3 to achieve an EMF level at or below 1 milligauss, right?

4 DR. BELL: That's correct.

5 MR. FITZGERALD: Okay. Let us go on now
6 to the Tennessee Valley Authority. And you have a
7 question -- oh, by the way, as long as we're on -- before
8 we leave New Jersey, to your knowledge has New Jersey
9 adopted any magnetic field limits or guidelines?

10 DR. BELL: I actually have spoken to
11 people in New Jersey, and to my knowledge the answer is
12 no.

13 MR. FITZGERALD: Okay. The -- let us go
14 on now to the Tennessee Valley Authority.

15 CHAIRMAN KATZ: And Tab 8 for those of you
16 who are following along in the appendix.

17 MR. FITZGERALD: Okay. The question, has
18 the electric company covering parts of Alabama, Georgia,
19 Kentucky, Mississippi, North Carolina, Tennessee and
20 Virginia mandated explicit residential and school setback
21 guidelines. And again the answer is yes. And then you
22 go on to characterize and quote a TVA publication.
23 Right?

24 DR. BELL: Yes, that is correct.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: And if we go to your Item
2 8 in the appendix, it appears to be a fax sheet of
3 questions and answers about a particular 500-kV
4 transmission line project, right?

5 DR. BELL: Yes -- yes, that is correct.

6 MR. FITZGERALD: And the section to which
7 you were referring to is the very last question in the
8 publication?

9 DR. BELL: Yes, that is correct as well.

10 MR. FITZGERALD: And that question does
11 not -- is not an EMF specific question, is it? It
12 doesn't ask about EMF, it asks whether the building
13 setback guidelines the TVA has to abide by?

14 DR. BELL: That is correct, it just talks
15 about a buffer --

16 MR. FITZGERALD: Okay --

17 DR. BELL: -- around the lines.

18 MR. FITZGERALD: And the answer is when
19 routing transmission lines, TVA attempts to maintain a
20 buffer around certain structures and the line itself. A
21 300-foot buffer for homes and a 1,200-foot buffer for
22 schools is desirable. However, if it is not possible to
23 maintained the desirable buffer, the transmission line
24 right-of-way may run directly adjacent to a structure.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 The only requirement is that there be no structures in
2 the right-of-way. That's the Tennessee Valley Authority
3 document, right?

4 DR. BELL: Without emphasis, yes, sir.

5 MR. FITZGERALD: A fair point. Now let's
6 go on to the State of Vermont. You have a question, has
7 the State of Vermont advocated burying transmission lines
8 as a means of prudent avoidance. Answer yes. And then
9 you go on to quote from a State of Vermont position paper
10 on EMF. And that position paper so-called is your
11 Reference 9 to this testimony, correct?

12 DR. BELL: Yes, sir.

13 MR. FITZGERALD: And it turns out this was
14 actually prepared by the Vermont Department of Health,
15 and it's the Department of Health's position paper on
16 Electric and Magnetic Power Frequency Fields and the
17 Velco Northwest Vermont Reliability Project, correct?

18 DR. BELL: I don't know all the details,
19 but I think that's correct, yes.

20 MR. FITZGERALD: That's what the title
21 page --

22 DR. BELL: No, I realize that.

23 MR. FITZGERALD: Yeah, okay. That's --

24 DR. BELL: That's where I'm with you too.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: Alright. If we go to
2 page 44 of that report --

3 DR. BELL: Yes, sir.

4 MR. FITZGERALD: The Department of Health
5 states their conclusions as follows, the Vermont
6 Department of Health concludes that the electric and
7 magnetic power frequency field strength for the proposed
8 NRP does not appear to be a public health hazard based on
9 a review of the literature and on calculations with
10 existing and proposed current loads. In the absence of
11 federal and state standards, the Vermont Department of
12 Health applied the ICNIRP and IEEE guidelines for
13 electric and magnetic power frequency fields to its
14 analysis of the NRP. The magnetic power frequency fields
15 at the edge of the right-of-way are on the order of 20 to
16 200 times less than the ICNIRP guidelines of 833
17 milligauss and the IEEE guideline of 9,040 milligauss for
18 public exposure respectively.

19 CHAIRMAN KATZ: Acronyms?

20 MR. FITZGERALD: Well, ICNIRP we've
21 already covered --

22 CHAIRMAN KATZ: How about NRP --

23 MR. FITZGERALD: -- IEEE is the
24 International --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 CHAIRMAN KATZ: NRP --

2 DR. BELL: No, no --

3 MR. FITZGERALD: Well, the NRP that's --
4 that's the project that is -- that's the Northwest
5 Reliability Project.

6 CHAIRMAN KATZ: Thank you.

7 MR. FITZGERALD: IEEE is the International
8 --

9 A VOICE: Electrical -- (indiscernible) --

10 CHAIRMAN KATZ: Yes --

11 DR. BELL: Something with electrical in
12 it.

13 CHAIRMAN KATZ: Yeah, that one we know --

14 MR. FITZGERALD: Okay --

15 CHAIRMAN KATZ: -- IEEE.

16 MR. FITZGERALD: Okay. So in that case
17 what the department -- what the Vermont Department of
18 Health concluded was that the particular magnetic fields
19 that would be associated with that line does not appear
20 to be a public health hazard, right?

21 DR. BELL: I think that they concluded
22 that it's within the guidelines that we discussed
23 earlier, which are, you know, looking for skin tingling
24 and transmission through the course of the body.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: Okay.

2 COURT REPORTER: One moment please.

3 (Pause). Thank you.

4 MR. FITZGERALD: You can put that appendix
5 aside, doctor. I'm now going to take you back to the
6 initial testimony of one specific subject, and that is
7 the hypothesis that is discussed in the Brain (phonetic)
8 and others article, which is your Reference 28 to the
9 initial testimony.

10 DR. BELL: Yes, sir.

11 MR. FITZGERALD: Now, this -- this article
12 is really the latest multidisciplinary review of the
13 research concerning power line EMF and childhood
14 leukemia, correct?

15 DR. BELL: I really can't assert that. I
16 think it's a review by a group of scientists, one of
17 which was involved with postulating this contact current,
18 Dr. Cabot.

19 MR. FITZGERALD: Alright. And --

20 DR. BELL: And I'm not sure that's really
21 the most recent one or not.

22 MR. FITZGERALD: Well, okay. It was
23 published in -- it was published in June 2003. Let's --
24 let's not get comparative. It was published in June

HEARING RE: CL&P and UI
JUNE 16, 2004

1 2003, alright.

2 DR. BELL: Yes, sir.

3 MR. FITZGERALD: And the -- and the
4 authors include Cabot. They also include Charles Pool,
5 who's an epidemiologist, Valberg, who is risk analyst at
6 Harvard, Weaver, who's a physicist at MIT, and -- so it's
7 a multidisciplinary group, right?

8 DR. BELL: I think that's correct, sir.

9 MR. FITZGERALD: And as -- we noted right
10 at the outset of your testimony this article contains a
11 hypothesis or why is it that if this association that is
12 real, what -- what could explain it, right?

13 DR. BELL: I think that's correct.

14 MR. FITZGERALD: And to set the table for
15 the hypothesis, the authors have reviewed the state of
16 the science in a summary form, what's been developed to
17 date --

18 DR. BELL: I think they actually have a
19 very narrow review of the literature focused on whether
20 this is a plausible or not plausible hypothesis that
21 should be tested. They actually don't provide a detailed
22 broad comprehensive review by looking through their
23 references, but they -- but I agree with your assertion
24 that they do set the table to see whether this is a

HEARING RE: CL&P and UI
JUNE 16, 2004

1 plausible hypothesis or not, this single narrow
2 hypothesis that they project.

3 MR. FITZGERALD: And so they -- so they
4 start by reviewing -- or summarizing just the EMF
5 research. And I'm not going to do a lot of quoting here,
6 so just -- I'm trying to --

7 DR. BELL: I'm with you --

8 MR. FITZGERALD: -- to get to the -- to
9 get to the hypothesis.

10 DR. BELL: Okay.

11 MR. FITZGERALD: They start by looking at
12 the research on childhood leukemia and EMF, and that's
13 followed by a section on the biology of childhood
14 leukemia, and then the epidemiology of childhood
15 leukemia, and then a section on the pathogenesis of acute
16 leukemia, which means how it's formed and develops, and
17 then there's a section on the animal carcinogenicity
18 studies, and then there's a section that summarizes the -
19 - how EMFs -- the physical laws relating to how EMFs
20 interact with matter. And then they get to their
21 hypothesis. Right?

22 DR. BELL: Yes, sir

23 MR. FITZGERALD: Okay. And the hypothesis
24 is that maybe what's happening is that the mechanism of

HEARING RE: CL&P and UI
JUNE 16, 2004

1 disease causation is not exposure to ambient magnetic
2 fields but rather something called contact currents,
3 right?

4 DR. BELL: I think that's at the root of
5 their hypothesis, yes, sir.

6 MR. FITZGERALD: And as they explain it, a
7 contact current occurs in a home or in some other kind of
8 building when a person touches two surfaces that are
9 energized at different voltages, right?

10 DR. BELL: Yes, sir.

11 MR. FITZGERALD: And when that happens, an
12 electric current flows through the person, in the hand
13 and out a foot, or in one hand and out the other
14 typically?

15 DR. BELL: I think they focus mostly on
16 the exposure to water, but that's correct.

17 MR. FITZGERALD: Well and if they're in --
18 and if --

19 DR. BELL: Yeah, that's a typical --

20 MR. FITZGERALD: -- if a person is in
21 water at the time, for instance in contact with a
22 plumbing fixture and the drain of the water, that would
23 be an example, and the water could assist the process --

24 DR. BELL: Or -- yeah, exactly, or just a

HEARING RE: CL&P and UI
JUNE 16, 2004

1 drinking fountain or any of those -- I think that's what
2 they focused on, yes.

3 MR. FITZGERALD: And -- and if that
4 happens, they make the point that the current may well
5 not be strong enough to be perceptible to the person
6 through whom it's running, but nevertheless it would have
7 significantly more energy than a magnetic field emanating
8 from a power line would induce in the body by induction?

9 DR. BELL: I think their point actually is
10 that it would be maybe 500 to 1,000 fold lower than the
11 exposure levels that ICNIRP and -- that you and I were
12 discussing a moment ago, and that it actually would
13 induce a current flow through the bone marrow,
14 particularly of young individuals. So the exposure of
15 current to a very small person, to a relatively unformed
16 bone marrow could be quite large is their point

17 MR. FITZGERALD: And --

18 DR. BELL: They don't prove it at all --

19 MR. FITZGERALD: I understand. But the
20 hypothesized mechanism of exposure to the current is
21 exposure through contacting these plumbing fixtures or
22 other appliances in the home or other building?

23 DR. BELL: I think that's the only one
24 that they specify. I don't think that they necessarily

HEARING RE: CL&P and UI
JUNE 16, 2004

1 restrict it to that.

2 MR. FITZGERALD: Oh, if you --

3 DR. BELL: In other words, I don't think
4 they restrict it to the plumbing in the home per say.

5 MR. FITZGERALD: They restrict it to
6 situations in which a person contacts --

7 DR. BELL: Contacts -- oh, absolutely --
8 no, no, I'm saying it may be more than just --

9 MR. FITZGERALD: Different voltage
10 potential --

11 DR. BELL: Right, right. It may not be
12 just plumbing in the home though. I agree with you
13 entirely, Mr. Fitzgerald.

14 MR. FITZGERALD: In other words, we're not
15 talking about atmospheric exposures to magnetic fields?

16 DR. BELL: Actually Dr. Cabot, which is
17 also referenced in the testimony, describes how the EMF
18 level outside the house is highly statistically
19 significantly correlated with the contact current that
20 Mr. Fitzgerald and I are describing.

21 MR. FITZGERALD: Now -- Dr. Bell --

22 DR. BELL: Yes, sir?

23 MR. FITZGERALD: -- before we get to that,
24 is it true that the mechanism that they're describing is

HEARING RE: CL&P and UI
JUNE 16, 2004

1 contact with currents caused by contact with things
2 inside a structure, not contact -- or not exposure to
3 magnetic fields in the atmosphere? That's the
4 hypothesis?

5 DR. BELL: It is true that Dr. Cabot
6 states that the contact current as best he can tell is
7 directly related in a highly statistically significant
8 way to the exterior EMF level.

9 MR. FITZGERALD: No, that's not the
10 question --

11 DR. BELL: Okay --

12 MR. FITZGERALD: -- we'll get there --

13 DR. BELL: -- I'm sorry.

14 MR. FITZGERALD: How -- you know, you're
15 very -- well, no -- the -- the hypothesized --

16 DR. BELL: No need to be complimentary.

17 MR. FITZGERALD: -- the hypothesized
18 mechanism has to do with coming in contact with different
19 voltage potentials, not with exposure to ambient magnetic
20 fields, right?

21 DR. BELL: It is correct --

22 MR. FITZGERALD: Okay --

23 DR. BELL: -- that it's the current --

24 MR. FITZGERALD: Right --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. BELL: -- generated by the magnetic
2 field.

3 MR. FITZGERALD: Right. Now what you were
4 saying a moment ago -- no -- no, no -- the current, it's
5 not -- it does not deal with current that is directly
6 induced in the body by a magnetic field in the
7 atmosphere?

8 DR. BELL: Oh, absolutely -- you're
9 absolutely correct. It's the current generated along the
10 water pipe coming into the house exposed to the magnetic
11 field.

12 MR. FITZGERALD: Okay, thank you. And he
13 goes on to say in doing some source characterization,
14 they found that these contact -- that the situations that
15 would support these contact currents inside a house
16 tended to occur more frequently where the house was
17 nearby a transmission line than otherwise. And that's
18 the point that you made, right?

19 DR. BELL: Actually, they -- they
20 demonstrated that it was over -- a 1 out of 1,000
21 likelihood that the association with the magnetic field
22 was by chance, thereby concluding that the magnetic field
23 induced the contact current because the likelihood of
24 being by chance was one out of a thousand.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. FITZGERALD: No -- could you answer
2 the question?

3 DR. BELL: I think I did.

4 MR. FITZGERALD: No --

5 DR. BELL: I apologize then.

6 MR. FITZGERALD: Didn't -- didn't --

7 CHAIRMAN KATZ: Mr. Fitzgerald, we're
8 going to ask you to bottom line this real soon.

9 MR. FITZGERALD: Well, I think it's pretty
10 important, so I hope you -- I hope you'll give me a
11 little leeway.

12 The point -- the point is that -- what the
13 authors were saying was, hey, you know, maybe it's not
14 the transmission lines, maybe it's the fact that the
15 transmission lines -- the proximity of the transmission
16 lines is a marker or a surrogate for having conditions
17 inside the building that will support the contact
18 currents?

19 DR. BELL: And the likelihood of that
20 being true is one out of a thousand. I think that is
21 what they said.

22 MR. FITZGERALD: The likelihood of what
23 being true?

24 DR. BELL: The likelihood of it just being

HEARING RE: CL&P and UI
JUNE 16, 2004

1 a random occurrence --

2 MR. FITZGERALD: No, but that's --

3 DR. BELL: -- that the magnetic field just
4 happened to be there and unrelated to the contact
5 current, they published was a P value of less than 0.001.

6 So it's -- it's -- it could be just by surrogate, happen
7 to be there, it's true, you're right --

8 MR. FITZGERALD: Okay --

9 DR. BELL: -- which is a very low
10 likelihood.

11 MR. FITZGERALD: The authors also make the
12 point that these -- the generation of these contact
13 currents can be prevented by simply putting a non-
14 conductive piece in the plumbing fixture or in the drain
15 pipe or in the other plumbing on which the contact
16 current is found to be flowing, right?

17 DR. BELL: I believe that would depend on
18 the distance, the length, the thickness of the piece, and
19 what the proximity was of the generation of the magnetic
20 field that provided the current, but I think that makes
21 sense what you're saying, I would agree.

22 MR. FITZGERALD: Well, it's not what I'm
23 saying, it's what they say.

24 DR. BELL: I would agree that you're

HEARING RE: CL&P and UI
JUNE 16, 2004

1 probably asserting what they're saying.

2 MR. FITZGERALD: They make -- they make
3 that point in the article. So that -- bearing in mind
4 that this is a fresh hypothesis that hasn't been
5 investigated, but if it were true, that would mean that
6 if somebody were concerned about magnetic field exposure
7 and the possibility of this hypothesis, they would check
8 to see whether they had plumbing contact currents in
9 their home or building because they're easily remedied if
10 they exist. Don't you agree?

11 DR. BELL: As the son of a builder, I
12 wouldn't assert whether they're easily remedied or not.
13 I think that you're absolutely correct as a testable
14 hypothesis it's not proven in any way. I think that's
15 very important for us and the Siting Council to realize,
16 but as a plausible hypothesis by which a group of
17 scientists have suggested the mechanism by which magnetic
18 fields may cause cancer.

19 MR. FITZGERALD: And do you know has the -
20 - have any of the organizations that you're representing
21 here today done anything to see if they have contact
22 currents flowing within their buildings?

23 DR. BELL: I'm really only associated with
24 the Town of Woodbridge, and I don't believe the Town

HEARING RE: CL&P and UI
JUNE 16, 2004

1 actually has addressed any of their public facilities --

2 CHAIRMAN KATZ: Mr. --

3 DR. BELL: -- but I'm not in a position to
4 assert that.

5 CHAIRMAN KATZ: Mr. Fitzgerald, there's
6 another panel that you can ask that question of today.

7 MR. FITZGERALD: Well, okay, but --

8 DR. BELL: It's a fair question. I just
9 don't know the answer.

10 MR. FITZGERALD: I assume the others --
11 I'll assume the others the answer is also I don't know
12 and then --

13 DR. RABINOWITZ: I'm not aware.

14 MR. FITZGERALD: -- we'll go on. Okay.
15 That is all the questions that I have for this panel.

16 CHAIRMAN KATZ: Thank you. Next is
17 Representative Al Adinolfi. Questions for this panel?
18 Absent. The Town of Middlefield, Mr. --

19 A VOICE: (Indiscernible) --

20 CHAIRMAN KATZ: Oh. He said no questions.
21 Mr. Knapp? The Towns of Wallingford and Durham? Absent.
22 Woodbridge?

23 MR. BALL: David Ball again for the Town
24 of Woodbridge. I'll ask the following question to each

HEARING RE: CL&P and UI
JUNE 16, 2004

1 of the members of the panel. Are any of you being paid
2 for your testimony today?

3 DR. BELL: Dr. Bell says no.

4 DR. GERBER: No.

5 DR. RABINOWITZ: Dr. Rabinowitz says no.

6 MR. BALL: And what in your background
7 enables you to interpret human data? I'll ask that of
8 any of you.

9 DR. RABINOWITZ: I'm trained in
10 occupational environmental medicine as a specialist in
11 determining whether certain environmental or occupational
12 hazards pose a threat to human health in working both
13 with individual patients as well as populations in making
14 those assessments and trying to devise strategies to do
15 deal with it.

16 MR. FITZGERALD: Objection. This is --
17 the doctors have stated their qualifications --

18 CHAIRMAN KATZ: Yeah --

19 MR. FITZGERALD: -- in their direct
20 testimony.

21 CHAIRMAN KATZ: Mr. Ball, wouldn't you
22 agree -- would you agree that we've covered the doctors'
23 qualifications in this area?

24 MR. BALL: Well, I believe there were at

HEARING RE: CL&P and UI
JUNE 16, 2004

1 least in the initial round of questioning some attempts
2 on Mr. Fitzgerald's part to test their knowledge of these
3 areas and I thought I would just briefly ask that
4 question of them.

5 CHAIRMAN KATZ: Okay, but they did prefile
6 their resumes and we do -- as Council members we do have
7 that, so I'm going to ask you to be brief.

8 MR. BALL: That was the only question that
9 I had on it --

10 CHAIRMAN KATZ: Excellent --

11 MR. FITZGERALD: -- and I think Dr. Bell
12 was going to answer next.

13 DR. BELL: Thank you, Mr. Ball. I'm a
14 graduate of Yale Medical School in honors with a prize in
15 -- the Peters Research Prize. I've been funded by the
16 National Institutes of Health for several years before I
17 left Yale. Since then my experience has focused largely
18 on designing and interpreting large clinical trials or
19 randomized trials of six to twelve thousand patients and
20 interpreting that data in a statistically rigorous
21 fashion, as well as identifying safety issues and
22 negotiating these safety issues with the Food and Drug
23 Administration according to the federal criteria.

24 MR. BALL: And lastly, Dr. Gerber?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. GERBER: Sure. I have a Ph.D. in
2 economics from the Massachusetts Institute of Technology.
3 I routinely perform and evaluate statistical studies in
4 my professional research life.

5 MR. BALL: Dr. Gerber, let me stick with
6 you. Can you describe what statistical power is?

7 DR. GERBER: Yeah, sure. This was a
8 concept that was introduced by Dr. Ginsberg I think in
9 his description of some of the studies. The statistical
10 power is the probability that in the event there is a
11 true effect under -- a true effect that your statistical
12 analysis is trying to get at, that the study you're
13 undertaking will in fact produce a statistically
14 significant finding. And if your study is small, in the
15 case of some of the individual studies of the association
16 of electromagnetic fields and childhood leukemia, there
17 were very few cases and controls in the high exposure
18 group. With small studies you might get hints or
19 indications of an association, but it's very unlikely
20 that you would see a statistically significant
21 association even if there truly was an important elevated
22 risk associated with higher exposure levels.

23 MR. BALL: So Dr. Gerber, if you wanted to
24 design a study to identify with high statistical power

HEARING RE: CL&P and UI
JUNE 16, 2004

1 whether EMF causes childhood leukemia, how large would
2 the study have to be?

3 DR. GERBER: Well, I think the issue would
4 be more how many cases would have to be in the high
5 exposure group, but there -- I don't believe any of the
6 individual studies that were covered by the META analyses
7 were sufficiently large to detect a -- to detect even
8 what I would consider to be important increases in risk
9 with enough reliability that the individual studies could
10 be relied upon. And I think that's the reason why we --
11 why we do these META analyses, where we bring together
12 the data from a number of studies and consider all of the
13 data together because there's a lot more data obviously
14 when you pool across studies.

15 MR. BALL: Now does this mean that if in a
16 particular study an association is found with childhood
17 leukemia, does that mean the study is not reliable?

18 DR. GERBER: No, I wouldn't say the study
19 is not reliable. The issue is more one of probability.
20 If you have a small study, the probability of detecting a
21 true underlying effect, even if it's there, is small if
22 by detecting the true effect you mean achieving the very
23 high standards necessary for statistical significance.
24 Remember statistical significance means that there is

HEARING RE: CL&P and UI
JUNE 16, 2004

1 only a one chance in twenty that the effect that you see
2 is due to chance in the event there was no underlying
3 effect. And that's -- that's a very high standard for a
4 study to have to cross. So if you have a small study,
5 it's very unlikely you'll cross that standard. That's
6 the basic point.

7 Just to bring it back to EMFs, if you look
8 at all the individual studies contained in say the Sander
9 Greenland META analysis, Greenland looks at the
10 associations -- the association between EMF exposure and
11 leukemia and he pools together in the measurement portion
12 of his study nine studies that have either cases -- or
13 both cases and controls above the 3 milligauss level. Of
14 those nine studies that he includes in his analysis, each
15 and every one of them I believe shows an elevated level -
16 --unexpected -- a higher than expected number of cases of
17 childhood leukemia associated with the 3 milligauss and
18 above level, but very few of those studies are
19 statistically significant because the amount of, the
20 quantity of excess cases that are needed to achieve
21 statistical significance in the individual studies given
22 their size is really quite enormous. However, when you
23 pool the studies together, a clear pattern emerges and
24 that's what Greenland reports.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. BALL: So --

2 MR. O'NEIL: Excuse me.

3 MR. BALL: Sure.

4 MR. O'NEILL: Dr. Gerber, has the AMA
5 Journal ever published any papers regarding the link
6 between EMFs and childhood leukemia?

7 DR. GERBER: I'm sorry, has the Journal of
8 the American Medical --

9 MR. O'NEILL: Yes --

10 DR. GERBER: -- Association?

11 MR. O'NEILL: Yes.

12 DR. GERBER: I'm not -- I'm not familiar
13 either way. I don't think the studies -- the studies
14 that I'm reporting on, the individual studies were
15 published in the Lancet and the New England Journal of
16 Medicine, which I believe are two journals of equal
17 stature in the medical community. In addition, I believe
18 the Greenland META analysis -- I think the Greenland META
19 analysis was published in Epidemiology, which I believe
20 is the leading journal in the field of epidemiology. So
21 comparable journals. I'm not familiar with whether or
22 not in particular the Journal of the American Medical
23 Association has been -- has been the site of any of these
24 articles.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. O'NEILL: Thank you, doctor.

2 CHAIRMAN KATZ: Doctor --

3 DR. GERBER: Sure.

4 CHAIRMAN KATZ: Dr. Gerber, why do you
5 think it is that we only have statistical studies and we
6 don't actually have any patients who have childhood
7 leukemia because of EMFs?

8 DR. GERBER: I'm not sure how you would
9 know that exactly. What --

10 CHAIRMAN KATZ: I think that's my problem.

11 DR. GERBER: Yeah. With all due respect,
12 the -- how would you -- I mean it's -- leukemia is a rare
13 condition and individuals are multi -- have multi-facet
14 environments, and so you have to look for statistical
15 relationships, you can't really trace in any individual
16 case. So similarly, you probably -- if you found an
17 individual with any disease, even a common disease, how
18 would you know whether it was their cholesterol, their
19 lack of exercise, their genetics? You wouldn't be able
20 to know that. But if you have a lot of -- a lot of
21 patients, patterns will emerge. Individuals who are
22 similar along a number of dimensions but who have -- some
23 have higher cholesterol, some have lower cholesterol, if
24 you see higher rates of heart attack among those who look

HEARING RE: CL&P and UI
JUNE 16, 2004

1 similar in all other respects but have higher
2 cholesterol, then I think you start to suspect maybe
3 cholesterol has something to do with the higher rates of
4 heart attacks.

5 That's actually what they're doing here in
6 these studies when they include the control variables for
7 confounding influences, they're basically trying to
8 compare people who are similar in every other respect,
9 except some are exposed to higher levels of EMF and some
10 are not, and they want to see whether there's an elevated
11 rate of leukemia among those who were exposed to higher
12 levels of EMF. So it's -- it's similarly difficult in
13 all cases, but not -- not -- it's nothing -- there's
14 nothing special here in that respect in particular.

15 CHAIRMAN KATZ: Thank you.

16 MR. BALL: And as a statistician, do you
17 find the three META analyses to be consistent and
18 convincing from your perspective?

19 DR. GERBER: I do -- I do, yes. I think
20 they're well done, and -- and I'm familiar with some of
21 Greenland's work in particular, more, you know, outside
22 of this -- of this particular application. And he's a
23 very well respected scholar.

24 MR. BALL: Let me just focus on three of

HEARING RE: CL&P and UI
JUNE 16, 2004

1 the studies, and I won't spend a lot of time on the
2 individual studies, I think we've done that already.

3 DR. GERBER: Sure.

4 MR. BALL: The Applicants' consultants did
5 testify about the Linnet study, the McBride study and the
6 UK study in support of their contention that EMF is not
7 associated with childhood leukemia. Do you agree with
8 their characterization of those studies?

9 DR. GERBER: I think that -- I believe Dr.
10 Cole and Dr. Bailey found those studies to be well done
11 or something along those lines. And so -- so you know,
12 that -- they did -- as you say, they did cite those
13 studies.

14 MR. BALL: Do you agree that those studies
15 in fact stand for the proposition that EMF does not cause
16 childhood leukemia?

17 DR. GERBER: I'd like to -- well here's
18 the -- here's -- here's the thing about those studies, if
19 you -- if you take a look, those studies are all
20 included, they're subsumed in the Ahlbom META analysis.
21 And I think if you were to -- if you just look at the
22 Ahlbom META analysis, then the -- those studies are all
23 contained in -- I believe it's -- it would be table --
24 Table 3, the McBride study would be the Canada study, the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 UK study would be the UK study, and the USA study is this
2 Linnet study. And the cases and controls from those
3 studies comprise about, you know, 85 or so percent of the
4 entire cases that are considered in the measurement
5 studies section of the Ahlbom META analysis. And if you
6 were to confine your attention solely to the studies that
7 -- to those three studies, you would get a -- from the
8 data contained in Ahlbom, you would in fact still find a
9 statistically significant increase in the rate of
10 childhood leukemia associated with the 4 milligauss
11 level. And so -- so even if you were to just confine your
12 attention solely to those studies which were highlighted
13 or at least characterized by the Applicants' experts as
14 the best studies, the Ahlbom conclusions would remain
15 unchanged.

16 MR. BALL: I'll shift gears a bit. Dr.
17 Rabinowitz, can you -- since there are a lot of acronyms,
18 what is IARC?

19 DR. RABINOWITZ: IRAC is the International
20 Agency for Research on Cancer.

21 MR. BALL: And I believe we had some
22 discussion at prior sessions about the various groupings
23 within IARC --

24 CHAIRMAN KATZ: We did --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. BALL: -- Group 1 being a known
2 carcinogen. Do you want to --

3 CHAIRMAN KATZ: We did.

4 MR. BALL: Okay. My -- my question for
5 you is whether or not there are examples of compounds
6 that are initially classified as possibly carcinogenic
7 that are subsequently upgraded to probably carcinogenic
8 or known carcinogens?

9 DR. RABINOWITZ: Yeah, I wanted to correct
10 any impression the Siting Council may have been given
11 that once it's rated -- once a particular agent or
12 compound is rated in a certain way by IARC, that it
13 doesn't have much chance of moving from there. There
14 have been numerous examples where something has been
15 gotten on the list at a certain level and then with more
16 research coming out, it gets upgraded. So an example of
17 something moving from 2 to 1 would be dioxin, which has
18 been studied extensively for many years, and then
19 recently was upgraded from Group 2 to Group 1. There's
20 been other examples of compounds moving from 2B to 2A and
21 then up to 1. So it's --

22 MR. TAIT: How about moving from 2 down to
23 3 or 4?

24 DR. RABINOWITZ: That happens as well.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 I'm not sure as much --

2 MR. TAIT: I thought so --

3 DR. RABINOWITZ: -- but it does happen,
4 yeah.

5 MR. TAIT: Yes.

6 CHAIRMAN KATZ: Has EMFs moved?

7 DR. RABINOWITZ: EMF just got on the list
8 and so it has not had a chance to move yet.

9 MR. ASHTON: (Indiscernible) --

10 MR. BALL: Well, let's stick with --

11 MR. TAIT: It could up or down?

12 DR. RABINOWITZ: It could -- it could go
13 up and down.

14 CHAIRMAN KATZ: It could go off -- back
15 off the list, couldn't it?

16 DR. RABINOWITZ: I'm not aware of things
17 being taken totally off the list --

18 CHAIRMAN KATZ: Okay.

19 MR. TAIT: Well that's because it's so
20 hard to prove the negative?

21 DR. RABINOWITZ: It's hard -- it's hard to
22 prove a negative, but to get on the list at a certain
23 level takes a level of evidence to get on the list.

24 MR. TAIT: But all I'm saying is -- 2B,

HEARING RE: CL&P and UI
JUNE 16, 2004

1 you're on there because you can't necessarily prove the
2 negative?

3 DR. GERBER: No --

4 DR. RABINOWITZ: But there's enough
5 suspicion --

6 MR. TAIT: Yes --

7 A VOICE: Yes --

8 DR. RABINOWITZ: -- to not put it lower,
9 right.

10 MR. TAIT: Correct.

11 DR. GERBER: Right.

12 DR. RABINOWITZ: So it's -- it's high
13 enough that it's possible and --

14 MR. TAIT: Really my point was it can go
15 up and down with more study.

16 DR. RABINOWITZ: It can go up and down
17 with more study. And there's plenty examples of things
18 going up, right.

19 MR. BALL: And I'll just ask a follow-up
20 on that and maybe you can't answer it, but do you have
21 any sense if EMF were to be reconsidered today based on
22 the studies that exist, whether it would be dropped?

23 MR. TAIT: That's speculative --

24 DR. RABINOWITZ: Whether it would be

HEARING RE: CL&P and UI
JUNE 16, 2004

1 dropped? I don't think it would be dropped. The IARC
2 was only in the last couple of years. And the -- the
3 recent evidence that we're trying to present continues to
4 be very concerning, if not -- if not on the -- in terms
5 of mechanism bringing up some ideas that could raise
6 additional concern.

7 MR. BALL: Alright, let me address a piece
8 of Dr. Cole's testimony. He talked about the Hill
9 criteria in his initial testimony. What are the Hill
10 criteria?

11 DR. RABINOWITZ: These are a set of
12 criteria for looking at these epidemiologic studies of
13 people and trying to make sense of them and saying do
14 these present evidence supporting some causative link
15 between an exposure and an outcome.

16 MR. BALL: And ultimately analyzing the
17 Hill criteria, Dr. Cole concludes there's no causation,
18 right?

19 DR. RABINOWITZ: As I recall, that was his
20 -- that was his conclusion.

21 MR. BALL: Let me take the panel through
22 the Hill criteria and I'd like your opinions on that.
23 Strength of association?

24 DR. RABINOWITZ: Strength of association

HEARING RE: CL&P and UI
JUNE 16, 2004

1 means do you -- do you see an effect size that seems to
2 be important or significant. And you know, if we're
3 talking about META analysis like the Ahlbom META
4 analysis, it talks about a doubling of risk. You know,
5 we feel that a doubling of risk is -- in an epidemiologic
6 study is important.

7 MR. BALL: Dose response? What is dose
8 response?

9 DR. BELL: Dose response is a very very
10 important criteria which doesn't always have to be found
11 to demonstration causation but is extremely important,
12 extremely useful in making the assessment. And it refers
13 to the relatively simple concept that if you give more of
14 an intervention, you should see more of an effect.
15 Although at some level all interventions maximize out
16 their effect, so that plateaus off so there's no longer
17 any response.

18 And in fact, what happens then is that the
19 -- it's not a one to one relationship that you double the
20 dose, you see double the effect because biology is much
21 more complicated than turning on the switch and turning
22 the reostat (phonetic) further. It's usually that it's
23 just more. So for example, when you look at the three
24 META analyses as Dr. Gerber has reviewed, at 2 milligauss

HEARING RE: CL&P and UI
JUNE 16, 2004

1 there's a 1.34 significant increase in risk of childhood
2 leukemia, at 3 milligauss there's a 1.83 odds ratio
3 significant increase in childhood leukemia, and at 4
4 milligauss there's a 2.0 or doubling significant risk of
5 childhood leukemia. That would certainly qualify for a
6 fairly robust dose response since each one is greater.
7 And we don't know but we suspect that if it's higher than
8 even 4, it would continue to go up.

9 MR. BALL: The next criterion, consistency
10 of association observed?

11 DR. RABINOWITZ: So that's -- that's the
12 question that you should put to studies saying do we see
13 something similar happening over and over again, is there
14 some sort of signal coming through all the background
15 noise that you just -- that just keeps popping out again
16 and again and again. And if you look at the papers that
17 the National Research Council reviewed, out of 53
18 studies, 45 of them showed an increased risk. When you
19 look at the three META analyses, they all show an
20 increased risk. There's just -- there's just some
21 concerning safety signal about higher levels of EMF
22 exposure and cancer that just seems to be consistently
23 coming through. And the NIHS report used the term
24 consistent when it talked about these studies. And that

HEARING RE: CL&P and UI
JUNE 16, 2004

1 term has actually been applied a lot to the epidemiologic
2 studies of cancer and childhood leukemia and EMF.

3 MR. BALL: The next criterion, specificity
4 observed?

5 DR. RABINOWITZ: Specificity means does
6 one study show an effect on this type of cancer and
7 another study show an effect on something totally
8 different or another type of cancer. And there certainly
9 have been a lot of different diseases looked at, some of
10 which are still, you know, somewhat concerning and on the
11 table, Lou Gehrig's Disease, other types of cancer. The
12 evidence just doesn't seem as good, but there's a
13 specificity when it comes to acute leukemia and children
14 where this effect is just seen repeatedly as a real
15 effect that jumps out.

16 MR. BALL: Biological plausibility for a
17 mechanism of EMF causing leukemia?

18 DR. BELL: When cancer is caused, cancer
19 is always a result of a cell in the body that keeps
20 living on and on and on, it's immortalized. And the only
21 way a cell can every time it reproduces be immortalized
22 is for there to be a change in the basic fabric of the
23 cell in the DNA. So every form of cancer is based upon
24 some sort of change in the DNA of a cell that allows that

HEARING RE: CL&P and UI
JUNE 16, 2004

1 cell to grow and grow and grow and then move all around
2 the body.

3 So the question then is are there
4 mechanisms that have been shown for -- a mechanism by
5 which EMF at environmentally appropriate levels, less
6 than a thousand milligauss can cause DNA damage and
7 cancer. And the answer is there is clear evidence in
8 animals exposed to power lines for example that these
9 animals will have damaged their DNA as opposed to animals
10 held further away from power lines. There's also clear
11 evidence of mechanisms for causing damage in animals and
12 cells of so-called free radicals. While we all take
13 Vitamin E or Vitamin C to get rid of the free radicals
14 for example. That's been show with EMF as well. And
15 importantly these have all been shown at doses, according
16 to the NIH, of doses of EMF that are within the range
17 that should be of concern, environmental ranges of EMF.
18 So yes, there's plausible mechanisms by which EMF can
19 cause cancer.

20 MR. BALL: The last criterion, a temporal
21 relationship?

22 DR. RABINOWITZ: So this is just a simple
23 one. This is did -- does an exposure happen before the
24 disease happens. And when you study a bunch of kids with

HEARING RE: CL&P and UI
JUNE 16, 2004

1 cancer are you're talking about an exposure that happened
2 before they were diagnosed with cancer. And the studies
3 -- the studies look at the exposures that happened before
4 the diagnosis of cancer and not afterwards, so yes.

5 MR. BALL: Alright. Now let me ask you a
6 different question. Dr. Cole testified that as time has
7 gone on it's become clear that EMF does not cause cancer.
8 He also I believe testified that he thought it was
9 settled scientifically. Do -- does the panel have any
10 comment on that? Do you agree?

11 DR. RABINOWITZ: Yeah, I think there's
12 been several remarks about the science has moved on or
13 this is a -- this is a settled issue. I -- that's not
14 how I see it in my field. I think there -- there
15 continues to be concern. I think these META analyses
16 have reawakened some concern. I think some of these
17 recent animal studies have -- continue the concern. So,
18 I think that this -- this continues as Dr. Ginsberg said
19 to be an open issue. And we would -- we would very much
20 like to -- just as the Health Department would much
21 prefer that we can really close certain issues and know
22 exactly what's going on, I think we have to say that this
23 continues to be a scientifically open issue and an
24 important one, and in the meantime we have to take action

HEARING RE: CL&P and UI
JUNE 16, 2004

1 or -- you have to take some action in the face of some
2 definite scientific uncertainty, but a lot of scientific
3 concern.

4 MR. BALL: Dr. Rabinowitz, tell me what
5 transient peaks are?

6 DR. RABINOWITZ: Transient peaks are just
7 peaks of an exposure that don't last continually over a
8 long period of time, so.

9 MR. BALL: Do you have any professional
10 experience with the health impacts associated with
11 transient peaks of other environmental hazards?

12 DR. RABINOWITZ: Well, I do epidemiologic
13 research on another type of physical energy, which is
14 noise and sound waves and what that does to things in the
15 body like the hearing system, and too much noise
16 destroying the hair cells of the ear. And there's
17 different ways to measure how much noise a person is
18 exposed to. One is time weighted average where you look
19 at with a dosimeter or something how much noise exposure
20 a person has had over an eight hour period or a longer
21 period. And then there's another way to look at how many
22 peaks there are and how much impulse of a noise there
23 are. We -- we found that these peaks of noise seem to
24 actually cause free radical damage at the level of the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 hair cells and that -- and that -- whether you have peaks
2 of exposure can often be more important than what your
3 time weighted average is. An example is firefighters.
4 Firefighters don't really exceed the OSHA standard for
5 noise exposures because most of the time they're sitting
6 around a quiet firehouse, then periodically they go out
7 and there's sirens and there's other incredibly loud
8 noises around a fire and those don't last very long, but
9 they're intense enough and long enough that they tend to
10 have incredible rates of hearing loss even though their
11 time weighted averages look great.

12 MR. BALL: Is there concern that transient
13 peak elevations of EMF may cause childhood leukemia?

14 MR. FITZGERALD: Objection. Wait a
15 minute. Passive tense, is there concern?

16 MR. BALL: Do you have a concern as you
17 sit here today?

18 DR. RABINOWITZ: Yeah, I have a concern
19 that time weighted average is not the only thing to look
20 at. And I think other investigators have said that
21 you've got to -- you've got to look at significant peaks
22 as well as just time weighted averages. And
23 unfortunately, this is another area of some uncertainty.
24 It's not like we can absolutely say just worry about the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 time weighted average and you'll be fine. I think
2 biologically it makes sense to be concerned about peaks
3 as well.

4 MR. BALL: And in light of that is it fair
5 to say there's every bit as much concern about EMF
6 exposure at schools and playgrounds and day care
7 facilities as there are at homes? Is that a fair
8 statement?

9 DR. RABINOWITZ: I'd say that if -- if
10 little kids are in areas where there are large peak
11 exposures for significant amounts of time, that's
12 concerning to me.

13 MR. BALL: Shifting gears again, the
14 Applicants, I believe you are aware, have suggested one
15 way to mitigate the impacts of EMF is through a split
16 phase design. Are you familiar with that?

17 DR. RABINOWITZ: I've seen their
18 submissions on that.

19 MR. BALL: Does the panel have any
20 comments in terms of whether you believe that the split
21 phase design is a solution here?

22 CHAIRMAN KATZ: Well, can we re-ask that
23 question since they're not electrical engineers?

24 DR. RABINOWITZ: Yeah, thank you --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 CHAIRMAN KATZ: Did you look at the levels
2 of milligausses that you get after split phases?

3 DR. RABINOWITZ: We've seen some of the
4 tables, yeah.

5 CHAIRMAN KATZ: Okay.

6 MR. BALL: And do those figures alleviate
7 your concerns that you've seen in those tables?

8 DR. RABINOWITZ: I'd say they don't --
9 they don't alleviate my concern. I mean they do show
10 some reduced levels, but I still have some concerns. And
11 I wish I understood the technology better.

12 I -- as Dr. Vizard said earlier, it would
13 be nice to know if there's other unmeasured things that
14 track along with the milligauss that we should be
15 concerned with. I don't know how split phase addresses
16 that. I don't know about the -- I think I saw figures
17 that had some of the split phase results right at the
18 building, but I don't know about under the line, how --
19 what the transient peaks would be under the line. And --
20 and I -- I think in occupational medicine when we're
21 trying to protect workers, there's different ways to
22 protect them, one is to -- is to use like protective
23 equipment, put respirators on people and sort of
24 interfere with something getting to the body after it's

HEARING RE: CL&P and UI
JUNE 16, 2004

1 already coming from somewhere. And the best type of
2 reduction is to -- or protection is to reduce things at
3 the source and actually get it away from people, and --
4 that's why distance seems like a much more source
5 reduction type of approach than sort of interfering with
6 the field in terms of an interference, so.

7 DR. BELL: I would just comment further
8 that, you know, as an empiricist, a lot of the
9 questioning that occurred before regarding the split
10 phase proposals, you know, as a scientist, let along as a
11 physician, which is a separate hat, a relatively modest
12 hat, as a scientist there's lots of issues one has with
13 projections and reliability, particularly when you
14 combine that then with the need to take care of people's
15 health going forward. And I think that the concern that
16 we all have that's coming through is that while there are
17 extremely imperfect studies, I think we would all agree
18 with Mr. Fitzgerald in that, you know, nothing here, none
19 of the epidemiologic studies, the human studies are
20 perfect studies and they have the flaws that they're in
21 humans. On the other hand, we understand that most of
22 the aspects of those studies really are what people can
23 measure.

24 And the WHO -- you know, Dr. Rappicoli

HEARING RE: CL&P and UI
JUNE 16, 2004

1 (phonetic), the head of the WHO EMF project, has clearly
2 laid out for everyone that one of the major flaws in all
3 of the studies that have now to date been completed is
4 that they don't accurately measure or assess for
5 transients that occur at other than 60 hertz or 50 hertz
6 depending on where they're done. And there's great
7 concern because there's enormous amounts of data in cells
8 that the transients are quite potent. There's no
9 argument as we said before at very high levels of where
10 there can be cell effects.

11 And I think that one of the concerns
12 regarding the split phase proposal is that in the case of
13 Woodbridge they are right over -- 15 gigawatt is what the
14 numbers are given -- there's no sort of reproducibility
15 or reliability data in terms of whether transients could
16 be accentuated or minimized, how frequently is the flow
17 going in each direction and whether this might exacerbate
18 or mitigate if they're occasionally out of line. In
19 addition, children are right underneath the lines and not
20 necessarily the 15 gigawatts the data that the utility
21 company presents.

22 I think all of these really lead to, you
23 know, the best observation that -- you know, we're not
24 making assessments here for the next three to six months,

HEARING RE: CL&P and UI
JUNE 16, 2004

1 but it's two generations of children.

2 MR. ASHTON: What transients do you -- are
3 you referring to?

4 DR. BELL: I'm referring to --

5 MR. ASHTON: You used the term transient
6 and I --

7 DR. BELL: Alter -- fields other than 60
8 or 50 hertz that are generated across electric lines.

9 MR. ASHTON: Are you talking about the
10 fields generated by harmonics in the 60-cycle system?

11 DR. BELL: In part, yes.

12 MR. ASHTON: I see.

13 CHAIRMAN KATZ: Be kind.

14 MR. ASHTON: Thank you.

15 MR. BALL: Is -- if I may -- is there a
16 threshold number of milligauss at which this becomes a
17 problem? Is 3 milligauss the threshold, 4 milligauss --

18 MR. FITZGERALD: Objection --

19 MR. BALL: -- do you know?

20 MR. FITZGERALD: First of all, we have an
21 unmodified it. Is there a level at which it becomes a
22 problem.

23 MR. BALL: I'm happy to clarify.

24 MR. FITZGERALD: Secondly, we don't know

HEARING RE: CL&P and UI
JUNE 16, 2004

1 the basis of the-- is he asking for their review -- for a
2 statement based on their interpretation of the research
3 that they've read, in which case I can ask other
4 questions about it, or is he just asking them for an
5 opinion in a vacuum?

6 MR. BALL: I'll clarify it. You've
7 submitted your testimony based on an analysis of many,
8 many studies, correct?

9 DR. BELL: Yes.

10 MR. BALL: Has as the Applicants' panel?
11 Correct?

12 DR. BELL: Yes.

13 MR. BALL: Having reviewed those studies
14 and that data, can one conclude, based on those studies
15 and that data, that there is a clear threshold in terms
16 of whether EMF causes childhood leukemia?

17 DR. RABINOWITZ: There's -- there's -- is
18 there a clear threshold? I think we -- in general we
19 agree with the Health Department's assessment that over 3
20 milligauss is not desirable and you should find ways to
21 get below that level.

22 CHAIRMAN KATZ: So you're saying that 3
23 milligausses would a good target for this Siting Council?

24 DR. BELL: We're actually saying that we

HEARING RE: CL&P and UI
JUNE 16, 2004

1 think that the distance is probably the most important
2 measure to take as most other -- as the Department of
3 Health has taken. And the reason for that is the unknown
4 part of what else is not identified at 60 hertz.

5 CHAIRMAN KATZ: When you say distance, do
6 you mean moving the right-of-way, making the structures
7 taller? What do you mean by distance?

8 DR. BELL: Linear distance on a horizontal
9 plane of, you know, three to five hundred feet.

10 CHAIRMAN KATZ: Three to five hundred feet
11 --

12 DR. BELL: From the mid-line.

13 CHAIRMAN KATZ: From --

14 DR. BELL: The mid-line of the tower.

15 CHAIRMAN KATZ: Okay. Assuming we've got
16 an existing right-of-way --

17 DR. BELL: Um-hmm.

18 CHAIRMAN KATZ: -- and existing houses --

19 DR. BELL: Um-hmm.

20 CHAIRMAN KATZ: -- what do you see then as
21 the solution? Not putting it on that right-of-way,
22 shifting it on that right-of-way? You said a horizontal
23 --

24 DR. BELL: Yeah, I -- right. So for the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 335 structures that have been identified to be estimated
2 at 15 gigawatts to be over 3 milligauss --

3 CHAIRMAN KATZ: Yeah --

4 DR. BELL: -- which probably is just like
5 a dartboard like that, right --

6 CHAIRMAN KATZ: Well --

7 DR. BELL: -- because it's a 15 gigawatt
8 and it's 3 milligauss and, you know, maybe the number is
9 five or six hundred structures -- you know, I think that
10 the public health approach would be to increase the
11 distance wherever possible from concentration of people
12 or children, however that's obtained.

13 CHAIRMAN KATZ: Okay, so shifting the
14 structures on the right-of-way to maximize the difference
15 -- the distance between the people and the source?

16 DR. BELL: Yeah. And I think that -- in
17 particular, I think the issue here is that -- I don't
18 feel very strongly, quite frankly, that based upon review
19 of all the data, claims for -- you know, strong claims
20 can be made for injury to adults from EMF, I don't
21 actually ascribe to that view. So, I think what we have
22 here from a public health point of view is something
23 fortunately much simpler than that, which is we have a
24 very, very, very valuable intervention here called EMF or

HEARING RE: CL&P and UI
JUNE 16, 2004

1 electricity and we have identified a very, very small
2 susceptible target population as opposed to the entire
3 population, which I don't think is grounded quite
4 frankly.

5 MR. TAIT: Why did you say just
6 horizontal? Don't you mean any linear distance, including
7 vertical --

8 DR. BELL: I think -- I think --

9 MR. TAIT: -- isn't distance --

10 DR. BELL: -- you know, for policy points,
11 I think it's easier to measure one plane, but if one
12 wants to come up with a triangulation, one can do that
13 I'm sure --

14 MR. TAIT: Or going with higher towers and
15 putting the lines higher up.

16 CHAIRMAN KATZ: But distance is distance.

17 MR. TAIT: Distance is distance --

18 DR. BELL: The problem is on some level is
19 that -- it's obviously -- the issue in general is you
20 don't want people coming underneath the lines. So if --
21 there's a false sense if you raise the lines 30 feet, the
22 answer is you still may be extremely elevated EMF below
23 the lines. You know, I think it's a policy issue of how
24 you keep people away from the lines. I think you can

HEARING RE: CL&P and UI
JUNE 16, 2004

1 address that however you see fit, but I think that's the
2 thesis I would propose.

3 CHAIRMAN KATZ: If this Council --

4 MR. TAIT: To keep people away from lines
5 --

6 CHAIRMAN KATZ: -- determines that the
7 lines cannot be underground in Woodbridge and we're
8 dealing with overhead lines, would you recommend as
9 physicians that we look at split phasing to reduce EMFs
10 or would you say --

11 DR. BELL: I would make a comment -- I
12 would make a comment first not as a physician but as a
13 manager of an organization, which is I would reject that.
14 So as someone -- as someone who -- if it was a reporting
15 basis and someone said I can't do this, usually you say
16 well I assess the risk to be like this. As a physician
17 you say well, gees, I guess you can't do it, so I guess
18 you did the best you can. So in a business sort of way
19 one sets absolutes of what your guiding principles are
20 and you try your very best to adhere to them, and there
21 has to be immovable object not to adhere to them. I
22 don't know that that's the issue here. So, I would
23 address that in a holistic way saying, you know, I would
24 readdress it.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 CHAIRMAN KATZ: Well come tomorrow we're
2 going to find out how movable the objects are.

3 DR. BELL: I -- I understand. And -- and
4 as I said my only recommendation is -- in addition to
5 Woodbridge, you know, I really think -- while, you know,
6 I'm certainly speaking -- was asked by the Town of
7 Woodbridge -- but I think it's equally true across the
8 power lines and I think it's really -- the detailed --
9 the micro-management detail of the Siting Council here is
10 a very, very substantial hurdle, which is to go through
11 everything and identify the minimum risk to a large group
12 of people --

13 MR. ASHTON: Dr. Bell --

14 DR. BELL: -- it's a very large hurdle.

15 MR. ASHTON: Dr. Bell, you indicated that
16 you would recommend increasing the distance. I'd like to
17 explore that for just a second. First of all, to what
18 purpose would you increase the distance?

19 DR. BELL: To reduce the exposure.

20 MR. ASHTON: And what level of exposure
21 are you trying -- when do you have enough distance, how
22 do I know that?

23 DR. BELL: I think that's an excellent,
24 excellent question. I think what you would want to have

HEARING RE: CL&P and UI
JUNE 16, 2004

1 is what's found in 90 percent of the homes, is, you know,
2 what we would call background levels. And particularly -
3 - again, I preface this, Mr. Ashton, as you remember by
4 focusing only on susceptible target populations, so -- as
5 drug developer, you don't throw out this for everything
6 because it doesn't make sense from a risk management
7 point of view --

8 MR. ASHTON: I hear -- I hear what you're
9 saying. I just want to be sure I clearly understand what
10 you're driving at. And what is that general level, if
11 you will, that you are -- you were eluding to? What do
12 you --

13 DR. BELL: You know, I --

14 MR. ASHTON: -- quantify it?

15 DR. BELL: I think that -- so the general
16 level is sub 1 milligauss. I think that the various
17 state agencies that have come out -- certainly Dr.
18 Ginsberg from the Department of Health is -- in their
19 facts has recommended over 300 feet. Mr. Fitzgerald and
20 I discussed New Jersey at 400 feet. The animal
21 experiments were done at 600 feet --

22 MR. ASHTON: You --

23 DR. BELL: -- so I don't think there's
24 really a material difference between all the numbers

HEARING RE: CL&P and UI
JUNE 16, 2004

1 though to be honest.

2 MR. ASHTON: Well, okay -- then 1
3 milligauss is the figure you're trying to achieve, less
4 than?

5 DR. BELL: No, I think that's a -- I think
6 that's a marker for -- because we can address actually
7 some of the other issues associated with having children
8 near the power lines. So, I --

9 MR. ASHTON: What -- what level are you
10 trying to achieve by distance?

11 DR. BELL: Actually trying to achieve the
12 theoretical dissipation to background, there's the
13 answer. In an ascendent way as you come back down, you
14 can pick the number, or ascendentally you --

15 MR. ASHTON: No, I'm asking you to pick
16 the number, this is your --

17 DR. BELL: Okay, I say 300 plus --

18 MR. ASHTON: -- this is your call and I'm
19 trying to find out what it is --

20 DR. BELL: Three hundred plus.

21 DR. GERBER: Feet.

22 MR. ASHTON: Three hundred what?

23 DR. BELL: Three hundred feet plus.

24 MR. ASHTON: Three hundred -- and why

HEARING RE: CL&P and UI
JUNE 16, 2004

1 three hundred feet plus? If -- first, that's a very
2 indeterminate number to an engineer. And second of all -

3 -

4 DR. BELL: No, it's giving you the luxury
5 of choice.

6 MR. ASHTON: No, I'm asking your choice.
7 This is my question and time to ask for your opinion --

8 DR. BELL: Unfortunately, it's not my job
9 --

10 MR. ASHTON: I'll have to give you my
11 opinion at some due point in time -- (laughter) --

12 DR. BELL: I understand --

13 MR. ASHTON: -- but I'm trying to get your
14 opinion --

15 DR. BELL: I'm preparing myself. I
16 understand.

17 MR. ASHTON: I'm trying to get your
18 opinion as to what you think --

19 DR. BELL: Yes --

20 MR. ASHTON: -- is a quantified level that
21 is acceptable?

22 DR. BELL: A quantified level of feet?

23 MR. ASHTON: Of EMF.

24 DR. BELL: Well as I said, I think it's

HEARING RE: CL&P and UI
JUNE 16, 2004

1 lower than background. And the reason for it is that the
2 data that exists -- just if we lay it all out, truly as
3 an empiricist --

4 MR. ASHTON: Okay --

5 DR. BELL: -- which --

6 MR. ASHTON: -- wait a minute --

7 DR. BELL: -- the data is that there's a
8 linear relationship --

9 MR. ASHTON: Let's go slowly --

10 DR. BELL: Okay --

11 MR. ASHTON: -- let's go slowly. What is
12 in your opinion the background, quantified please?

13 DR. BELL: At 60 hertz?

14 MR. ASHTON: Yeah.

15 DR. BELL: 1 milligauss or less.

16 MR. ASHTON: Okay. So 1 milligauss or
17 less is the level --

18 DR. BELL: At 60 hertz.

19 MR. ASHTON: 1 milligauss or less is the
20 level you're trying to achieve --

21 DR. BELL: For children.

22 MR. ASHTON: For --

23 DR. BELL: No, no, only for susceptible
24 target populations. I'm just saying --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. ASHTON: Are you proposing to have one
2 distance for children and one distance for the rest of
3 the population?

4 DR. BELL: I'm actually not proposing
5 anything as a matter of public policy. I'm saying as a
6 matter of risk benefit --

7 MR. ASHTON: You're --

8 DR. BELL: Yeah --

9 MR. ASHTON: You're laying on the Council
10 a responsibility to make a determination here. And I'm
11 trying to get quantified numbers from you as to what your
12 recommendations are. So, I'd be -- I really want you to
13 be helpful to me here, and -- you know -- but I can't
14 have a level for children under six and a level for
15 children over six, a level for teenagers and a level for
16 adults and a level for seniors. I've got to have one
17 level period. What's that level --

18 DR. BELL: Three hundred feet --

19 MR. ASHTON: -- did you tell me 1
20 milligauss --

21 DR. BELL: No, I said 300 feet --

22 MR. ASHTON: I want -- I want a level.

23 CHAIRMAN KATZ: I think you've gotten your
24 answer, Mr. Ashton.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. ASHTON: Well, wait a minute, Madam
2 Chairman, there's a point here to be made --

3 DR. BELL: Yes --

4 MR. ASHTON: If I can achieve that level -
5 - you're saying 350 feet and that presumably --

6 DR. BELL: I said 300, yes -- I said 300
7 feet, but --

8 MR. ASHTON: Okay. That 300 feet is
9 presumably going to give me a level of EMF, is that fair
10 to say?

11 DR. BELL: Actually --

12 DR. RABINOWITZ: A background level --

13 DR. BELL: -- as we all know, it will be
14 variable depending on what the voltage and the current
15 is.

16 MR. ASHTON: Okay. Suppose I can -- let
17 me just for argument sake say -- put a number in your
18 mouth, forgive me here --

19 DR. BELL: I would appreciate it --

20 MR. ASHTON: -- it's for illustration only
21 --

22 DR. BELL: Yes.

23 MR. ASHTON: -- suppose we are trying to
24 achieve 1 milligauss --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. BELL: Um-hmm.

2 MR. ASHTON: -- and suppose I have to go
3 500 feet for that, you would look for 500 feet?

4 DR. BELL: You mean -- I'm just trying to
5 sense -- we're on a different planet with different
6 physics --

7 MR. ASHTON: The distance now -- you
8 talked --

9 DR. BELL: Yeah, sure. I'd actually say -
10 - back down to background, yes.

11 MR. ASHTON: Okay. And if it could be
12 achieved in 50 feet, would that be acceptable?

13 DR. BELL: At all other frequencies other
14 than 60 hertz?

15 MR. ASHTON: Sixty hertz we're talking --

16 DR. BELL: I don't -- no, actually --

17 MR. ASHTON: -- 60 hertz is --

18 DR. BELL: -- no, my comment actually has
19 always been predicated by other than at 60 hertz. Every
20 time you ask me the question, I say I'm concerned also
21 about the transients and harmonics, alright. And that's
22 part of the reason for focusing also on a distance,
23 because you and I -- at least I speak for myself, I know
24 I'm not so smart, I'm confident of that. And that's why

HEARING RE: CL&P and UI
JUNE 16, 2004

1 I take caution in what I do. Also as a matter of public
2 policy -- if I were implementing policy, I would much
3 prefer a distance on a map to measure to implement than I
4 would having guys with their little 60 hertz measurements
5 go out and check every once in awhile just as a matter of
6 policy.

7 MR. ASHTON: Okay, I'll pass.

8 CHAIRMAN KATZ: Okay

9 MR. ASHTON: Thank you.

10 CHAIRMAN KATZ: Great. Back to you, Mr.
11 Ball.

12 MR. BALL: The last question. Gentlemen,
13 were you present when Dr. Ginsberg testified?

14 DR. BELL: Yes.

15 DR. RABINOWITZ: Yes.

16 MR. BALL: Were there any items with which
17 you disagreed that Dr. Ginsberg testified to?

18 DR. BELL: No.

19 DR. RABINOWITZ: In general we really
20 agree with what the Health Department and Dr. Ginsberg
21 has put forward. And I just would add the additional
22 caution -- I mean Dr. Ginsberg talked about a certain EMF
23 level. I just would add caution, especially around kids
24 where there's lots of, you know, potential for transient

HEARING RE: CL&P and UI
JUNE 16, 2004

1 peak exposures.

2 MR. BALL: Thank you. I have no further
3 questions.

4 CHAIRMAN KATZ: Thank you, Mr. Ball. Next
5 is Milford, questions? Can I have a show of hands of
6 other parties and intervenors who will be cross-examining
7 this panel. Thank you.

8 MS. KOHLER: For the record, Julie Kohler
9 for the City of Milford.

10 These questions are probably most aptly
11 answered by Dr. Bell, but please any other members of the
12 panel feel free to answer. I -- gentlemen, I provided
13 you with a copy of the documents that I'll be referring
14 to for your ease of reference and I'd ask you to take a
15 look at the updated Table A3. It's entitled Edge of
16 Right-of-Way and Magnetic Field Values for Proposed and
17 Alternative Line Configurations. It looks like this.

18 DR. BELL: Yes.

19 MS. KOHLER: And it's dated March 12th and
20 it's Exhibit 35. The Applicants' have designated the
21 section of the right-of-way which includes the City of
22 Milford as Cross-Section 8, which you'll find midway down
23 the page. The value of the anticipated magnetic field at
24 peak load is anticipated at 31.4 milligauss in the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 east/south right-of-way and 54.8 milligauss in the
2 west/north right-of-way. Could this level of EMF be
3 potentially dangerous to people, particularly children
4 living near, within the right-of-way, or adjacent to the
5 right-of-way?

6 DR. BELL: Yes, it would be considered
7 potentially dangerous to children.

8 MS. KOHLER: Thank you. More specifically
9 there are several dense residential locations along this
10 right-of-way in Milford. I'd ask you to look at a table
11 entitled Measured and Calculated Electric Magnetic Fields
12 at Residences in Milford Adjacent to the Proposed Route.

13 It looks like this.

14 DR. BELL: Yes.

15 MS. KOHLER: And it's dated May 7th --

16 CHAIRMAN KATZ: Just --

17 MS. KOHLER: -- and it's Exhibit 80 --

18 CHAIRMAN KATZ: Miss Kohler, just back --
19 what exhibit again are you on?

20 MS. KOHLER: Exhibit 80.

21 CHAIRMAN KATZ: Thank you.

22 MS. KOHLER: Several of these dense
23 residential areas are included in the table and I'll just
24 pick two of them. The Woodruff Road area, which is about

HEARING RE: CL&P and UI
JUNE 16, 2004

1 halfway down that table, the anticipated magnetic field
2 at the west/north right-of-way at peak load will be 34.1
3 milligauss. The aerial map shows a house within 25 feet
4 of this right-of-way. Could the EMF levels at 34
5 milligauss be potentially dangerous to such residents
6 located within 25 feet of the right-of-way?

7 DR. BELL: Well, while one can't predict
8 whether obviously, as we discussed before, EMF would hurt
9 any particular individual, the likelihood of there being
10 a risk is certainly significantly elevated for people
11 close to that level of EMF.

12 MS. KOHLER: Thank you. And at Lexington
13 Green, which is the next location down, Lexington Green,
14 or it's referred to as Lexington Way, the anticipated
15 magnetic field at the west/north right-of-way at peak
16 load will be 39.5 milligauss. The appurtenant aerial map
17 shows a house within 17 feet of the right-of-way. I'd
18 ask you the same question, could the EMF levels within 17
19 feet of the right-of-way be potentially dangerous?

20 DR. BELL: Yes. Again, while one would
21 not necessary predict that a particular house, you know,
22 exposed to a great level of EMF as this would be
23 associated with cancer, one can certainly conclude that
24 there would be significantly increased risks with this

HEARING RE: CL&P and UI
JUNE 16, 2004

1 exposure.

2 MS. KOHLER: Thank you. And finally, I'd
3 ask you to look at updated Table A1, which is entitled
4 Measured and Calculated Electric and Magnetic Fields. It
5 looks like this --

6 DR. BELL: Yes --

7 MS. KOHLER: -- it's also included at
8 Exhibit 35. In this table, approximately halfway down,
9 is a location identified as Eisenhower Park and is
10 further identified as bleachers/playing field. At peak
11 load the anticipated magnetic field is 34 milligauss.
12 Could this level of electric -- of EMF be potentially
13 dangerous to the people, particularly children who will
14 be playing in and around the baseball field and park?

15 DR. BELL: Again, while one could not
16 predict that a particular set of children playing at a
17 park would be more likely to have cancer per say, one can
18 expect that exposure at this level would increase the
19 risks, roughly doubling the risk of leukemia.

20 MS. KOHLER: Thank you. That's all my
21 questions.

22 MR. ASHTON: Is that time driven --
23 (indiscernible) -- excuse me -- is that time drive also
24 the exposure --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. BELL: Yes --

2 MR. ASHTON: -- in other words to reduce
3 it to an absurdity, if I walk transversely underneath the
4 line and I'm a six-year-old child, that's one exposure.
5 If I'm playing up and down underneath the right-of-way,
6 that's another exposure for a long period -- for a longer
7 period of time --

8 A VOICE: Right --

9 MR. ASHTON: -- is there any material
10 difference between the two?

11 DR. BELL: I think that what one can
12 imagine is that with certain levels -- obviously it all
13 comes out in the wash in that you can have several hours
14 a day of exposure to something maybe 10 to 20 times over
15 a safe threshold and one would expect that you'd actually
16 be way over the limit. But you're absolutely right, one
17 can actually have a time weighted average, as Dr.
18 Rabinowitz has stated certainly, as we know for other
19 physical insults to individuals, sensitive populations.
20 You can have transient elevations which could be
21 dangerous as well.

22 DR. RABINOWITZ: Can I add to that? You
23 know, there is probably a difference between walking
24 right past a power line and moving past and only being

HEARING RE: CL&P and UI
JUNE 16, 2004

1 there for a few seconds and spending an hour here. If --
2 in terms of your total daily dose it makes a difference,
3 we've talked about appliances in the home and things like
4 that, yes there is some EMF around them, but the -- we
5 know that the actual amount that kids are getting from
6 those home appliances is not very much either because
7 they're just a little farther away or they just aren't
8 around it very much because the average exposure of kids
9 in a home is still -- is still very low, around a
10 milligauss. So that that is very different from spending
11 an hour under a 60 or a hundred milligauss field where
12 just spending that hour if you -- if you break it out for
13 the 24 time -- in a 24-hour time weighted average, you're
14 up in the -- you know, in the larger numbers just from
15 that hour under 60 or a hundred hours, you're already --
16 you're already over 8 or 10 milligauss for that --

17 DR. BELL: But your point is well taken
18 that it's just not that instantaneous.

19 MR. ASHTON: It's time related.

20 DR. BELL: I think that's --

21 MR. ASHTON: Thank you.

22 CHAIRMAN KATZ: Thank you. Next is Mr.
23 Stone. And Mr. Stone will be followed by Mr. Wertheimer.
24 And can I have a show of hands of anyone else who's

HEARING RE: CL&P and UI
JUNE 16, 2004

1 crossing on this. Okay. After that, we're going to have
2 the break and then we're going to get DOT, who has been
3 very patient.

4 COURT REPORTER: Could you --

5 MR. STONE: Brian Stone --

6 MR. EMERICK: Are we going to get to --

7 CHAIRMAN KATZ: Yes, I'm sorry --

8 MR. STONE: -- for the Town of Orange --

9 CHAIRMAN KATZ: -- Council members then
10 DOT, yes.

11 MR. STONE: I have a question for Dr.
12 Bell. Good afternoon, Dr. Bell.

13 DR. BELL: Good afternoon, Attorney Stone.

14 MR. STONE: A follow-up to some of the
15 questioning by Attorney Fitzgerald. Based on your review
16 of the literature, would insulation to avoid direct
17 contact with magnetic field induced current in water
18 pipes be adequate mitigation of the risks of childhood
19 leukemia from EMF produced by high voltage lines?

20 DR. BELL: The answer is it's unlikely to
21 be true. And -- and the reason for that is that the --
22 all of the other laboratory experiments that are cited in
23 the most recent June 7th filing by the Town of Woodbridge
24 and associates really are independent of any contact

HEARING RE: CL&P and UI
JUNE 16, 2004

1 current at all. They talked about levels of EMF exposure
2 that is entirely magnetic field driven and associated
3 with direct damage to DNA, you know, the sort of changes
4 in the genes of cells and animals. So one wouldn't
5 really expect that to have an impact.

6 MR. STONE: Thank you. I have nothing
7 further.

8 MR. TAIT: Mr. Wertheimer.

9 MR. WERTHEIMER: Good afternoon. Michael
10 Wertheimer for the Office of the Attorney General.

11 I'd like to take you back to an issue that
12 was raised the last time you were here, I think it was
13 May 13th, and you were asked about the relative risks of
14 EMF from transmission lines versus EMFs from common
15 household appliances. Do you recall that discussion?

16 DR. RABINOWITZ: Yes.

17 MR. WERTHEIMER: Okay. Dr. Rabinowitz, I
18 think it was you that testified at the time that such a
19 comparison would be a mistake because one step away from
20 the appliance reduces the EMF levels. Do you recall that
21 response?

22 DR. RABINOWITZ: I do.

23 MR. WERTHEIMER: Okay. Is it fair to say
24 then that one difference when you're analogizing EMF from

HEARING RE: CL&P and UI
JUNE 16, 2004

1 power lines versus appliances is proximity?

2 DR. RABINOWITZ: Correct.

3 MR. WERTHEIMER: Are there other
4 differences that you're aware of when you're -- to
5 distinguish between household appliances and transmission
6 lines?

7 DR. RABINOWITZ: When -- when you're near
8 a household appliance it's sort of unidirectional, you
9 take a step back and you really get out of the field.
10 When you're in a -- when you're near a power line, you're
11 pretty much enveloped in a field and you can't take a
12 step one way or the other and make any difference. And
13 the other is that, you know, in household appliances you
14 have certainly some choice about whether to stand right
15 next to them or not. And if it's a power line and you
16 happen to live next to it or have a school next to it,
17 there's much less free choice involved.

18 MR. ASHTON: How would -- (indiscernible)

19 --

20 AUDIO TECHNICIAN: Hang on a second --

21 MR. ASHTON: Sorry. How would that --

22 DR. RABINOWITZ: I'm sorry?

23 MR. ASHTON: -- how would that apply to an
24 electric blanket? How would that reasoning apply to an

HEARING RE: CL&P and UI
JUNE 16, 2004

1 electric blanket?

2 DR. RABINOWITZ: I would say that you have
3 some choice about whether to use an electric blanket or
4 not.

5 MR. ASHTON: But you can't step away from
6 it, can you? Once you're using it, you're using it and
7 you're right smack approximate to --

8 DR. BELL: Well, you're not mandated by
9 law to use an electric blanket, but you are mandated by
10 law to attend public schools.

11 MR. ASHTON: I understand, I understand --

12 DR. BELL: But in terms of --

13 MR. ASHTON: -- I'm just trying to get at
14 the difference here. The point was made that by stepping
15 away from the appliance, you reduce the exposure. And
16 I'm asking the question how does that work for an
17 electric blanket?

18 DR. RABINOWITZ: I'd say for electric
19 blankets you're stuck with whatever you're stuck with
20 overnight, yeah.

21 DR. BELL: Also the State of Connecticut
22 recommends obviously that -- limit the exposure to
23 electric blankets presumably for that reason.

24 MR. WERTHEIMER: In fact, doesn't the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 State -- doesn't the DOH fax sheet say that if you're
2 going to use an electric blanket, you can warm up the bed
3 --

4 DR. RABINOWITZ: Right --

5 MR. WERTHEIMER: -- before you get into
6 it, and then when you get there, turn it off?

7 DR. RABINOWITZ: Presumably just for that
8 reason.

9 MR. WERTHEIMER: Okay.

10 MR. TAIT: It's too hot to talk about that
11 subject, let's move on.

12 DR. RABINOWITZ: Fair enough.

13 MR. WERTHEIMER: Isn't it also true that -
14 - with respect to household appliances, you as a
15 homeowner control when they're on and when they're off?

16 DR. RABINOWITZ: It depends on how many
17 kids you have and --

18 A VOICE: Yeah.

19 MR. WERTHEIMER: You do your best --

20 A VOICE: Optimally.

21 MR. WERTHEIMER: Okay, but you don't have
22 the same measure of control over the operation of a 345-
23 kV power line, do you?

24 DR. RABINOWITZ: That's correct.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. WERTHEIMER: Okay. And another
2 distinction -- would you agree that another distinction
3 is -- between common household appliances and power lines
4 is that right now the Council is considering the
5 construction of a 345-kV power line that's not there yet?
6 Do you --

7 DR. RABINOWITZ: Correct --

8 MR. WERTHEIMER: -- follow? We're in the
9 planning stages, right?

10 DR. BELL: We're in the planning stages of
11 something that would likely last two generations as well.

12 MR. WERTHEIMER: And how does that affect
13 the analogy between appliances and the power lines that
14 are the subject of this case?

15 DR. RABINOWITZ: You're basically taking a
16 population, especially children who have no legal
17 resource and exposing them to a hazard that we have real
18 concerns about.

19 MR. WERTHEIMER: Is it true that you have
20 an opportunity at this point to take measures to limit
21 that risk?

22 DR. RABINOWITZ: Yes.

23 MR. WERTHEIMER: It's as if you're
24 shopping for an appliance and you're deciding whether you

HEARING RE: CL&P and UI
JUNE 16, 2004

1 want it, where you're going to put it in your house, and
2 how you're going to run it?

3 DR. BELL: The general concept versus
4 build versus new --

5 MR. TAIT: Mr. Wertheimer --

6 DR. RABINOWITZ: -- versus renovate --

7 MR. TAIT: -- we're departing from these
8 witnesses expertise and getting into argument. Ask
9 factual questions please.

10 MR. WERTHEIMER: Okay. Just to sum it up,
11 from your expert -- in your expert opinion do you -- what
12 is your opinion on the analogy that has been drawn
13 between EMF from household appliances and EMFs as it
14 relates to the proposed power line?

15 DR. RABINOWITZ: I think it's a misleading
16 analogy.

17 DR. BELL: I would just add, Attorney
18 Wertheimer, I think it's misleading, and it obviates the
19 role of the State --

20 MR. TAIT: I think you've answered the
21 question.

22 MR. WERTHEIMER: Thank you. I'll move on.
23 Were you here for the testimony of Dr. Cole and Dr.
24 Ginsberg?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. BELL: Yes.

2 DR. RABINOWITZ: Yes.

3 MR. WERTHEIMER: Okay. Did you hear
4 Council Member Ashton ask the same question of both of
5 those -- and I'd like to post the question to you -- he
6 asked those two doctors to evaluate the relative health
7 risks presented by EMFs from power lines versus other
8 general health risks that people face during the daily
9 course of their lives. And I'd like to get your opinion
10 on that same question?

11 DR. RABINOWITZ: I'd say what's different
12 about EMF is we're talking about a small number of people
13 in the population being exposed at a level that the
14 literature gives some concern about and -- but for those
15 -- for that small segment of the population there's -- it
16 is at the level of health risks that we would care about
17 other cancer causing hazards as Dr. Ginsberg said.
18 Unfortunately, that's -- it's -- you know, the number of
19 people exposed at that high exposure group is not that
20 great. And that's fortunate.

21 MR. WERTHEIMER: From a --

22 MR. ASHTON: Mr. Wertheimer, may I just
23 pick up on that since I asked --

24 MR. WERTHEIMER: It was your question,

HEARING RE: CL&P and UI
JUNE 16, 2004

1 sure.

2 MR. ASHTON: I --

3 AUDIO TECHNICIAN: Grab a microphone, Mr.
4 Ashton.

5 MR. ASHTON: Okay. I was -- what I was
6 poking at was the relevance of the risk of EMF compared
7 to other health related threats, if I may, carbon
8 monoxide, smog, what have you. And I'm not quite sure
9 you were responsive in that regard.

10 DR. RABINOWITZ: Okay. If you ask me
11 about carbon monoxide or smog, you're talking about, you
12 know, millions of people being exposed to risks that are
13 probably not doubling necessarily -- you know, at levels
14 that don't necessarily double the risk of something.
15 With EMF we're talking about a smaller subset of the
16 population being exposed at a high enough level that
17 their cancer risk could double if you -- if we can
18 believe what's in the epidemiologic studies. So is this
19 the largest -- you know, we're all talking about a rare
20 cancer here. So is -- is EMF going to cause a wide
21 spread epidemic of many different types of cancer all
22 across the population? That's not what we're saying.
23 We're saying for young kids with the most common type of
24 childhood cancer but still a fairly rare cancer, those --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 those relatively small number of kids that are in the
2 high exposure category, you should worry about them. Is
3 that helpful?

4 MR. TAIT: Enough.

5 MR. WERTHEIMER: Just let me follow-up
6 briefly --

7 MR. TAIT: Mr. Wertheimer --

8 MR. LYNCH: Dr. Rabinowitz --

9 DR. RABINOWITZ: Yeah?

10 MR. LYNCH: -- just a follow-up to that --

11 AUDIO TECHNICIAN: Hang on a second.

12 MR. LYNCH: Yeah. Just one follow-up to
13 Mr. Ashton. The small group that you're talking about
14 exposed to EMF, the children, is that one reason that we
15 see very little money being spent in this area as far as
16 the overall cancer research? There's millions and
17 billions of dollars being spent. Why -- is this small
18 number an indication of why so very little is being spent
19 in this area?

20 DR. RABINOWITZ: Well, I think a lot of --

21 MR. FITZGERALD: I'll object --

22 DR. RABINOWITZ: -- NIH money has been
23 spent on this --

24 MR. FITZGERALD: I'll object to the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 question as having no foundation. It's been testified
2 there's been -- the Federal Government spent 40 million
3 dollars on --

4 MR. LYNCH: I thought it was 60 million,
5 but --

6 DR. RABINOWITZ: I guess it depends on
7 what you think a lot is.

8 A VOICE: I mean -- go with it --

9 MR. TAIT: Junk change, yes. Let's move
10 on. Mr. Wertheimer, you have questions?

11 MR. WERTHEIMER: No. I think that will do
12 it.

13 MR. TAIT: Thank you. Fred, do you have
14 some questions?

15 MR. CUNLIFFE: I do, thank you. I just
16 want to get clear, the susceptible population you speak
17 to are children. Could you define an age range?

18 DR. BELL: Nineteen and less.

19 MR. TAIT: I thought you were talking
20 about young children in your testimony? You're talking
21 about up to 19 --

22 DR. BELL: Yeah, the -- acute lymphocytic
23 leukemia occurs in 0 to 19. The preponderance as we
24 discussed in the Green study actually occurs in 0 to 6

HEARING RE: CL&P and UI
JUNE 16, 2004

1 year-olds --

2 MR. TAIT: Okay --

3 DR. BELL: -- but you know, it's -- the
4 answer is it goes -- as you get lower, it gets higher
5 propensity.

6 MR. TAIT: It disappears at 19?

7 DR. RABINOWITZ: It doesn't --

8 DR. BELL: It gets much lower --

9 DR. RABINOWITZ: It gets much lower, and -
10 -

11 DR. BELL: -- but you're right, the
12 greatest incidence is in, you know, less than six-year-
13 olds.

14 MR. TAIT: In other words, a primary
15 school would be much more susceptible than a high school?

16 DR. BELL: But the high school would be
17 much more susceptible than you and I.

18 MR. TAIT: Yeah -- yes, but --

19 MR. CUNLIFFE: And would that age range be
20 consistent with the Department of Public Health's age
21 ranges that they've tracked tumors and cancers?

22 DR. BELL: I'm not familiar with their
23 tracking.

24 MR. CUNLIFFE: Okay.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. TAIT: Fred, do you know what that age
2 range is and put it in a question?

3 MR. CUNLIFFE: The age range is between 0
4 and 19. And we do have that information as testimony
5 from Dr. Ginsberg. I just wanted to see if he --

6 (Multiple voices overlapping,
7 indiscernible)

8 DR. BELL: (Indiscernible) -- cut at 15 or
9 19, so it's, you know, roughly the same.

10 MR. CUNLIFFE: You -- I believe you may
11 have testified about studies regarding power lines and
12 animals. Is -- did we hear that right?

13 DR. BELL: That is correct.

14 MR. CUNLIFFE: Could you identify --

15 MR. TAIT: Is that in evidence?

16 DR. BELL: I'm sorry?

17 MR. TAIT: Is that in evidence in your --

18 DR. BELL: Yes, sir --

19 MR. TAIT: -- in one of the attachments to
20 your --

21 DR. BELL: Actually, it's one of the ones
22 that Mr. Fitzgerald and I were discussing. It's
23 Reference 3 to our June 7, 2004 filing, the first author
24 was Dr. Svedenstal.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. CUNLIFFE: Okay, thanks. I just --

2 DR. BELL: And she described that -- she
3 put mice directly below power lines. And then as a
4 control group had mice 600 to 1500 feet away and
5 demonstrated that there was a highly significant increase
6 in DNA damage and also damage to white blood cells, which
7 are the cells as we know that give rise to leukemia, in
8 the animals only exposed right underneath the power lines
9 for 32 days as opposed to animals 600 feet to 1500 feet
10 away. It kind of brings the laboratory out into the
11 field as we would say, alright.

12 MR. CUNLIFFE: In your testimony you had
13 spoke to the California Public Health's fax sheet. And
14 in that fax sheet it identified some distances from
15 particular voltages. 345 was not in that group --

16 DR. BELL: Pretty striking, huh?

17 MR. CUNLIFFE: Yes. Could you explain?
18 Have you done a little bit of homework on why that was
19 absent of California's Public Health --

20 DR. BELL: We had a social discussion
21 before about living in California, but I'm not sure that
22 I can explain why it's missing from --

23 MR. CUNLIFFE: Okay --

24 DR. BELL: -- the California Department of

HEARING RE: CL&P and UI
JUNE 16, 2004

1 Education's guidelines.

2 MR. CUNLIFFE: Thanks.

3 DR. BELL: But it was a striking omission,
4 I agree.

5 MR. CUNLIFFE: There's been many findings
6 and conclusions done by state, federal, and global
7 entities regarding electric magnetic fields. But since
8 then those META analyses came out, is that right?

9 DR. BELL: I'm sorry, you say there are --
10 there have been many conclusions?

11 MR. CUNLIFFE: There's been many findings
12 and conclusions done by state agencies, federal agencies,
13 and global organizations, and most of those came out
14 probably pre-1999?

15 DR. BELL: Many is in the eye of the
16 beholder. I think there certainly are some that occurred
17 earlier that have been updated, some that occurred
18 earlier that have not been updated, and some certainly as
19 you refer that are much more recent, '03, '04.

20 MR. CUNLIFFE: And these META analyses --

21 DR. BELL: No, no, the -- I'm sorry, the
22 state --

23 MR. CUNLIFFE: Yes --

24 DR. BELL: Yes.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. CUNLIFFE: Now we're going to go to
2 the META analyses. And those were published in 2000 and
3 2001. They may or may not have been included in those
4 agencies' conclusions?

5 DR. BELL: Well certainly in the '97 one,
6 the National Research Council in 1997, they certainly
7 were not included there.

8 DR. RABINOWITZ: And they were not
9 included in the NIHS report.

10 DR. BELL: They were cited in part in the
11 IARC, the one that labeled EMF as a Group 2B carcinogen.
12 And they certainly were cited in the State of Connecticut
13 -- excuse me, I apologize, I misspoke -- the State of
14 California evaluation as well.

15 MR. CUNLIFFE: And how significant would
16 these META analysis have been to these evaluators? Do
17 you think it would have changed their mind a little bit -
18 -

19 MS. RANDELL: Mr. Vice Chairman, I object.
20 It's highly speculative asking the witness whether he
21 thinks that META analyses would have affected people in
22 other states and other agencies.

23 MR. CUNLIFFE: I'll go on with my next
24 question. What weight would you give these META analyses

HEARING RE: CL&P and UI
JUNE 16, 2004

1 -- or how should the Council weigh these META analyses in
2 their decision?

3 DR. BELL: I think -- I think, you know, I
4 would comment on two aspects before I would comment about
5 the META analysis. I think that it's -- I'm sorry? I
6 think it's very important that the NIH -- the NIHS laid
7 out road work actually of what they thought ought to be
8 done. And I think it would all fair to agree that we all
9 believe certainly back in the mid 90's that the weakest
10 part of the evidence regarding EMF was the laboratory
11 lack of -- a clear demonstration of mechanism action of
12 cause and cancer. And that really is I believe what has
13 stayed the hand of many people, whether they be state
14 agencies or not, in recommending, you know, stricter
15 guidelines So, I think that -- before Dr. Gerber
16 mentions regarding the META analysis, I think that the
17 emerging data that's come out focused on low dose EMF
18 causing gene mutations in animals since the '99/2000
19 period, I think that's been very very important. And
20 certainly as we heard Dr. Ginsberg testify, that was
21 meaningful how Dr. Ginsberg reached his conclusion of
22 that new data. Dr. Gerber.

23 DR. GERBER: I think as we -- as I
24 described earlier, and I believe it's a consensus, the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 META analysis were well done. And despite a variety of
2 methodological difficulties they paint a very consistent
3 picture, there's a doubling of leukemia risk once you get
4 to elevated levels of exposure to EMFs, and that's a very
5 striking safety warning that's speaking to us through
6 this data. And I think that, as Dr. Ginsberg stated in
7 his testimony, this is something that health officials
8 will -- it's implicit in his testimony as he described
9 his own reaction to these META analyses, this is
10 something I believe that health -- public health
11 officials will be taking note of as we go forward.

12 MR. CUNLIFFE: Thank you. Mr. Bell, I'm
13 going to go back to what Mr. Ashton was trying to drive
14 at, and that's the distance for the milligauss level that
15 drives the boundary threshold of where we want to be from
16 a right-of-way. And you've pretty much definitively said
17 distance. Is that where you want to stand?

18 DR. BELL: Some distance, yes.

19 MR. CUNLIFFE: And any distance? Did you
20 say 300 feet or you're not --

21 DR. BELL: I think what I said was 300
22 plus.

23 MR. CUNLIFFE: Okay.

24 DR. BELL: You know, I think that -- I

HEARING RE: CL&P and UI
JUNE 16, 2004

1 came to that for two reasons. One is from an uncertainty
2 principle of what the actual and siting issues for
3 causing cancer based upon laboratory studies. And
4 second, based upon a policy initiative, it seems like it
5 would be easier to put that in place broadly as opposed
6 to sort of 60 hertz measurements randomly.

7 MR. CUNLIFFE: Or maybe a wider boundary,
8 like 500 feet or a thousand --

9 DR. BELL: Whatever the distance would be
10 is an easier policy measure.

11 MR. CUNLIFFE: Thank you. Those are my
12 questions.

13 MR. TAIT: Brian -- oh, Bob.

14 MR. ROBERT K. ERLING: I have a question
15 for both Dr. Bell and Dr. Rabinowitz --

16 MR. TAIT: Would you identify yourself for
17 the record.

18 MR. ERLING: Mr. Erling.

19 COURT REPORTER: Spell your name please.

20 MR. ERLING: E-r-l-i-n-g -- (laughter) --
21 as you well know.

22 Dr. Bell and Dr. Rabinowitz, what is there
23 in your opinion that makes the population between 0 and
24 19 years of age more susceptible to EMF than the rest of

HEARING RE: CL&P and UI
JUNE 16, 2004

1 the population? Is it something to do with the immune
2 system or are there other factors in your opinion?

3 DR. RABINOWITZ: It's the -- you know, we
4 feel that young children at -- they're rapidly
5 developing, their organs are growing, their bone marrow
6 is expanding, they have a rapid turnover of cells, and
7 that they also have a greater surface -- surface ratio in
8 terms of exposure to a lot of things, and we just feel
9 that there is --

10 MR. TAIT: I don't understand that last
11 comment --

12 DR. GERBER: Okay --

13 MR. TAIT: -- surface exposure. They're
14 smaller --

15 DR. RABINOWITZ: They're smaller, but they
16 have -- you know, the amount of body surface is greater -
17 -

18 MR. ASHTON: Surface to volume ratio
19 you're talking about?

20 MR. TAIT: I'm confused.

21 DR. RABINOWITZ: Yeah --

22 MR. ASHTON: I don't understand either.

23 MR. FITZGERALD: Surface to mass --

24 DR. RABINOWITZ: Yeah --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. TAIT: They're small --

2 DR. RABINOWITZ: Yeah --

3 MR. TAIT: -- so they have more skin per
4 pound?

5 DR. RABINOWITZ: Yeah.

6 MR. TAIT: Okay.

7 DR. RABINOWITZ: So they're -- and -- but
8 I think the rapid development of organs is talked about
9 the most and we think that makes them more susceptible to
10 hazards in the environment.

11 MR. TAIT: And that's why 19 you sort of
12 cut it off, is that they're fully grown?

13 DR. RABINOWITZ: Their growing rate slows
14 down.

15 DR. BELL: I would only add to that, Mr.
16 Erling, is that certainly in the case of, you know,
17 exposure to toxins as Dr. Rabinowitz has, but in regard
18 to cancer it's widely understood now that -- you know, we
19 have a surveillance system in ourselves, and that
20 surveillance system is meant to sort of identify nascent
21 or early cancers and kill them in the body, and that
22 surveillance system is called our immune system. And
23 certainly, you know, it's very clear that as the neonate
24 is obviously very dependent upon his or her mother to

HEARING RE: CL&P and UI
JUNE 16, 2004

1 reconstitute their immune system until they sort of
2 develop their own, that development in the immune system
3 doesn't occur right away, it takes a number of years for
4 it become competent. And in fact, that's actually one of
5 the reasons that some of these cancers will evolve early
6 on, because the surveillance system, the sentries in our
7 body, the immune system is incapable or not as capable as
8 we'd like it to be.

9 It turns out that electromagnetic fields,
10 as described in the Svedenstal study and other studies,
11 the one where they put the animals under the power lines,
12 actually injures some parts of that immune system, some
13 of the white blood cells which are called quite aptly,
14 quite frankly, killer cells because they spend their day
15 trying to kill off tumors and so forth --

16 MR. CUNLIFFE: Are they also known as --

17 DR. BELL: -- so it would make sense
18 actually --

19 MR. CUNLIFFE: Are those also known as
20 phagocytes?

21 DR. BELL: Phagocytes are, you know,
22 professional garbage eaters or killers. And these are
23 much more sophisticated colonels and generals that kind
24 of organize some of the immune system's killing as

HEARING RE: CL&P and UI
JUNE 16, 2004

1 opposed to the soldiers who are going right out there and
2 getting the stuff. But that would be correct.

3 COURT REPORTER: (Indiscernible) --
4 phagocytes?

5 DR. BELL: Yes, it's with a ph.

6 COURT REPORTER: Thank you.

7 DR. BELL: You're welcome.

8 MR. ERLING: Thank you.

9 MR. TAIT: Brian.

10 MR. EMERICK: Yes, a few questions.

11 Doctors, are you familiar with the EMF levels of the
12 existing 115 lines that are adjacent to the facilities of
13 the organizations that you're representing, existing EMF
14 levels?

15 DR. RABINOWITZ: The existing -- as I
16 understand, there's been one or two measurements that I'm
17 aware of. And I don't know much more than that.

18 MR. EMERICK: Do you have any concern over
19 those existing levels?

20 DR. RABINOWITZ: Well, there was -- there
21 was some measurements done about a year ago and the
22 levels were not very high, but there was a real question
23 of what the load on the line was that day, and --

24 MR. TAIT: What were the levels?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 DR. RABINOWITZ: I don't --

2 MR. TAIT: Does anybody on the panel know
3 what the levels were?

4 DR. RABINOWITZ: I do not know what those
5 levels are exactly.

6 MR. FITZGERALD: They're actually in the -
7 - in the interrogatory response that was admitted as an
8 exhibit at the outset of this testimony. It will come up
9 with the next panel too.

10 MR. TAIT: Okay.

11 MR. EMERICK: I guess my real question is
12 if you have existing lines and I would assume that those
13 EMF levels currently near the facilities of concern are
14 at or above the numbers that you have been talking about
15 and advising us of. My real question is if that in fact
16 is the case, have you gone to the folks who run these
17 facilities to advise them of practices they could
18 implement to minimize the risk to sensitive populations?

19 DR. RABINOWITZ: Are you -- are you asking
20 have we done this or would we do it, or what are -- what
21 are you saying?

22 MR. EMERICK: Well, I would think just
23 given you're doctors, you're researchers, your
24 curiousness - and I think most of you indicated that you

HEARING RE: CL&P and UI
JUNE 16, 2004

1 have children that go to some of these -- or there's some
2 affiliation to these organizations -- and with power
3 lines if there's that concern, that that would lead you
4 to question what those levels are, and if they're above a
5 threshold where you feel there's a concern, you would go
6 to someone running those facilities to see if, in fact,
7 they might organize the day or the activities or the way
8 they use those facilities to minimize the exposure to the
9 sensitive populations that you've been telling us about -
10 -

11 DR. RABINOWITZ: Yeah --

12 MR. EMERICK: -- I mean that's what I
13 would do I guess if I shared your same concern --

14 MR. TAIT: I guess the question is have
15 you --

16 DR. RABINOWITZ: So what's -- what's the
17 question?

18 MR. TAIT: Have you?

19 MR. EMERICK: Have you?

20 DR. RABINOWITZ: Have?

21 MR. EMERICK: Do you have any concern
22 about the existing lines? And have you taken it to the
23 next step to go to the folks who run these organizations
24 to see if the exposure levels could be minimized for the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 sensitive populations that we're concerned about?

2 DR. RABINOWITZ: I've -- I think -- we've
3 certainly had discussions where we'd like to know more
4 about the current exposures. And we did have that one
5 set of measurements last year and we'd like to know more
6 about that. I think -- I think our energy has been
7 mostly put into dealing with the proposal to increase
8 drastically the amount of EMF there, and we're spending
9 more of our energy on that than dealing with the current
10 115 line which is -- which is there right now. I -- I
11 have -- I think we've certainly discussed with the school
12 our concern about being next to a power line, yeah.

13 MR. EMERICK: Okay.

14 DR. RABINOWITZ: I personally have
15 discussed with the school my concern about it, and it --
16 yeah, so I have.

17 MR. EMERICK: Have they taken any kind of
18 proactive steps to minimize the potential exposure?

19 DR. RABINOWITZ: I think --

20 DR. BELL: (Indiscernible) --

21 DR. RABINOWITZ: -- people from the school
22 will -- are going to testify I believe --

23 MR. TAIT: Is that the next panel, Mr. --

24 DR. RABINOWITZ: Yeah --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. TAIT: -- Mr. Schaefer?

2 MR. SCHAEFER: Yes, it is --

3 MR. TAIT: Those questions will be better
4 of the next panel. Thank you.

5 MR. EMERICK: Okay, thank you.

6 MR. ASHTON: Nothing, thank you.

7 MR. TAIT: Ed?

8 MR. WILENSKY: Just -- just --

9 MR. TAIT: Just one question --

10 MR. WILENSKY: -- just one question --

11 (laughter) -- as far as the academy -- the school, what
12 came first, the power lines or the school?

13 DR. RABINOWITZ: Again, I think the next
14 panel would be better able to answer. My understanding
15 is that the power line was there first and the school was
16 built a good number of years ago before studies were done
17 that raised questions about EMF and health.

18 MR. TAIT: I think we'll wait for the next
19 panel --

20 DR. RABINOWITZ: They can answer --

21 MR. TAIT: -- for that line of
22 questioning.

23 MR. WILENSKY: Thank you, Dr. Rabinowitz.
24 Thank you, Mr. Chairman, that's all.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. TAIT: Dan.

2 MR. LYNCH: Just one question. If by
3 using thresholds of distance for EMF levels to establish
4 a buffer, if we do that, wouldn't we be in a sense
5 prohibiting municipalities who have open space from in
6 the future utilizing that area for recreational area or
7 for a future school?

8 DR. RABINOWITZ: In terms of putting a --

9 MR. LYNCH: Yeah, if we --

10 DR. RABINOWITZ: -- putting a recreational
11 --

12 MR. LYNCH: If we have a power line and
13 when we establish a buffer of 300 feet or whatever Dr.
14 Bell was talking, or 1 milligauss as a distance -- you
15 know, the municipalities have a tendency to buy open
16 space whether it's near utility lines or not --

17 DR. RABINOWITZ: Right --

18 MR. LYNCH: -- but it would seem to me
19 that if we -- that if this buffer is established that
20 what we've done is we've prohibited the municipality from
21 any future recreational area within 300 feet or any
22 school within 300 feet of a power line.

23 MR. TAIT: We currently have I think over
24 450 miles of 345 power lines that this policy would

HEARING RE: CL&P and UI
JUNE 16, 2004

1 affect --

2 DR. RABINOWITZ: In terms of putting

3 soccer fields --

4 MR. TAIT: -- of 300 feet --

5 DR. RABINOWITZ: -- and things right over

6 --

7 MR. TAIT: -- or 500 feet --

8 (Multiple voices overlapping,

9 indiscernible)

10 MR. TAIT: -- or 1 milligauss, whatever

11 you're talking about, is that --

12 DR. BELL: I mean the conflict of power

13 consumption and open space is not a new issue --

14 MR. TAIT: No, but we can't just apply

15 this --

16 DR. BELL: I mean --

17 MR. TAIT: -- with spot zoning --

18 DR. BELL: Sorry --

19 MR. TAIT: -- children are children

20 throughout the State --

21 DR. BELL: Oh, no, no, I -- I'm agreeing

22 with you --

23 MR. TAIT: Yes --

24 DR. BELL: -- I'm saying it's not going to

HEARING RE: CL&P and UI
JUNE 16, 2004

1 go away.

2 MR. TAIT: No, it's not going to go away,
3 but --

4 DR. BELL: And I -- I --

5 MR. TAIT: -- any buffer zone I assume
6 would apply to existing lines as well as new lines.

7 DR. BELL: But that's presumably a matter
8 of interpretation, but certainly, you know, we'd
9 recommend --

10 MR. TAIT: Okay --

11 DR. BELL: -- it be prudent.

12 MR. TAIT: Gerry?

13 MR. HEFFERNAN: No, I'm fine.

14 MR. TAIT: I think we're ready for -- oh,
15 Mr. --

16 MR. FITZGERALD: Yeah, I do -- you asked
17 about something just before the last break and I -- it
18 was pointed out to me I missed understood you. You asked
19 about a UK study and I said, oh, that's the National
20 Radiological Protection Board that's already here. And -
21 - and actually I think what you meant to refer -- what
22 you were referring to was a UK childhood cancer study
23 that we discussed which I -- we had some questions and
24 answers and I said well this was -- this came after the -

HEARING RE: CL&P and UI
JUNE 16, 2004

1 -

2 MR. TAIT: Yes --

3 MR. FITZGERALD: -- the --

4 MR. TAIT: And it was by the same authors,
5 wasn't it?

6 MR. FITZGERALD: Yeah, this was -- this
7 was an update of an earlier --

8 MR. TAIT: Yeah --

9 MR. FITZGERALD: -- of an earlier study,
10 yeah --

11 MR. TAIT: You talked me out of it.

12 (Laughter).

13 MR. FITZGERALD: I did.

14 MR. TAIT: So did Mr. Schaefer.

15 COURT REPORTER: One moment please.

16 (Pause). Thank you.

17 MR. FITZGERALD: But I do have some copies
18 of it here. I can put it in the record. You can notice
19 it. We can have any -- we can have Dr. Bailey sponsor it
20 if you want, but --

21 MR. TAIT: Well, why don't you show it to
22 everybody. And after the break, we'll put it into
23 evidence.

24 MR. FITZGERALD: Fine.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. TAIT: Anything else before the break?
2 It's now 3:15. We'll resume at -- oh, excuse me -- Mr.
3 Schaefer?

4 MR. SCHAEFER: If I could just ask a
5 scheduling question? Are you going to take our other
6 panel or the Department of Transportation?

7 MR. TAIT: I think we're going to take the
8 Department of Transportation since they've been --

9 MR. SCHAEFER: And is your plan still to
10 get to the other panel?

11 MR. TAIT: My plan is, but what my
12 Chairman's plan is, I'm not quite sure.

13 MR. SCHAEFER: Okay. If you could let us
14 know when you --

15 MR. TAIT: Yeah, we'll take a break --

16 MR. SCHAEFER: Thank you.

17 MR. TAIT: We're in break until 3:30.

18 (Whereupon, a short recess was taken.)

19 CHAIRMAN KATZ: We will resume, we are
20 back on the record. At this point in the proceeding we
21 will do the direct case from Connecticut DOT. And then
22 remind me -- before we close at 5:00 o'clock, I am going
23 to sort of sketch out tomorrow for everyone's benefit,
24 mainly the Council's.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 Okay, who is going to be taking the lead
2 here?

3 MS. MESKILL: I am, Madam Chair.

4 CHAIRMAN KATZ: Okay. Ms. Meskill, if you
5 could introduce -- while they are still sitting,
6 introduce your witness panel and please have them spell
7 their names.

8 MS. MESKILL: Why don't I ask you each one
9 by one identify your name for the record.

10 MR. GREGORY DOROSH: My name is Gregory
11 Dorosh, D-o-r-o-s-h.

12 CHAIRMAN KATZ: And if you could give your
13 title while we're at it, that would be helpful.

14 MR. DOROSH: Transportation Principal
15 Engineer.

16 MR. CHARLES ROMAN: Charles Roman, R-o-m-
17 a-n. I'm the Director of Financial Management for the
18 Bureau of Engineering and Highway Operations.

19 MR. ARTHUR GRUHN: Arthur Gruhn, G-r-u-h-
20 n. I'm the Chief Engineer and Bureau Chief for the Bureau
21 of Engineering and Highway Operations.

22 MR. KEITH LANE: Keith Lane, L-a-n-e.
23 Director of Research and Materials.

24 MR. SOHRAB AFRAZI: Sohrab Afrazi, S-o-h-

HEARING RE: CL&P and UI
JUNE 16, 2004

1 r-a-b, the last name is A-f-r-a-z-i --

2 COURT REPORTER: Hold it, hold it -- S-o-
3 h-r-a-b?

4 MR. AFRAZI: Yes. The last name is A-f-r-
5 a-z-i. I'm a Transportation Principal Engineer in the
6 Utility Section.

7 MR. PATRICK RODGERS: Patrick Rodgers, R-
8 o-d-g-e-r-s. Transportation Maintenance Manager,
9 Department's Office of Highway Maintenance.

10 MR. JOHN CAREY: John Carey, C-a-r-e-y.
11 Manager of Traffic Engineering.

12 CHAIRMAN KATZ: Great. We'll get you
13 sworn in at this point.

14 MR. HAINES: Alright, gentlemen, would you
15 stand please and raise your right hand.

16 (Whereupon, the Department of
17 Transportation's panel of witnesses was duly sworn in.)

18 MR. HAINES: Thank you. Be seated please.

19 CHAIRMAN KATZ: Okay, we have -- we have
20 several exhibits to identify and have verified?

21 MS. MESKILL: Yes. For the record,
22 Assistant Attorney General Eileen Meskill for the
23 Department of Transportation.

24 MR. CHARLES WALSH: Assistant Attorney

HEARING RE: CL&P and UI
JUNE 16, 2004

1 General Charles Walsh.

2 MS. MESKILL: In looking at -- we have I
3 think four documents. I'd have the panel look at -- or
4 identify -- there's corrected witness testimony dated
5 June 16, 2004 and the errata sheets dated 2004 for some
6 of the testimony. And also included, going further down,
7 with the interrogatories, the resumes were attached to
8 the interrogatory responses --

9 CHAIRMAN KATZ: Okay --

10 MS. MESKILL: So what I'm going to have
11 each of them do is just have them each identify
12 separately whether it's true and accurate, okay.

13 CHAIRMAN KATZ: Okay.

14 MS. MESKILL: So, I would ask each of you
15 to identify whether that information has been reviewed
16 and whether it's true and accurate to the best of your
17 knowledge and belief?

18 MR. DOROSH: Gregory Dorosh. It's true to
19 my --

20 CHAIRMAN KATZ: Just yes is fine.

21 MR. DOROSH: Yes.

22 MR. ROMAN: Charles Roman. Yes.

23 MR. GRUHN: Art Gruhn. Yes.

24 MR. LANE: Keith Lane. Yes.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. AFRAZI: Sohrab Afrazi. Yes.

2 MR. RODGERS: Patrick Rodgers. Yes.

3 MR. CAREY: John Carey. Yes.

4 MS. MESKILL: And Mr. Gruhn, with respect
5 to the exhibits, and this is 4, 5 and 6, as well as the
6 interrogatories, have you had a chance to review those?

7 MR. GRUHN: Yes, I have.

8 MS. MESKILL: And are they true and
9 accurate to the best of your knowledge and belief, two
10 copies?

11 MR. GRUHN: Yes, they are.

12 MS. MESKILL: Exhibit 4 was the DOT
13 Highway Design Manual. No. 5 was the DOT Standard
14 Specifications. And 6 was the Supplemental
15 Specifications. And 7, which is not on there, is the
16 Interrogatory Responses. So we'd like to have those
17 entered into the record.

18 CHAIRMAN KATZ: Is there any objection to
19 making them full exhibits? Oh, you know what we could
20 do, if it's not -- we could actually have you take
21 administrative of the DOT --

22 MS. MESKILL: Yeah, 4, 5 and 6 are --
23 they're -- they're public documents.

24 CHAIRMAN KATZ: Why -- why don't we do

HEARING RE: CL&P and UI
JUNE 16, 2004

1 that. Why don't we say, if you don't object, that we'll
2 take administrative notice under DOT of 4, 5 and 6 since
3 they're DOT manuals so to speak. Any objection to making
4 the other ones full exhibits? Hearing none they are full
5 exhibits.

6 (Whereupon, DOT Exhibit No. 7 was received
7 into evidence as a full exhibit.)

8 CHAIRMAN KATZ: Any procedural matters we
9 need to do before their witnesses are available for
10 cross-examination?

11 MS. MESKILL: No, other than to identify
12 that Mr. Gruhn --

13 CHAIRMAN KATZ: Yes --

14 MS. MESKILL: -- can't be here tomorrow.

15 CHAIRMAN KATZ: Yes. I will repeat that
16 again. Questions for Mr. Gruhn should be done today.
17 And Mr. Henebry, I take it by your seat that you are
18 doing this cross?

19 MR. BRIAN HENEGBRY: Yes, that's correct.

20 CHAIRMAN KATZ: You know, the Smothers
21 Brothers had this song that said I can see by your outfit
22 you are a cowboy -- (laughter) -- so I see by your seat
23 you are doing the cross, so --

24 MS. RANDELL: We will be picking up, but

HEARING RE: CL&P and UI
JUNE 16, 2004

1 not for very long.

2 CHAIRMAN KATZ: Okay. Please proceed.

3 MR. HENEERY: I'm not sure who this
4 question should be directed to, so I'll just ask the
5 panel to determine. Looking at the errata sheet that you
6 filed today concerning the prefilled testimony, there is -
7 - let's see, there's not a page number on here, but it's
8 the testimony -- I see -- it's the testimony of Mr.
9 Roman, it's the response to Question 14. Mr. Roman, as I
10 read this testimony, the sentence now states because the
11 estimated costs associated with an impact on the proposed
12 transmission line is significantly greater than -- with
13 the proposed facilities than facilities currently in use,
14 there may be a financial effect on the Department. Now
15 this testimony concerns the Department's issue about the
16 possible relocation cost impact on DOT, right?

17 MR. ROMAN: That's accurate.

18 MR. HENEERY: Okay. And what was the
19 change in this testimony specifically?

20 MR. ROMAN: The change is --

21 CHAIRMAN KATZ: Just pull that mic --

22 MR. ROMAN: The change --

23 CHAIRMAN KATZ: Yeah --

24 MR. ROMAN: -- is shown in italics. It

HEARING RE: CL&P and UI
JUNE 16, 2004

1 was --

2 MR. HENEGBRY: Okay --

3 MR. ROMAN: -- it was simply a change in a
4 word. This testimony -- particularly my financial
5 testimony is specific to the Department, and assumes the
6 Department picked up 50 percent of the relocation cost.
7 I understand that that is still open to statutory
8 review and discussion, so that's why we inserted the word
9 may.

10 MR. HENEGBRY: I see. So the testimony
11 previously read that there will be a financial effect on
12 the Department and now you're just changing that to a
13 may?

14 MR. ROMAN: That's correct.

15 MR. HENEGBRY: Okay. And is that due to a
16 recent position the Department is taking on a statutory
17 interpretation issue?

18 MR. ROMAN: I personally cannot speak to
19 that. I don't --

20 MR. GRUHN: I'm probably the better one to
21 answer that question. There was recent legislation
22 passed this year, which interpretation is in question
23 between Northeast Utilities and the Department. The
24 Department's position is that that allows the Department

HEARING RE: CL&P and UI
JUNE 16, 2004

1 to insist upon payment of relocation costs by the
2 utility. That is under legal review and it would have to
3 be a legal interpretation. And I'm not qualified to give
4 that interpretation.

5 MR. HENEERY: Okay. And I take it that
6 this legal issue is one of the points of discussion
7 between CL&P and the DOT with regard to ongoing
8 discussions about the construction of the Bethel to
9 Norwalk line, correct?

10 MR. GRUHN: Yeah, it's also included, yes

11 --

12 MR. HENEERY: Okay --

13 MR. GRUHN: -- in the Bethel to Norwalk
14 line.

15 MR. HENEERY: Is it -- well, first of all,
16 the testimony in general discusses a number of DOT
17 concerns regarding the company's proposal for underground
18 facilities between the East Devon Substation and Norwalk
19 Substation, correct?

20 MR. GRUHN: Correct.

21 MR. HENEERY: Okay. Is it fair to say
22 that a number of these issues and concerns are also
23 issues and concerns of the Department in connection with
24 the Bethel to Norwalk line?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. GRUHN: They're issues and concerns
2 for any longitudinal transmission line in any state
3 highway.

4 MR. HENEERY: Okay. What is the status of
5 the discussions between the Department and CL&P --

6 MR. WALSH: I'm going to object. It's
7 beyond the scope of -- (indiscernible) --

8 CHAIRMAN KATZ: Just a second, let's --
9 let's get your mic up -- okay, one more time --

10 MR. HENEERY: I'll withdraw the question,
11 Chairman Katz.

12 CHAIRMAN KATZ: Okay.

13 COURT REPORTER: Well, I don't have his
14 objection on the record.

15 MR. WALSH: It was withdrawn.

16 CHAIRMAN KATZ: Punt.

17 A VOICE: Fast forward.

18 MR. HENEERY: I'd like to direct your
19 attention to page 28 of your June 16th corrected
20 testimony, and specifically -- well, first of all, this
21 is -- whose testimony is the response to Question 49?
22 Which --

23 MR. CAREY: John Carey.

24 MR. HENEERY: Okay. And I note, Mr.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 Carey, that you state in the last paragraph in summary
2 the Department recommends locating the underground
3 transmission line on roads other than state highways so
4 as to minimize impacts to traffic, the community, and the
5 utility itself, correct?

6 MR. CAREY: Correct.

7 MR. HENEERY: Okay. Is it the DOT's
8 position in this case that it is opposed to the company's
9 proposal -- or proposed underground route between the
10 East Devon Substation and the Norwalk Substation?

11 MR. GRUHN: Why don't I answer that.
12 That's a policy decision on the part of the Department.
13 The Department is not necessarily opposed to locating the
14 utility in the right-of-way. There are significant
15 traffic safety, traffic operations, mobility issues
16 involved with that. Those issues have to be resolved in
17 order for the Department to maintain a safe and efficient
18 transportation system and accommodate the utility and the
19 highway. And that's -- that is our concern. A lot of
20 those issues would be resolved if the roadway -- or if
21 the utility was located in town roads or in other right-
22 of-ways because it would obviously remove it from high
23 traveled areas. Relocation issues would be less, traffic
24 issues would be less, public safety issues would be less

HEARING RE: CL&P and UI
JUNE 16, 2004

1 --

2 MR. HENEGBRY: Okay --

3 MR. GRUHN: -- and it would also be less
4 costly for the utility to construct.

5 MR. HENEGBRY: Okay. Now has the
6 Department --

7 MR. TAIT: Do I gather from your testimony
8 you're saying they should not use Route 1?

9 MR. GRUHN: Our testimony is we would
10 prefer them not to use Route 1.

11 MR. TAIT: Not that they cannot, but you
12 would prefer they --

13 MR. GRUHN: Correct, we would prefer not
14 to because -- by not using Route 1, again it resolves a
15 lot of the safety --

16 MR. TAIT: Have you talked to --

17 MR. GRUHN: -- and operational issues.

18 MR. TAIT: Have you talked to any of the
19 towns impacted of the influence on their budgets and
20 their streets if you shifted to local streets?

21 MR. GRUHN: The -- the towns are aware of
22 our position. What their position is I don't know at
23 this point.

24 MR. TAIT: I assume we'll hear from them.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. GRUHN: I'm sure we probably would.

2 MR. HENEERY: Does the DOT intend to
3 submit any alternative route proposals to the Council?

4 MR. GRUHN: We are in the process as a
5 result of the Council's request to looking at it, if
6 there were feasible alternatives that could be utilized.

7 MR. HENEERY: And again, I take it, that
8 is as to the portion of the route between the East Devon
9 Substation and the Norwalk Substation?

10 MR. GRUHN: That is correct.

11 MR. HENEERY: Okay.

12 CHAIRMAN KATZ: And when we will see that?

13 MR. GRUHN: I believe you asked for it by

14 --

15 CHAIRMAN KATZ: July 19th?

16 MR. GRUHN: -- July 19th.

17 CHAIRMAN KATZ: Excellent, thank you --

18 MR. GRUHN: And you will have it by then,
19 if not sooner.

20 CHAIRMAN KATZ: Excellent.

21 MR. TAIT: And if we consider under-
22 grounding in Sections 1 and 2, have you looked at those?

23 MR. GRUHN: We have filed I believe
24 already with Chairman Katz a letter regarding the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 problems with locating that within the highway right-of-
2 way.

3 MR. TAIT: In Sections 1 and 2?

4 MR. GRUHN: Yeah. I believe that's the
5 Route 15 --

6 MR. TAIT: Yes --

7 MR. GRUHN: -- Wallingford to --

8 CHAIRMAN KATZ: Yes.

9 MR. HENEERY: I'd now like to direct your
10 attention to page 29 of the June 16th testimony and
11 specifically the very last paragraph on page 29. Is this
12 -- should this be directed to Mr. Afrazi?

13 MR. AFRAZI: Yes?

14 MR. GRUHN: Depending on the question. It
15 may be a policy issue again.

16 MR. HENEERY: Okay. The last paragraph
17 indicates that the proposed underground transmission
18 facility should be placed at a significant depth. What
19 is the Department's position today in terms of what the
20 required depth is?

21 MR. GRUHN: Our position would be that if
22 there is not an agreement on payment of relocation costs
23 and who is responsible for that, then the depth should be
24 a minimum of eight feet so that there would not be a need

HEARING RE: CL&P and UI
JUNE 16, 2004

1 for relocation of the line in the future.

2 CHAIRMAN KATZ: Eight feet from where to
3 where?

4 MR. GRUHN: Eight feet from the surface of
5 the roadway to the top of the facility.

6 MR. HENEERY: Okay. What is the 8-foot
7 depth based upon?

8 MR. GRUHN: The 8-foot depth is based upon
9 the potential need to either change the grade of the
10 roadway or to install drainage facilities in order to
11 accommodate any expansion of the roadway system to meet
12 the State's transportation needs.

13 MR. HENEERY: And what does the policy on
14 accommodation of utilities in highway rights-of-way
15 require as to minimum depth from the top of the structure
16 to the grade? Is there an accommodation policy on that
17 in that document?

18 MR. GRUHN: I believe the policy is fairly
19 generic and it just states it should be placed so as to
20 not interfere with any of the necessary facilities for
21 the highway system.

22 MR. HENEERY: Okay.

23 MR. AFRAZI: Can I answer that question?

24 MR. GRUHN: Okay.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. AFRAZI: Sohrab Afrazi, the Utility
2 Section, sorry. Our policy says a minimum of three feet
3 cover we need to have, a minimum. That's just the least
4 you could go. But in this case the structure we
5 understand -- extensive the structure is in the sense of
6 so much restrictions involved, we definitely recommending
7 go eight feet.

8 MR. ASHTON: Mr. Gruhn, if I may just to
9 clarify my understanding?

10 MR. GRUHN: Certainly.

11 MR. ASHTON: When you say highway and
12 you're looking for a depth of eight feet, are you talking
13 on all state highways or just limited access highways,
14 such as 15, or what?

15 MR. GRUHN: Generally all state highways.
16 The issue is that drainage systems generally are
17 installed at a depth of three to seven feet. So in order
18 to provide for the necessary clearances to the drainage
19 system to be able to outlet drainage facilities into a
20 watercourse, the facility being proposed would have to be
21 below that level to eliminate the need for relocation in
22 the future should it be necessary to expand the highway
23 system.

24 MR. ASHTON: Does that apply equally then

HEARING RE: CL&P and UI
JUNE 16, 2004

1 to a telephone company, to gas lines, to sewer lines, and
2 everything else?

3 MR. GRUHN: Again, the concern with this
4 particular facility is the cost of relocation as compared
5 to other facilities. Northeast Utilities has indicated
6 to us that to replace -- or to relocate the facility
7 between two chambers would cost two million dollars or
8 more in today's dollars.

9 MR. ASHTON: Two chambers --

10 MR. GRUHN: Between two chambers, two
11 splicing chambers, which is about 1500 feet -- 1500 to
12 1800 feet --

13 MR. ASHTON: And would --

14 MR. GRUHN: -- would be a cost of two
15 million dollars. That is very expensive compared to
16 other utilities that are in our system.

17 MR. ASHTON: Has Teleco expressed any
18 similar sentiments that the cost to relocate between two
19 manholes 1500 foot apart is in the same order of
20 magnitude?

21 MR. GRUHN: The telephone company?

22 MR. ASHTON: Yeah.

23 MR. GRUHN: Not to my knowledge. Sohrab -

24 -

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. AFRAZI: Right --

2 MR. GRUHN: -- you could probably give us
3 an idea of what their location -- it's significantly
4 less.

5 MR. AFRAZI: We're talking about telephone
6 companies -- we're talking about the structure they have
7 for duct structure normally one or two being occupied.
8 There is flexibility with the telephone companies, No. 1.
9 If we have a problem with -- a conflict with the
10 telephone, if the conflict is location, all we normally
11 do we ask the telephone company to break down this
12 concrete structure, take out the conduit itself, expose
13 the cable, lower it, and put the split case conduit
14 around of it. So we look for all kind of alternative to
15 try to save of splicing. This case my understanding is
16 based on past testimony being done by Applicant, this is
17 very restrictive type facilities. You -- you have to
18 follow so many guidelines, you have to follow the cost-
19 wise, you're talking about time-wise they have to do the
20 splicing in this case, it's much much severe to our
21 knowledge.

22 MR. ASHTON: Okay. I'll hold the rest of
23 my questions. Thank you.

24 MR. AFRAZI: You're welcome.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. HENEGBRY: I'd just like to follow up
2 on that last response, when -- I believe you stated that
3 it's your understanding this is a very restrictive type
4 of facility or something to that effect. And you're
5 talking again about the proposed HPFF cables, correct?

6 MR. AFRAZI: You're talking about HP --
7 how -- how I say -- yes. I mean right now your proposed
8 -- your proposed route is showing from Milford all the
9 way to Norwalk you going to use HPFF.

10 MR. HENEGBRY: Okay. And with regard to
11 DOT's position that there should be a minimum of eight
12 feet from the top of the utility facilities to grade, is
13 that based upon any assumptions about how -- how much
14 space is required for the utilities' HPFF facilities?

15 MR. GRUHN: Yes. Basically that's --
16 that's based on the details they have provided to us and
17 providing standard separation that utilities historically
18 have provided between their facilities and our
19 facilities.

20 MR. HENEGBRY: Okay. Well, precisely what
21 details then are you relying upon or what assumptions
22 regarding essentially the size of the utility facilities
23 from the bottom of the HPFF pipe to the top of the
24 fluidized thermal backfill, the thermal sand, what's your

HEARING RE: CL&P and UI
JUNE 16, 2004

1 assumption as to that matter?

2 MR. GRUHN: I don't recall the exact
3 measurements. It's the detail that they have provided in
4 the D&M plans on Docket 217.

5 MR. AFRAZI: I could answer that if --
6 okay -- my understanding is 30 -- 30 inches, the
7 structure itself is being cased around thermal sand or
8 soil. And also the width wise is roughly 50 -- five feet
9 --

10 MR. HENEGBRY: Okay --

11 MR. AFRAZI: -- to be exact.

12 MR. HENEGBRY: So approximately 30 inches
13 tall by approximately five feet wide?

14 MR. AFRAZI: And then after that, you have
15 fill -- based on Docket 217, you have another 30 inches
16 on top. But understanding this, the way we looked at it,
17 is you do also have a line of influence of one foot
18 around the structure. In other word, you get one foot
19 close to the structure, you have to be -- immediately
20 notify NU to make sure they have to analyze this to see
21 if this facility or drainage can be more than that one
22 foot of influence.

23 MR. HENEGBRY: Okay. And if I'm
24 understanding DOT's testimony, it's your position that

HEARING RE: CL&P and UI
JUNE 16, 2004

1 you need three to seven feet above the top of the utility
2 facilities in order for future installation of drainage,
3 is that correct?

4 MR. GRUHN: That is correct, yes.
5 Basically, eight feet.

6 MR. HENEERY: Okay. Has DOT ever required
7 up to seven feet of space for future drainage facilities
8 with regard to any other utility installations?

9 MR. GRUHN: No other utility installation
10 in our system has been proposed that is of this magnitude
11 and this costly of a system for relocation purposes.

12 MR. HENEERY: Okay. If the -- if the
13 amount of fill above the utility facilities were
14 approximately five feet of approved fill, would that be
15 adequate for DOT's need for future installation of
16 drainage facilities?

17 MR. GRUHN: Could you repeat the question?

18 MR. HENEERY: Yes. If there was
19 approximately five feet of fill above the utility
20 installation of fluidized thermal backfill, would that
21 five feet be sufficient for DOT's future drainage needs?

22 MR. GRUHN: It's very difficult to say.
23 Generally, as I said before, our drainage facilities, the
24 invert of the pipe is somewhere between four and seven

HEARING RE: CL&P and UI
JUNE 16, 2004

1 feet below the surface of the roadway. So if there was
2 only five feet provided, there would be places where we
3 could not install the drainage when we had to make
4 revisions to the highway system.

5 CHAIRMAN KATZ: Mr. Henebry, has -- they
6 indicted in their testimony that if you get within one
7 foot of an electrical structure, then you have certain
8 restrictions. Do we have prefiled testimony from NU's
9 point of view of what their requirements are once you --
10 once they and DOT occupy the same space?

11 MR. HENEБРY: I'm sorry, Chairman Katz,
12 could you just -- I wanted to consult with co-counsel
13 here and -- I don't know to be honest with you --

14 CHAIRMAN KATZ: Alright --

15 MR. HENEБРY: -- and I can either follow
16 up on a break --

17 MS. RANDELL: I apologize. I was writing
18 down a note --

19 CHAIRMAN KATZ: DOT just testified that if
20 you get within one foot of an NU structure, you have to
21 notify them and go through certain procedures. Do we
22 have that prefiled somewhere on what NU's requirements
23 are from their point of view? And if not, perhaps --

24 MS. RANDELL: Our clients are saying --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 COURT REPORTER: A microphone please --

2 MS. RANDELL: -- call before you dig --

3 COURT REPORTER: A microphone please --

4 CHAIRMAN KATZ: Okay --

5 MS. RANDELL: -- would apply -- sorry,

6 Tony -- I am informed that it would be a call before you
7 dig procedure.

8 CHAIRMAN KATZ: Okay. DOT, is that your
9 understanding, this is a call before you dig type of
10 situation?

11 MR. GRUHN: In any situation where there
12 is work going on underground, there is a requirement to
13 call before you dig. The information that we have been
14 utilizing, we have taken from the D&M plan from Docket
15 217 and the requirements that are stated in that D&M plan
16 for any conflict with the UI or the Northeast Utility's -
17 - the utility ducts.

18 CHAIRMAN KATZ: Okay. As a person who
19 uses call before you dig a lot, it doesn't matter whether
20 you're in one foot or whatever, if you're in the vicinity
21 --

22 MR. GRUHN: They don't give you the depth,
23 no --

24 CHAIRMAN KATZ: Yeah, if you're in the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 vicinity --

2 MR. GRUHN: -- you have no idea what the
3 depth is --

4 CHAIRMAN KATZ: -- you call.

5 MR. GRUHN: Correct.

6 CHAIRMAN KATZ: Yes. So that one-foot
7 part is not really a call before you dig part?

8 MR. GRUHN: No. And again, generally
9 accepted engineering practice and the requirement of most
10 utilities is that when you have a crossing of a utility
11 and a storm line, there is a minimum of 12 inches between
12 the utility facility and the storm line or whatever the
13 other facility is. If it's going to be less than 12
14 inches, then typically the utility will do an engineering
15 analysis to determine what loads would be on their
16 structure, can their structure accept those loads, can
17 they accept the crossing at a closer elevation.

18 CHAIRMAN KATZ: Thank you. Mr. Wilensky.

19 MR. WILENSKY: Madam Chairman. According
20 to the D&M plan, what is the depth on the 217 -- on 217?

21 MR. GRUHN: On the 217 docket, the depth
22 they put in I believe was 30 inches, Sohrab -- between 30
23 and 36 inches --

24 MR. AFRAZI: Thirty --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. GRUHN: -- I'm not sure of the exact
2 depth. They did that on the assumption that the
3 Department would approve a lower depth. The Department
4 had said during the discussions of the D&M plan to
5 Northeast Utilities that if you agree to pay relocation
6 costs, we will then allow going at a shallower depth for
7 the duct work. If you don't agree with the relocation
8 costs, we want you to be eight feet deep.

9 MR. WILENSKY: Would that same situation
10 apply on 272?

11 MR. GRUHN: Yes, it would.

12 MR. WILENSKY: Okay, thank you.

13 MR. HENEERY: Moving now to the issue
14 concerning the necessity for continuous splicing
15 operations, if you could go to page 25 of the testimony.
16 At the bottom of page 25 in the context of this answer,
17 you state that it would be unacceptable to have
18 construction activities during the peak traffic periods
19 or continuous long-term lane closure on certain roadways
20 for purposes other than an avoidable incident. Now, what
21 I'd like you to do is -- well, first of all, do you have
22 an understanding of the nature of the splicing operations
23 that would be required for the installation of HPFF
24 cable?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. GRUHN: Again in our discussions with
2 Northeast Utilities, particularly on Docket 217, they
3 have stated that it is a continuous splicing operation
4 that takes up to two weeks depending upon whether it's a
5 115 or a 215 -- or a 340 -- excuse me, a 345-kV facility.
6 It's a continuous operation, 24 hours a day. They have
7 to basically park a van on top of the chamber in order to
8 provide climate control within the chamber to do the
9 splicing. That has a significant effect on traffic
10 impacts if that chamber is in the paved roadway in the
11 travel lanes of the highway system. All of the highways
12 that are being proposed under this docket are very
13 heavily traveled, they have high peak hour periods,
14 basically morning hush hour, afternoon rush hour. They
15 have high traffic volumes during the day. Typically when
16 we do work on these roads, whether it's our maintenance
17 operations or our construction operations, we require the
18 contractors and our own maintenance forces to work at
19 night, usually between the hours of 9:00 p.m. an 6:00
20 a.m. in the morning --

21 MR. HENEERY: Okay --

22 MR. GRUHN: -- to avoid that traffic.
23 There will be significant traffic backups if a lane is
24 taken out of service.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. HENEGBRY: Okay. If you assume that
2 splicing operations were conducted so as to allow traffic
3 to continue to flow on at least one lane of a road, what
4 would bar the companies from that sort of construction
5 activity? Does that still raise a concern to DOT? And
6 if so, what is that concern?

7 MR. GRUHN: Very definitely. The concern
8 is the roads right now cannot handle the traffic that is
9 on the roads. If you take one lane out of service, that
10 means that instead of having two or four lanes -- it's
11 either a two lane section of road or a four lane section
12 of road, you have one or three lanes. During rush hour
13 periods, it will back up traffic significantly. During
14 normal daytime periods, it will back up traffic
15 significantly --

16 MR. HENEGBRY: Okay --

17 MR. GRUHN: -- there will be a major
18 impact to the businesses in the area, to the economy of
19 the area, to commuters trying to get to work in the
20 morning, get home from work at night. And I dare say
21 there will be a lot of people getting a lot of angry
22 phone calls.

23 MR. HENEGBRY: Alright. And is it fair to
24 say that one of DOT's concerns with regard to these

HEARING RE: CL&P and UI
JUNE 16, 2004

1 continuous splicing operations is the number of angry
2 phone calls it will receive?

3 MR. GRUHN: Our concern, as I said before,
4 is the operation of the system.

5 MR. HENEERY: Okay --

6 MR. GRUHN: Our concern is we have a
7 responsibility to the citizens of the State of
8 Connecticut to provide a safe and efficient
9 transportation system. We cannot do that if there is a
10 lane taken out of service during peak travel periods.

11 MR. HENEERY: Okay. Well, looking
12 specifically at your response to Question 45, is it fair
13 to say that the main concern you raise there is that the
14 Department lacks sufficient staff to field the number of
15 phone complaints that would be expected?

16 MR. GRUHN: That is one of the statements
17 that is made there. Again, that is not the main reason
18 for the concern.

19 MR. HENEERY: Okay. Is it the DOT's
20 position that no construction can take place until an
21 encroachment permit is issued?

22 MR. GRUHN: That is correct.

23 MR. HENEERY: Okay. How long does the
24 encroachment permit process typically take?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. HENEGBRY: Pat, do you want to answer
2 that?

3 MR. RODGERS: Yeah. Pat Rodgers. The
4 encroachment permit process begins with the submittal of
5 plans and an application. The plans are reviewed. A
6 project of this magnitude would be reviewed by all
7 engineering offices within the Department. We would
8 expedite that review. Typically a large utility
9 installation could take three weeks for review. Barring
10 any significant revisions to the plans, a permit could be
11 issued within a week or two after the review.

12 MR. HENEGBRY: Well just by frame of
13 reference, how long have -- well, withdrawn. Has an
14 encroachment permit been issued in connection with the
15 Bethel to Norwalk project at this point?

16 MR. RODGERS: There have been no
17 encroachment permits issued for these projects.

18 MR. HENEGBRY: Okay.

19 MR. GRUHN: There has been no application
20 at this point.

21 MR. HENEGBRY: Okay. Is it fair to say
22 that CL&P first approached the Department about the
23 encroachment permit for the Bethel to Norwalk line back
24 in September of 2003?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. WALSH: Again I'm going to object,
2 that's beyond the scope of the direct testimony.

3 MR. HENEERY: Chairman Katz, I'll -- I'm
4 going to withdraw the question to avoid a potential issue
5 on those discussions. I'll move on.

6 My last question, and this may be directed
7 to you, Mr. Gruhn, if you were to assume that the
8 Department were to order the installation of underground
9 facilities between the East Devon and Norwalk Substation,
10 does DOT have a position at this time as to whether or
11 not the Department -- I'm sorry -- whether or not the
12 Council has any authority to impose conditions or
13 requirements that vary in any respect from the DOT's
14 regulations, specifications and policies?

15 MR. GRUHN: Again, that probably is a
16 legal issue that needs to be reviewed by our legal
17 counsel. The Department's position is that the
18 Commissioner has the responsibility to provide a safe
19 transportation system, and under our statutes has the
20 ability to direct the utility where they can be within
21 our right-of-way.

22 CHAIRMAN KATZ: I think we would invite
23 briefs on the subject of who trumps.

24 MR. HENEERY: Nothing further.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MS. RANDELL: Good afternoon, gentlemen.

2 MR. GRUHN: Good afternoon.

3 MS. RANDELL: Mr. Gruhn, a follow-up
4 question. Mr. Henebry asked you with respect to the
5 Siting Council's requirements. If I asked you the same
6 question with respect to the Department of Public Utility
7 Controls' control and governance of method and manner of
8 construction of transmission lines, I take it you would
9 have the same view, that it would be a legal issue, you'd
10 have to talk to your people?

11 MR. GRUHN: Correct, it's a legal issue.
12 The Department's position is is that we have the right to
13 control where facilities are within our right-of-way.

14 MS. RANDELL: What would cause the need
15 for additional drainage that would then require any
16 relocation?

17 MR. GRUHN: I -- probably numerous things.
18 Typically in areas like this there are frequently, for
19 example, high accident locations where it is necessary to
20 do safety improvements. Those safety improvement may
21 require additional lanes, turning lanes, widening of the
22 roadway. When you widen the roadway, you increase the
23 flows into the drainage system, you may have to relocate
24 the drainage system, and that provides for a need.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 Development adjacent to the right-of-way may provide for
2 a need. Expansion of the existing roadway may provide
3 for a need. There are -- there are just too many -- too
4 numerous things. But just in the general maintenance of
5 a transportation system, there are needs to provide for
6 new and enhanced drainage at various times depending upon
7 the location and the conditions.

8 MS. RANDELL: With respect to the last two
9 points you mentioned, development and expansion, the
10 areas we're talking about between Milford and Norwalk are
11 pretty much built up now on both sides, correct,
12 especially Route 1?

13 MR. GRUHN: In a lot of areas, yes. But a
14 lot of areas of Route 1 in other areas that have been
15 built up have been re-built over the years with other
16 facilities, big box versus strip malls, that type of
17 thing. I don't have a great crystal ball that will tell
18 you what development will occur, and I dare say nobody
19 else here does.

20 MS. RANDELL: So you don't know really
21 where you are going to need to do road work in the
22 future?

23 MR. GRUHN: Correct. And where we know we
24 need to do road work, we have been working with Northeast

HEARING RE: CL&P and UI
JUNE 16, 2004

1 utilities to provide them with the plans so that they can
2 avoid our facilities and we can avoid Northeast
3 facilities wherever possible.

4 MS. RANDELL: And if you have to do road
5 work and spend money, ultimately that money is paid for
6 by the residents of Connecticut that's funding the work?

7 MR. GRUHN: That is correct.

8 MS. RANDELL: And Connecticut residents
9 also will pay the cost of the transmission line, correct?

10 MR. GRUHN: That is also correct.

11 MS. RANDELL: And so it's your --

12 MR. GRUHN: Although, let me -- as I
13 understand it there is a socialization of those costs
14 across the entire Northeast.

15 CHAIRMAN KATZ: You're getting into an
16 area beyond DOT's expertise.

17 MS. RANDELL: Okay. In your suggestion
18 that the utility facilities be buried eight feet or more
19 under the roadway, have you considered constructibility,
20 whether it can be constructed?

21 MR. GRUHN: That is beyond our capability
22 to understand. We are not the engineers of a power
23 cable.

24 MS. RANDELL: And am I correct that no

HEARING RE: CL&P and UI
JUNE 16, 2004

1 other utility facilities are eight feet or below now?

2 MR. GRUHN: We have utility facilities in
3 our system that are lower than eight feet at certain
4 locations, yes.

5 MS. RANDELL: Certain locations?

6 MR. GRUHN: Yes.

7 MS. RANDELL: Any electric facilities?

8 MR. GRUHN: Probably. I mean --

9 MS. RANDELL: Can you --

10 MR. GRUHN: -- there's thousands of
11 facilities in our rights-of-way. I couldn't tell you one
12 over another.

13 MS. RANDELL: Picking up on your statement
14 at the beginning of your testimony, Mr. Gruhn, that you
15 would prefer not Route 1 and that you're not opposed to
16 locating the facilities in the streets, I take it that
17 the Department of Transportation has no interest in
18 impeding the construction of a needed electric
19 transmission line?

20 MR. GRUHN: We will work with the Siting
21 Council and with the utilities to provide for the
22 transmission lines as best as possible while meeting the
23 needs of the Department to provide a safe and efficient
24 transportation system.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MS. RANDELL: And with respect to your
2 concern about municipal opposition to working at night, I
3 take it if the municipality is okay with working at
4 night, you don't have a problem with that?

5 MR. GRUHN: In fact, we will most probably
6 be requiring the utility to work at night.

7 MS. RANDELL: Okay. Do you know whether
8 Frontage Road in New Haven is a state road?

9 MR. GRUHN: Frontage road, yes it is -- in
10 New Haven or East Haven?

11 MS. RANDELL: Well, there's two of them.
12 I was going to take them one at a time, but let's do
13 both. Let's start -- let's do both, take your pick first
14 --

15 MR. GRUHN: I'm not aware -- is there a
16 Frontage Road -- I'm not aware of a Frontage Road in New
17 Haven. There's a Frontage Road in East Haven on the
18 north and south sides of I-95.

19 MS. RANDELL: I'm advised that the correct
20 name is North Frontage Road. Does that change anything
21 for New Haven --

22 CHAIRMAN KATZ: Is this where the
23 Teletheatre is in New Haven?

24 MR. GRUHN: No, that's --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MS. RANDELL: No --

2 MR. GRUHN: -- that's Long Wharf Drive.

3 CHAIRMAN KATZ: Oh.

4 MS. RANDELL: That's Long Wharf Drive I
5 believe --

6 CHAIRMAN KATZ: Okay --

7 MS. RANDELL: -- I believe Frontage --

8 North Frontage Road in New Haven goes as you get off of
9 I-91, 95 downtown. It runs --

10 CHAIRMAN KATZ: Okay --

11 MS. RANDELL: -- near the hospital.

12 CHAIRMAN KATZ: Do you want to give them a
13 route number.

14 MS. RANDELL: Route 34.

15 MR. GRUHN: Oh, Route 34, yes. Yes, there
16 is Frontage Road on -- you're correct. I'm sorry.

17 MS. RANDELL: Okay. And you may or may
18 not recall, this goes back some number of years, UI
19 installed underground transmission along North Frontage
20 Road. Do you recall that --

21 MR. GRUHN: I am not --

22 MS. RANDELL: -- in 1990'ish?

23 MR. GRUHN: I am -- I am not aware of
24 that.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 AUDIO TECHNICIAN: Miss Randell, would you
2 just swing that microphone in front of --

3 MS. RANDELL: Sure. Mr. Afrazi --

4 MR. AFRAZI: Yes?

5 MS. RANDELL: -- you were -- you were
6 nodding your head. Do you recall that project?

7 MR. AFRAZI: No, I'm not -- I'm not
8 recalling -- from 1990 you said --

9 MS. RANDELL: That vintage.

10 MR. AFRAZI: Okay, but that was brand new
11 was installed 115-kV lines? What was --

12 MS. RANDELL: Yes.

13 MR. AFRAZI: I'm not recalling it, no.

14 MS. RANDELL: Okay. It was known as the
15 Grand Golf Project. Does that help you out any?

16 MR. AFRAZI: No.

17 MS. RANDELL: Okay. Subject to check,
18 would you agree with me that the work necessary to
19 install a 115-kV transmission line beneath the street is
20 about the same in terms of required work area?

21 MR. TAIT: As?

22 CHAIRMAN KATZ: As?

23 MS. RANDELL: As a 345-kV?

24 CHAIRMAN KATZ: HPFF?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MS. RANDELL: HPFF.

2 MR. GRUHN: I would have to see the
3 details of the installation before I could answer that.

4 MS. RANDELL: Okay.

5 CHAIRMAN KATZ: Miss Randell, is it your
6 intent to cross on the East Shore alternative of these
7 witnesses, specifically East Shore to East Devon?

8 MS. RANDELL: No --

9 CHAIRMAN KATZ: Okay --

10 MS. RANDELL: -- I don't believe --

11 CHAIRMAN KATZ: Okay --

12 MS. RANDELL: -- there's testimony on it,
13 so no.

14 CHAIRMAN KATZ: I was going to ask -- in
15 fact, maybe I should ask the attorneys, they have not
16 prefiled anything on the East Shore route, have they?

17 MS. MESKILL: No, they haven't.

18 CHAIRMAN KATZ: Okay. And they were not
19 asked to I assume?

20 MS. MESKILL: Not -- not yet. (Laughter).

21 CHAIRMAN KATZ: I think that's going to be
22 the banner for this docket --

23 MR. WALSH: Why do I have the feeling
24 we're coming back --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MS. MESKILL: Right.

2 MS. RANDELL: Mr. Gruhn and Mr. Afrazi,
3 could -- this probably is one of you. Am I correct that
4 you're not concerned about all 24 miles of underground
5 equally in terms of the location in the streets and which
6 streets?

7 MR. GRUHN: I can't say that, no. We're
8 as concerned anyplace where it's located within the
9 highway system.

10 MS. RANDELL: Okay. Have you done a
11 detailed look at all 24 miles so you could tell me, you
12 know, for each section what your concerns are that are
13 applicable to that section in addition to the general we
14 don't like this idea?

15 MR. GRUHN: Specific concerns no. We have
16 looked at it from a general viewpoint. It's a policy
17 decision regarding an installation that may have an
18 effect. And we cannot tell you today what type of work
19 will be necessary on the highway system five years from
20 now, 10 years from now, but we know that there will be
21 work required on the system within that 24 miles.

22 MS. RANDELL: Normally when you work with
23 United Illuminating are you able to work out a protocol?

24 MR. GRUHN: Generally, yes.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MS. RANDELL: And then if a problem arises
2 in practice while UI is out doing the work, you're able
3 to address it?

4 MR. GRUHN: Generally, yes.

5 CHAIRMAN KATZ: Just who normally
6 prevails?

7 MR. GRUHN: It -- it depends on the
8 issues. I mean we -- we work cooperatively with the
9 utilities. They have facilities and generally it's
10 distribution facilities and not transmission facilities
11 within our rights-of-way. If we have needs to relocate,
12 our first choice is we design around any utility that is
13 in the facility. Our second choice is we have the
14 utility relocate.

15 CHAIRMAN KATZ: Thank you.

16 MS. RANDELL: Just a quick --

17 COURT REPORTER: One moment please.

18 (Pause). Thank you.

19 MS. RANDELL: Mr. Gruhn, just a quick
20 follow-up on Frontage Road to East Haven that we talked
21 about a few minutes ago. There's a project ongoing there
22 now?

23 MR. GRUHN: That is correct.

24 MS. RANDELL: And you do close off lanes

HEARING RE: CL&P and UI
JUNE 16, 2004

1 of traffic?

2 MR. GRUHN: At night, yes.

3 MS. RANDELL: And what is the construction
4 window at night?

5 MR. GRUHN: It depends on the location,
6 the roadway, the traffic volumes. Probably on the
7 section of Route 1 that we're talking about from
8 generally the Bridgeport area down to Norwalk, it would
9 probably start at 10:00 o'clock at night and be finished
10 at 6:00 o'clock in the morning. Most of those businesses
11 are open until 9:00 or 10:00 o'clock at night, and
12 there's a high volume of traffic until that point in
13 time.

14 MS. RANDELL: Mr. Gruhn, I was
15 inarticulate. I meant what is the construction window
16 now on Frontage Road to East Haven for that project?

17 MR. GRUHN: I couldn't tell you
18 specifically, I would have to look at the contract
19 specifications.

20 MS. RANDELL: Is there plating in that
21 project?

22 MR. GRUHN: There may be plating of cross-
23 trenches, yes.

24 MS. RANDELL: And therefore, you would

HEARING RE: CL&P and UI
JUNE 16, 2004

1 consider plating on this project?

2 MR. GRUHN: There's a difference between
3 plating a cross-trench and plating a longitudinal trench.
4 Plating is inherently unsafe, it is slippery. On Docket
5 217 we have been working with Northeast Utilities. They
6 are looking at various alternatives to be able to provide
7 skid resistant plating. We have not seen any of those
8 alternatives at this point in time to my knowledge. But
9 it -- it is something that there is a concern from a
10 safety perspective with. And long longitudinal distances
11 of plating in a traffic lane that has high volumes of
12 traffic and relatively high speeds is not the preferred
13 alternate. There will be an increase in traffic
14 accidents.

15 MS. RANDELL: What do you consider to be a
16 long stretch for plating?

17 MR. GRUHN: Generally anything over a
18 normal cross width of one or two plates. As we
19 understand it, again from the 217 docket, Northeast has
20 been proposing up to 600 feet of plating in a lane.

21 MS. RANDELL: If you don't allow plating,
22 then you're effectively decreasing the construction
23 window, aren't you?

24 MR. GRUHN: That could very well be.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 Again, we are not familiar with the construction
2 techniques for a power line of this type. Typically most
3 of our work where pipes are put in the ground in a
4 longitudinal fashion, the work is buttoned up and
5 backfilled the same night as the work is performed, a
6 standard construction practice.

7 MS. RANDELL: If a utility were able to
8 demonstrate to you that plating worked on a similar
9 project, would you consider allowing plating?

10 MR. GRUHN: Again, we are waiting for some
11 information from Northeast Utilities on the 217 docket.
12 We have not closed the door on plating. We have
13 expressed the concerns. We have pointed out it's a
14 safety issue that we all should be concerned with.

15 MS. RANDELL: Would it also make sense to
16 allow plating and then if there were a problem, address
17 it?

18 MR. GRUHN: I could not advocate that as
19 an engineer in charge of the safety of the State
20 transportation system, no.

21 MS. RANDELL: Assuming you used non-skid?

22 MR. GRUHN: Again, we are not aware of
23 anything that's out there. Northeast has been looking at
24 it. We are waiting for additional information.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MS. RANDELL: Am I correct then that DOT's
2 policy is not to allow plating on any longitudinal work?

3 MR. GRUHN: Generally, that would be a
4 valid statement, yes.

5 MS. RANDELL: And you apply that to your
6 own work?

7 MR. GRUHN: Yes. Again, as I stated
8 before, typically the only places where plating has been
9 used are on cross-trenches. It's a limited use. And
10 generally most of our longitudinal installations are
11 backfilled the same day and paved.

12 MR. TAIT: Is your concern -- is your
13 concern about plating the skidding or the safety of the
14 trench and a fall in?

15 MR. GRUHN: We assume that if they're
16 going to leave the trench open, they will have adequate
17 shoring --

18 MR. TAIT: So it's --

19 MR. GRUHN: -- shoring is required by OSHA
20 anyway --

21 MR. TAIT: So skidding --

22 MR. GRUHN: It's -- it's a skidding issue.
23 A steel plate is very slippery, particularly when it gets
24 wet. They also cannot be used in the winter, a snow plow

HEARING RE: CL&P and UI
JUNE 16, 2004

1 tends to move them.

2 MR. TAIT: Like my mailbox. (Laughter).

3 MR. GRUHN: Yeah. Pat, get his name.

4 (Laughter).

5 MS. RANDELL: One final area --

6 CHAIRMAN KATZ: Is it true they aim?

7 MR. GRUHN: No. (Laughter).

8 MS. RANDELL: With your concern about the
9 need to divert traffic -- you do do that, correct, there
10 are ways to divert traffic along local roads?

11 MR. GRUHN: Yes, there are ways to divert
12 traffic along local roads. Diversion of traffic on local
13 roads of the volumes that we are talking about are, No.
14 1, very difficult. And No. 2, you also have a large
15 number of truck traffic which may not be able to divert
16 onto those local roads and will create an issue for
17 diversion possibilities.

18 MS. RANDELL: So again, that would be
19 something you would need to work out in practice when you
20 determine where things --

21 MR. GRUHN: Definitely, yes --

22 MS. RANDELL: -- were to be located?

23 MR. GRUHN: Definitely.

24 MS. RANDELL: And then finally, the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 concern about needing to call the utility if you were
2 going to do work, that's your practice now, isn't it?

3 MR. GRUHN: That's not a concern, that's
4 standard practice. That's required of everybody who does
5 underground work. Even a homeowner who is digging on
6 their own property under the law has to call Call Before
7 You Dig.

8 MS. RANDELL: Okay. And then the utility
9 will typically come out and have a representative on
10 site?

11 MR. GRUHN: They will come out. They will
12 mark the location of the utility. They do not generally
13 provide any information on the depth of the utility. And
14 they usually do not have a representative on site. It's
15 up to the contractor to make note of the markings and to
16 heed the markings.

17 MS. RANDELL: Thank you. I have no
18 further questions. I believe Mr. McDermott has a few.

19 MR. BRUCE McDERMOTT: Chairman Katz, in
20 Mr. Dorosh's prefiled testimony he offers up some
21 subsurface investigation reports involving five projects
22 along Route 1 between Orange and Norwalk, and the
23 companies would request that we be provided a copy with
24 those as he's offered. Two copies would be helpful, one

HEARING RE: CL&P and UI
JUNE 16, 2004

1 for each company.

2 CHAIRMAN KATZ: Attorneys, okay? Can we
3 do that?

4 MR. WALSH: That shouldn't be a problem I
5 don't believe --

6 CHAIRMAN KATZ: Okay --

7 MR. WALSH: -- we can do that.

8 MR. McDERMOTT: And then I don't imagine
9 there being any issues, but we'd like to reserve the
10 right to cross-examine if there's anything in those
11 reports.

12 CHAIRMAN KATZ: When will those reports be
13 available?

14 MR. WALSH: Greg, can you give me an
15 estimate as to how long it will take?

16 MR. DOROSH: Possibly a week or two -- a
17 week maybe.

18 CHAIRMAN KATZ: Okay. So we'll do --
19 perhaps in July do a cleanup day and then we'll do it
20 then.

21 MR. McDERMOTT: Fine, thank you.

22 CHAIRMAN KATZ: Okay.

23 MR. McDERMOTT: Mr. Rodgers, are you
24 familiar with a bridge construction project on the Post

HEARING RE: CL&P and UI
JUNE 16, 2004

1 Road on the Fairfield/Westport line? The bridge actually
2 goes over -- I believe it's the Sasco Creek?

3 MR. DOROSH: I am not, sir.

4 MR. McDERMOTT: Does anyone on the panel?

5 MR. AFRAZI: Yes, I am.

6 MR. McDERMOTT: I'm sorry, you are?

7 MR. AFRAZI: I'm sorry. Sohrab Afrazi --

8 MR. McDERMOTT: And what --

9 MR. AFRAZI: -- utilities section.

10 MR. McDERMOTT: Was that a reconstruction
11 or just a maintenance project?

12 MR. AFRAZI: That was -- my understanding
13 was at the time we did reconstruction of the roadway
14 itself and also there was a structure, that we replaced
15 the structure.

16 MR. McDERMOTT: And what was the length of
17 the construction period for that?

18 MR. AFRAZI: I say approximately 400 feet.

19 MR. McDERMOTT: I meant in terms of time.

20 MR. AFRAZI: Oh, the time, I'm sorry. The
21 time -- the time is, again approximate, I say one
22 construction season, which is one year.

23 MR. McDERMOTT: It took a year. And it's
24 true, isn't it, the construction sequence was such that

HEARING RE: CL&P and UI
JUNE 16, 2004

1 you undertook construction on one side of the bridge and
2 then you did the other side of the bridge, is that
3 correct?

4 MR. AFRAZI: Yes, we did.

5 MR. McDERMOTT: And in doing that, you
6 closed down the lanes in one direction and rerouted those
7 lanes onto the other side of the road, is that correct?

8 MR. AFRAZI: I -- I vaguely remember. I
9 have to be honest, I don't -- I don't know the detail,
10 the exact detail of the MPT for that job.

11 MR. McDERMOTT: With the -- I'm sorry,
12 what was the initials used?

13 MR. AFRAZI: Maintenance protection of
14 traffic.

15 MR. McDERMOTT: But you -- you would agree
16 that in order to reconstruct one side of the bridge, it
17 was probably necessary to close down one or more lanes of
18 that side of the bridge?

19 MR. AFRAZI: My understanding was that
20 particular project that I was involved, that was my job
21 as a utility engineer -- we had a issue with the utility
22 companies and we had SNET --

23 MR. McDERMOTT: That --

24 MR. AFRAZI: I'm just going and exactly

HEARING RE: CL&P and UI
JUNE 16, 2004

1 giving you the full detail of why we had a problem with
2 that. And that -- that project --

3 CHAIRMAN KATZ: But that wasn't the
4 question. So why don't we let him ask the question again
5 and then we'll get your answer.

6 MR. McDERMOTT: Would you agree that it
7 was necessary to close down one side of the road in order
8 to undertake construction on one side of the bridge?

9 MR. AFRAZI: That was necessary, yes.

10 MR. McDERMOTT: Okay. And so one side --
11 is it fair to say one side of the bridge was closed for
12 six months and then the other side of the bridge was
13 closed for the other six months until the project was
14 completed during the year of construction period?

15 MR. AFRAZI: Again, I'm not a hundred
16 percent sure of the time-wise, but there was necessary
17 for the utilities to relocate from one side to another
18 side.

19 MR. McDERMOTT: Okay, that -- again, that
20 wasn't the question exactly or actually even generally I
21 don't think.

22 CHAIRMAN KATZ: Why don't you rephrase the
23 question --

24 MR. AFRAZI: I'm thinking as an engineer.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 CHAIRMAN KATZ: Yes. And I'm fully
2 sympathetic, but we're dealing with lawyers and we must
3 bear -- (laughter) --

4 MR. McDERMOTT: This has become my fault -
5 - (laughter) --

6 CHAIRMAN KATZ: If you don't have PE after
7 your name, you get no sympathy from me.

8 MR. ASHTON: Or me.

9 MR. McDERMOTT: Would you agree that it
10 was necessary to close down one side of Post Road for six
11 months and then to close down the other side of the road
12 for six months during your year long construction period?

13 MR. AFRAZI: I say yes.

14 MR. McDERMOTT: Okay. Now on page 26 of
15 the prefiled testimony -- I believe this is your
16 testimony, Mr. Rodgers, you suggest that one of your
17 concerns about the project's proposed construction is
18 that you will be inundated with telephone calls and that
19 you don't have sufficient staff to handle the number of
20 complaints that you'll be -- that will be expected. How
21 many -- do you have any idea how many complaints you
22 received during the year that you had half the Post Road
23 closed on the Fairfield/Westport border?

24 MR. CAREY: This is John Carey. That's my

HEARING RE: CL&P and UI
JUNE 16, 2004

1 testimony.

2 MR. McDERMOTT: Oh, I'm sorry, Mr. Carey,
3 thank you.

4 MR. CAREY: No, I don't have any idea for
5 that particular project.

6 MR. McDERMOTT: Does anyone else on the
7 panel?

8 MR. GRUHN: I can say there were numerous
9 calls. I can't give you a number.

10 MR. McDERMOTT: Do you feel you had
11 sufficient staff to handle those calls?

12 MR. GRUHN: No. And at that time we had
13 more staff than we have today.

14 MR. McDERMOTT: Were there any incidents
15 on I-95 during that year construction period that
16 required heavier utilization of the Post Road in that
17 section of Fairfield County?

18 MR. GRUHN: I can't answer that
19 specifically.

20 MR. McDERMOTT: Mr. Dorosh, in your
21 testimony you suggest that during -- during five projects
22 that were conducted on Route 1 between Orange and Norwalk
23 that 83 percent of the soils encountered were
24 contaminated. Would you define contamination please?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. DOROSH: Contaminated is typically
2 what we call any soils that we sample that are -- that we
3 find contaminates above the detection limits.

4 CHAIRMAN KATZ: What percentage of those
5 couldn't go back in the hole?

6 MR. McDERMOTT: Thank you --

7 MR. DOROSH: What percentage of them could
8 not go back into the hole?

9 CHAIRMAN KATZ: Right.

10 MR. DOROSH: Uh --

11 CHAIRMAN KATZ: There's contaminated and
12 then there's contaminated.

13 MR. DOROSH: Uh --

14 MR. McDERMOTT: Maybe I could just ask a
15 follow-up on Chairman Katz's --

16 CHAIRMAN KATZ: Yeah.

17 MR. McDERMOTT: -- do the remediation
18 standard regulations play a role in that determination as
19 to what soils go back in the hole and which don't?

20 MR. DOROSH: Yes, they do.

21 MR. McDERMOTT: And of the 83 percent,
22 which percent were above the remediation standards and
23 which were below?

24 MR. DOROSH: I believe approximately 83

HEARING RE: CL&P and UI
JUNE 16, 2004

1 percent were above the remediation standard regulations.

2 CHAIRMAN KATZ: I'm going to give you a
3 chance to check that.

4 MR. DOROSH: Eighty -- 83 percent -- I'm
5 sorry -- I don't have those numbers in front of me.

6 CHAIRMAN KATZ: Okay.

7 MR. McDERMOTT: Can you get me those
8 numbers?

9 MR. DOROSH: Yes.

10 MR. McDERMOTT: Maybe we could have that
11 as a DOT homework assignment?

12 CHAIRMAN KATZ: Yes. Can we do that? The
13 attorneys are nodding yes.

14 MR. WALSH: Yes, we'll be able to do that.

15 CHAIRMAN KATZ: Yes.

16 MR. McDERMOTT: Let's assume if there were
17 some I think small number -- some small level of soils
18 that were above the remediation standard regulations that
19 had to be disposed of off-site, does the DOT undertake to
20 seek contribution from the responsible party for those --
21 for that contamination for your disposal costs?

22 MR. DOROSH: No, we don't.

23 MR. McDERMOTT: And is there a reason?

24 MR. DOROSH: It's -- it's not something we

HEARING RE: CL&P and UI
JUNE 16, 2004

1 do. It's just not --

2 COURT REPORTER: I'm sorry, can you speak
3 up please.

4 MR. DOROSH: Okay, I'm sorry. Uh --

5 MR. McDERMOTT: Mr. Gruhn, that sounds
6 like a DOT policy question. Do you care to handle that?

7 MR. GRUHN: Yeah, it is basically a policy
8 question. The general policy is if there is -- if we are
9 able to identify a source, then we will seek a potential
10 party, for example if it's a property acquisition where
11 we have contamination. If it's just found in the roadway
12 and nobody knows where it came from, we will mitigate the
13 soil.

14 MR. McDERMOTT: Okay, thank you.

15 CHAIRMAN KATZ: Let's -- let's just take
16 the scenario though it's in the roadway, there's a gas
17 station next to the spot, there's gas in the soil,
18 there's only one gas station --

19 MR. GRUHN: Again, it -- it depends on the
20 conditions and whether or not it's deemed feasible.
21 Sometimes it's more expensive to chase a responsible
22 party than it is to simply dispose of the soil and get
23 the project done.

24 MR. McDERMOTT: Thank you. Back to your

HEARING RE: CL&P and UI
JUNE 16, 2004

1 testimony on page 30, Mr. Dorosh, you have some cost
2 ranges that you suggest are I guess pursuant to some DOT
3 unit pricing. And it has for various projects your
4 disposal cost. May I ask you why the disposal cost for
5 soil that is associated with bridge construction is
6 \$15.00 more expensive per ton than soil disposed pursuant
7 to road construction?

8 MR. DOROSH: I don't have the answer to
9 that. That's simply just the way the contractor bid it
10 and what the price at the disposal sites were at the
11 time.

12 MR. McDERMOTT: Now, Mr. Dorosh, you
13 suggest in your prefiled testimony that 83 percent of the
14 soil that the project will disturb during the
15 installation, the 24 miles of underground cable will be
16 contaminated. Do you stand by that testimony?

17 MR. DOROSH: Yes.

18 MR. McDERMOTT: And is that based on
19 subsurface investigations that DOT has undertaken or how
20 do you arrive at 83 percent of contaminated soil?

21 MR. DOROSH: We took a sample of five
22 projects within the Route 1 corridor between Orange and
23 Norwalk based on the actual analytical data, and 83
24 percent of the soils -- or of the area within that

HEARING RE: CL&P and UI
JUNE 16, 2004

1 corridor would be considered controlled materials.

2 MR. McDERMOTT: Okay. So in other words,
3 back to your previous testimony, 83 percent of that soil
4 was determined to have some level of contamination and
5 you're not able to say what percent of that 83 percent
6 was above the remediation standard -- the RSR's, the
7 remediation standard regulations?

8 MR. DOROSH: Correct. I don't recall the
9 exact number, but the majority of the 83 percent was
10 required to go -- would be required to go off-site.

11 MR. McDERMOTT: Okay. So your testimony
12 is that we should expect -- approximately 83 percent of
13 the soil that we go through with our project to be
14 contaminated above remediation standard regulations,
15 requiring off-site disposal based on your five projects,
16 is that correct?

17 CHAIRMAN KATZ: Why don't we let him check
18 that, okay.

19 MR. McDERMOTT: I'm having so much fun.
20 (Laughter). Mr. Dorosh, what was the length of the five
21 projects that you were talking about in total?

22 MR. DOROSH: The -- if you go to Table 3
23 of the -- I don't know if it's in the original submittal
24 -- yeah, it is -- it's on page 37. If you add together

HEARING RE: CL&P and UI
JUNE 16, 2004

1 the clean length, the polluted length, and the
2 contaminated length, that would be the total length of
3 that -- of the project that was evaluated.

4 MR. McDERMOTT: Okay. What's the
5 difference between polluted and contaminated?

6 MR. DOROSH: Okay, this might help to
7 answer your other question. Polluted soil is -- what we
8 consider polluted soil is soils that contain chemical
9 concentrations above the detectable limit, but are below
10 the remediation standard regulations for those particular
11 areas. It would be the soil within that particular --
12 within that particular length that you would have the
13 potential to reuse within the project limits.

14 MR. McDERMOTT: Okay. And then
15 contaminated soil would be above the remediation standard
16 regulations?

17 MR. DOROSH: Correct.

18 MR. McDERMOTT: Okay.

19 CHAIRMAN KATZ: And what page are you on
20 where you have those lengths of clean, polluted, and --

21 MR. McDERMOTT: Uh --

22 MR. GRUHN: Page 37.

23 MR. DOROSH: 37.

24 CHAIRMAN KATZ: Thank you.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. WALSH: Madam Chairman, that may
2 answer your question --

3 CHAIRMAN KATZ: Yes --

4 AUDIO TECHNICIAN: Hang on a second -- go
5 ahead.

6 MR. WALSH: Madam Chairman, I believe that
7 chart on page 37, Table 3 may answer your question --

8 CHAIRMAN KATZ: Yes, that's very helpful,
9 thank you.

10 MR. McDERMOTT: Mr. Dorosh, does that mean
11 that you -- that DOT samples every truckload of soil, or
12 how frequently is a soil sample taken and analyzed for
13 contaminants?

14 MR. DOROSH: There's not a set say length.
15 We don't -- sometimes it might be every hundred feet,
16 every 250 feet. It all depends on the type of
17 construction activities that are going to take place
18 within that particular area.

19 CHAIRMAN KATZ: So does every truck full
20 from the contaminated length go off-site --

21 MR. DOROSH: Uh --

22 CHAIRMAN KATZ: -- or do you make a --

23 MR. DOROSH: The soils are pre-
24 characterized before construction --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 CHAIRMAN KATZ: Okay --

2 MR. DOROSH: -- into different areas,
3 either clean, polluted, or an area that would have to
4 require the material to go to a waste stockpile area.
5 Every amount of soil that leaves the DOT that goes to
6 final -- or that leaves the project that goes to a
7 disposal facility gets tested. And the disposal
8 facilities require testing at different frequencies
9 depending on where it goes.

10 CHAIRMAN KATZ: Okay. So I guess the
11 answer is every truck full of soil from a contaminated
12 section does not necessarily go to a final disposal
13 facility?

14 MR. DOROSH: Correct.

15 MR. McDERMOTT: Okay, thank you. And my
16 final question, Mr. Dorosh, do you have any other
17 subsurface investigations concerning soil types along the
18 Post Road, U.S. Route 1, other than the five that are
19 discussed in your report?

20 MR. DOROSH: Those are the five that we
21 use that were current projects. Off the top of my head,
22 I'm not aware of any other projects right now that are
23 within that corridor.

24 MR. McDERMOTT: Okay. That's it from us,

HEARING RE: CL&P and UI
JUNE 16, 2004

1 I think.

2 CHAIRMAN KATZ: Thank you. We'll go
3 through the list -- I just have one quick one -- I know
4 you did not evaluate the East Shore route, but just in
5 general, looking at Route 1 from East Shore in New Haven
6 to East Devon along Route 1 underground and from East
7 Devon to Norwalk, is construction on both of those parts
8 of Route 1 have about the same challenges or does one
9 have more or less challenges from New Haven to Milford or
10 from Milford to Norwalk?

11 MR. GRUHN: Generally, I would say they
12 have the same challenges. There are areas of Route 1
13 that go into residential neighborhoods where you do get a
14 drop off in the volume of traffic to a degree as opposed
15 to other areas. The Milford/Orange area is very heavily
16 congested, very heavily traveled. Milford Avenue -- or
17 the Milford area again is very heavily congested, a lot
18 of businesses --

19 CHAIRMAN KATZ: Up in New Haven, West
20 Haven?

21 MR. GRUHN: New Haven, West Haven heavily
22 congested, a lot of business. Basically, Route 1 is a
23 commercial thoroughfare. It's -- it's a high density
24 traffic arterial, there's a lot of commuter traffic,

HEARING RE: CL&P and UI
JUNE 16, 2004

1 there's a lot of daily traffic, there's a lot of traffic
2 in the early evening up until about 10:00 o'clock at
3 night when it drops off. You do again get occasional
4 pockets along that area just like you do south of
5 Bridgeport where the volumes are not as great as in the
6 actual commercial districts, but there's still very high
7 volumes.

8 CHAIRMAN KATZ: Okay. So would it be a
9 fair statement that urban areas -- underground
10 construction in urban areas is more challenging, but --

11 MR. GRUHN: Extremely challenging --

12 CHAIRMAN KATZ: -- would you say that --

13 MR. GRUHN: -- and also locating where to
14 put the facility in those urban areas is very
15 challenging. There are a lot of utilities in those roads.
16 There are very limited available spaces to put
17 additional utilities in. They may wind up having to go
18 right down the center of the road because that's the only
19 place that nobody has built at this point in time, which
20 then creates significant other issues, it's not just one
21 lane out of traffic, it's two lanes out of traffic. So
22 until the design is actually completed and the location
23 of where the facility is going to go is known, I can't
24 really give you what the issues are.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 CHAIRMAN KATZ: Okay. So would it be a
2 fair statement to say challenging but doable?

3 MR. GRUHN: Anything is doable for the
4 right amount of money and the right inconvenience to
5 everybody.

6 CHAIRMAN KATZ: Okay, a fair statement.
7 Okay, next on the list Representative Adinolfi? Not
8 present. The Town of Middlefield? Wallingford/Durham?

9 A VOICE: No.

10 CHAIRMAN KATZ: No. Woodbridge?

11 A VOICE: We're going to defer to --
12 (indiscernible) --

13 CHAIRMAN KATZ: Okay.

14 COURT REPORTER: Could you repeat what you
15 just said please?

16 CHAIRMAN KATZ: Mr. Frank says he's
17 deferring to Mr. Burturla, right?

18 MR. RICHARD BURTURLA: Yes, Chairman Katz.
19 Richard Burturla on behalf of the Town of Cheshire. I'll
20 be doing the cross-examination for what I'll call the
21 municipal group, that's Wallingford, Durham, Milford and
22 Orange, etcetera.

23 CHAIRMAN KATZ: Have a seat. Did you get
24 that, Tony? Okay. Are you including Orange in that

HEARING RE: CL&P and UI
JUNE 16, 2004

1 group, I'm sorry?

2 MR. BURTURLA: Yes, I am.

3 CHAIRMAN KATZ: Great.

4 COURT REPORTER: Could --

5 CHAIRMAN KATZ: Yeah, if you could just
6 give your name again and --

7 MR. BURTURLA: Yes. Richard Burturla
8 representing the Town of Cheshire.

9 MR. ASHTON: Et al.

10 CHAIRMAN KATZ: Yes, Cheshire et al --

11 MR. BURTURLA: Cheshire et al I guess for
12 these purposes today. Good afternoon, gentlemen.

13 MR. GRUHN: Good afternoon.

14 MR. BURTURLA: You have detailed a great
15 many of potential difficulties, but I believe, Mr. Gruhn,
16 you said that anything can be done, isn't that right?

17 MR. GRUHN: For the right amount of money
18 and inconvenience, yes.

19 MR. BURTURLA: And the right amount of
20 coordination, right?

21 MR. GRUHN: Coordination is part of it,
22 yes.

23 MR. BURTURLA: And planning?

24 MR. GRUHN: Yes.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. BURTURLA: I mean you just did it on
2 I-95? You did an amazing job returning I-95 to use in
3 significantly less time than originally projected --

4 MR. GRUHN: Thank you --

5 MR. BURTURLA: -- isn't that right?

6 MR. GRUHN: -- yes. And there was no
7 traffic on I-95 at the time I would like to point out.

8 CHAIRMAN KATZ: So what happened to
9 Waterbury? (Laughter). I'm sorry, go on.

10 MR. BURTURLA: Mr. Gruhn and gentlemen, I
11 take it that none of you have had any experience at all
12 in dealing with state highways and underground 345-kV
13 lines, any actual experience, is that in fact true?

14 MR. GRUHN: As I understand it, very few
15 people have had any experience.

16 MR. BURTURLA: But in terms of this
17 particular panel?

18 MR. GRUHN: Correct.

19 MR. BURTURLA: Alright. So to the extent
20 you have made predictions if you will or projections and
21 those sorts of things, you're doing it without having any
22 actual experience dealing with the state highways and
23 buried 345 lines, is that right?

24 MR. TAIT: How about 217?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. GRUHN: We -- we are doing it based on
2 information that has been provided to us by Northeast
3 Utilities in Docket 217.

4 MR. BURTURLA: I understand that, but to
5 the extent -- to this day -- I mean the state highway
6 system has not had to deal with the actual implementation
7 of a buried 345 line, isn't that right?

8 MR. GRUHN: That is correct.

9 MR. BURTURLA: Alright. And you have
10 detailed, I take it, that you have various cost concerns
11 going forward if in fact a 345-kV line is located within
12 the State right-of-way, is that right?

13 MR. GRUHN: That is correct based on
14 representations given to us by Northeast Utilities.

15 MR. BURTURLA: Now if I understand your
16 testimony correctly, to the extent that you're able to
17 reach an agreement with Northeast Utilities, such an
18 agreement would perhaps obviate those financial concerns,
19 is that right?

20 MR. GRUHN: That is correct.

21 MR. BURTURLA: And that's something you're
22 exploring?

23 MR. GRUHN: That is correct.

24 MR. BURTURLA: And that's something

HEARING RE: CL&P and UI
JUNE 16, 2004

1 Northeast Utilities is exploring, isn't that right? And
2 by Northeast Utilities, I should really say the
3 Applicants, right?

4 MR. GRUHN: That is correct.

5 MR. BURTURLA: And there are techniques
6 that you utilize all the time to minimize disruption to
7 the State highway system when there is construction
8 projects indeed by utilities, right?

9 MR. GRUHN: That is correct.

10 MR. BURTURLA: And -- and other types of
11 construction projects, some of your own?

12 MR. GRUHN: Correct.

13 MR. BURTURLA: You divert traffic
14 sometimes onto local roads, right?

15 MR. GRUHN: Yes.

16 MR. BURTURLA: You hire police officers?

17 MR. GRUHN: Yes.

18 MR. BURTURLA: You coordinate with the
19 various municipalities and you consult with those
20 municipalities, right?

21 MR. GRUHN: Correct.

22 MR. BURTURLA: And you coordinate and
23 consult with the utilities?

24 MR. GRUHN: Correct.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. BURTURLA: Now, all of those
2 techniques would be utilized here to minimize disruption
3 as well, right?

4 MR. GRUHN: Correct.

5 MR. BURTURLA: And perhaps some others?

6 MR. GRUHN: Perhaps.

7 MR. BURTURLA: And in connection with a
8 project of this magnitude, if I understood your
9 testimony, you're not in any way suggesting that a
10 project of this magnitude be conducted at peak or during
11 the daylight hours, is that right?

12 MR. GRUHN: That is correct.

13 MR. BURTURLA: You would recommend that
14 such a project be conducted at off-peak night hours, is
15 that right?

16 MR. GRUHN: That is correct. And we have
17 been told that some of the project cannot be done during
18 those periods.

19 MR. BURTURLA: Well, the DOT has conducted
20 a great many of major construction projects to the
21 Housatonic Bridge, the Merritt Parkway, the construction
22 if you will at night, and a great number of other
23 sophisticated complex projects done primarily at night,
24 is that right?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. GRUHN: Yes.

2 MR. BURTURLA: And -- but that certainly
3 would be your preference and that's something that your
4 department would do its utmost to see that would happen
5 if this project were in fact permitted, isn't that right?

6 MR. GRUHN: As I already testified, yes,
7 we would require the work to be done at night.

8 MR. BURTURLA: Now, with respect to Route
9 1, Route 1 is a state highway, right?

10 MR. GRUHN: Correct.

11 MR. BURTURLA: Route 1 has a great number
12 of public utilities already sited within the right-of-
13 way?

14 MR. GRUHN: Correct.

15 MR. BURTURLA: Indeed you have local
16 utilities such as water pollution control facilities,
17 right?

18 MR. GRUHN: Correct.

19 MR. BURTURLA: You have power lines,
20 right?

21 MR. GRUHN: Every utility that there is we
22 have, yes.

23 MR. BURTURLA: You have gas lines?

24 MR. GRUHN: I don't think we have --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. BURTURLA: Well --

2 MR. GRUHN: -- to mention every one of
3 them --

4 MR. BURTURLA: -- well, I'm coming to --

5 MR. GRUHN: -- but we have every utility
6 there is --

7 MR. BURTURLA: You also have, I take it,
8 in parts of Route 1 and parts of state highways similar
9 to Route 1, high pressure gas transmission lines, do you
10 not?

11 MR. GRUHN: Yes, we do.

12 MR. BURTURLA: And that's something --
13 that -- that certainly is a significant type of a utility
14 sited within a public right-of-way, isn't that correct?

15 MR. GRUHN: They're all significant.

16 MR. BURTURLA: And -- but to the extent
17 you were saying earlier that with respect to the
18 testimony regarding eight feet, how -- basically -- let's
19 take the high pressure gas transmission line that runs
20 through Stratford into Bridgeport to the Bridgeport
21 Energy Power Plant, does anyone know exactly to what
22 depth that is sited?

23 MR. GRUHN: I have no idea.

24 MR. BURTURLA: But that's the sort of

HEARING RE: CL&P and UI
JUNE 16, 2004

1 thing that you could work out and coordinate with various
2 municipalities and with utilities, isn't that right?

3 MR. GRUHN: That is correct. And it's
4 also the sort of thing to divert around a transportation
5 facility is very inexpensive to do. It is not two
6 million dollars for 1800 feet.

7 MR. BURTURLA: Well, do you know what the
8 cost was on the high pressure gas transmission line?

9 MR. GRUHN: No, I don't.

10 MR. BURTURLA: You don't know how it was
11 segmented and -- you don't know how that compares to the
12 two million dollar figure you're using?

13 MR. GRUHN: Not off the top of my head,
14 no.

15 MR. BURTURLA: Alright. With respect to
16 traffic counts, the traffic counts cited at various
17 places in the testimony that was filed, those counts in
18 most instances you were not referring to off-peak counts
19 when -- for example, I believe --

20 MR. GRUHN: (Indiscernible) --

21 MR. BURTURLA: -- Mr. Carey, I think it
22 was your testimony, you referred to traffic counts on
23 Route 1, particularly in the area of Stratford
24 approaching, I believe, 43,000 vehicles. Do you recall

HEARING RE: CL&P and UI
JUNE 16, 2004

1 that?

2 MR. CAREY: Yes.

3 MR. BURTURLA: Now, that was a peak --

4 MR. CAREY: Those --

5 MR. BURTURLA: -- figure I take it?

6 MR. CAREY: Those figures were average
7 daily traffic.

8 MR. BURTURLA: Average daily traffic.
9 Those figures were not done in off-peak hours, that's
10 just an average. Do you know what the figures are for
11 off-peak?

12 MR. CAREY: The -- the average daily
13 traffic represents the traffic that goes past a location
14 over a 24-hour period. They would have included peak
15 hour counts, but those were not mentioned in the
16 testimony.

17 MR. BURTURLA: I understand. And do you,
18 in fact, have figures available for the time period in
19 which the Department would be suggesting that
20 construction occur?

21 MR. CAREY: Our department has figures
22 available.

23 MR. BURTURLA: And could you provide those
24 figures to the Siting Council?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. CAREY: Not at this moment, but they
2 could be provided.

3 MR. BURTURLA: Then I would ask you to do
4 so.

5 CHAIRMAN KATZ: Can we have agreement?

6 MR. WALSH: I don't think that should be a
7 problem.

8 MR. CAREY: At what locations?

9 MR. BURTURLA: Well how about along Route
10 1.

11 MR. WALSH: At what location? I mean
12 there's -- I believe that there's a great many traffic
13 counts that are taken along Route 1. I think the
14 Department would need some specificity as to what
15 specific locations you're looking at -- looking for.

16 CHAIRMAN KATZ: Why don't you pick a town.

17 MR. BURTURLA: Well, why don't we -- why
18 don't we pick Route 1 that you referred to in terms of
19 your testimony, why don't we pick Stratford for example.

20 CHAIRMAN KATZ: Okay.

21 MR. BURTURLA: And --

22 MR. ASHTON: Do you have multiple readings
23 in Stratford?

24 MR. CAREY: It's likely that we do.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. ASHTON: You've got a problem here
2 that I think you've got to help solve.

3 MR. BURTURLA: Well, I -- I think we can
4 solve it. Why don't you give us the figures that
5 replicate where you took the figures that you included in
6 your testimony as to the average daily traffic count --

7 MR. CAREY: Okay --

8 MR. BURTURLA: -- the exact site?

9 MR. CAREY: For Stratford?

10 MR. BURTURLA: For Stratford. You
11 referred to a 43,000 car count. Why don't you go to that
12 exact spot and give us the -- what I'll call the off-peak
13 traffic count? Fair enough?

14 CHAIRMAN KATZ: Okay. I will take that as
15 agreement.

16 MR. CAREY: Yes.

17 MR. WALSH: Fine.

18 MR. BURTURLA: And I take it to the extent
19 possible underground transmission lines should be sited,
20 if possible, outside the limits of the pavement area, is
21 that right?

22 MR. GRUHN: That is the general guidance
23 we have asked Northeast Utilities to use on Docket 217
24 and we would ask here.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. BURTURLA: And for example, if -- if -
2 - with respect to say the Wilbur Cross alternative, if
3 one were to look at that, you would recommend that the
4 lines be buried outside the limits of the paved area,
5 right?

6 MR. GRUHN: On limited access highways,
7 the only place we will permit lines is immediately
8 adjacent to the right-of-way line.

9 MR. BURTURLA: And that would -- that
10 would hold true for any limited access highway, right?

11 MR. GRUHN: Any limited access highway,
12 yes.

13 MR. BURTURLA: And to follow up on a
14 question from I believe Mr. Ashton, your testimony
15 regarding Route 1 versus local roads or state highways,
16 even Wilbur Cross, I assume you mean the same for that,
17 you're -- you're not saying that such lines could not be
18 sited within limited access highways or full access
19 highways? What you're saying is you have a preference
20 that that not be done, is that right?

21 MR. GRUHN: That is correct. By going in
22 other routes there are -- you eliminate and mitigate an
23 lot of the issues that you face in high volume traffic
24 areas. You also reduce construction costs for installing

HEARING RE: CL&P and UI
JUNE 16, 2004

1 the lines because of that mitigation of the traffic
2 impacts.

3 MR. BURTURLA: Alright. Your testimony
4 just so I understand it and the testimony that's been
5 filed on that point, relates to traffic congestion and
6 your concerns about public safety with respect to
7 traffic, right?

8 MR. GRUHN: That is correct.

9 MR. BURTURLA: You're not looking at --
10 and I just want to be sure -- you're not looking in any
11 way at some of the other types of public safety concerns
12 that go with siting a line such as this? I mean I saw
13 most of you gentlemen sitting here all morning listening
14 to the EMF testimony and none of you, I take it, are
15 qualified to talk about something like that, right?

16 MR. GRUHN: I don't know after listening
17 this morning, maybe I am. (Laughter). No, we -- we are
18 definitely not EMF --

19 MR. BURTURLA: I would request that Mr.
20 Gruhn come back for the -- (laughter) -- but my -- my
21 point is -- my point is when you talk about public safety
22 and those sorts of things, you're limiting your testimony
23 to really your concerns about the operation of the system
24 and not other types of public safety concerns?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. GRUHN: Our testimony is related to
2 the transportation system, correct.

3 MR. BURTURLA: Alright. So you're not in
4 any way referring to the fact that if -- say for example
5 -- you're not looking at what impact in a greater sense
6 on public safety would happen if a 345-kV line were sited
7 next to a school, next to a playground, around the corner
8 from a recreation center, none of those things --

9 MR. GRUHN: That is --

10 MR. BURTURLA: -- when you're talking
11 about public safety, you're talking about it --

12 MR. GRUHN: That is not the expertise of
13 the Department of Transportation.

14 MR. BURTURLA: That's what I thought, sir.
15 Thank you, I have nothing further.

16 CHAIRMAN KATZ: Thank you. Next, the Town
17 of Westport? Absent. The City of Meriden? Absent.
18 Assistant Attorney General Michael Wertheimer?

19 MR. WERTHEIMER: No questions.

20 CHAIRMAN KATZ: Mr. Wertheimer says no
21 questions. The City of Bridgeport? Absent. Communities
22 for Responsible Energy? Absent. Office of Consumer
23 Counsel? Woodlands Coalition? ISO New England? The
24 Town of Fairfield? RWA? Just stop --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. LORD: No questions.

2 CHAIRMAN KATZ: Mr. Lord says no
3 questions. The Town of North Haven?

4 A VOICE: No questions.

5 CHAIRMAN KATZ: Ezra Academy, et al?

6 MR. SCHAEFER: No questions.

7 CHAIRMAN KATZ: Mr. Cunliffe? Oh, as you
8 probably figured out by now, Mr. Gruhn, you are the
9 answer man, and we're thinking of keeping you past 5:00
10 o'clock if you're willing.

11 MR. GRUHN: I'll force myself.

12 (Laughter).

13 CHAIRMAN KATZ: Thank you.

14 MR. GRUHN: If we can get it done today,
15 it's probably to everybody's benefit.

16 CHAIRMAN KATZ: I think it would be good.
17 I think trying to divide --

18 MR. GRUHN: If it goes much after 5:30, I
19 do have to step out and make a phone call though.

20 CHAIRMAN KATZ: Okay. I think we'll be
21 done. It's just that it's hard to decide which questions
22 are policy versus --

23 MR. GRUHN: Certainly --

24 CHAIRMAN KATZ: -- the rest of your staff.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 So we'd like to keep you and keep going if you don't
2 mind.

3 MR. GRUHN: My staff is more than happy to
4 stay with me. (Laughter).

5 A VOICE: I'm sure --

6 A VOICE: We are?

7 A VOICE: All those in favor say aye.

8 (Multiple voices overlapping,
9 indiscernible)

10 CHAIRMAN KATZ: Mr. Cunliffe.

11 MR. CUNLIFFE: Thank you. You speak to
12 inspections and testings of the construction project. Do
13 you require progress reports and at what frequency?

14 MR. GRUHN: Yes, we would require daily
15 progress reports from Northeast Utilities.

16 MR. CUNLIFFE: And they would be daily?

17 MR. GRUHN: Yes.

18 CHAIRMAN KATZ: Is that a phone call or is
19 that --

20 MR. GRUHN: We -- we would have a permit
21 inspector on site just overseeing the general
22 administrative issues with the permit and they would
23 report to him with the information. We could accept the
24 reports on a weekly basis, but it would detail where and

HEARING RE: CL&P and UI
JUNE 16, 2004

1 what work was done on a daily basis.

2 MR. ASHTON: Does that generally apply to
3 other contractors too?

4 MR. GRUHN: Generally on a typical permit
5 project, the permit inspector will go out to the project
6 daily or every other day depending upon the work being
7 done. On major projects like this -- for example, when
8 we did a lot of fiber optic work, we put that requirement
9 into the permit because of the amount of disruption to
10 the highway system caused by the work.

11 MR. ASHTON: Thank you.

12 MR. CUNLIFFE: The time to review a plan
13 for an encroachment permit, you stated about three to
14 four weeks would be about the timeframe?

15 MR. GRUHN: Correct. We probably should
16 point out that obviously we have been working with the
17 Siting Council and the utilities when they submit their
18 D&M plans, we have extensively reviewed them on Docket
19 217. I would expect we would do the same thing on the
20 facilities going in under this docket. And that helps to
21 shorten that timeframe. So it could very well be a
22 shorter timeframe. A lot of the reviews would be done
23 and the issues resolved prior to the actual application
24 for the permit.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. CUNLIFFE: Thank you, you anticipated
2 my question, Mr. Gruhn. The --

3 CHAIRMAN KATZ: He's been sitting here
4 long enough. (Laughter).

5 MR. CUNLIFFE: In the testimony they speak
6 about accident rates at intersections and roadways. Is
7 this documented in any tables in the testimony?

8 MR. GRUHN: Say that again, I'm sorry?

9 MR. CUNLIFFE: The accidents, the --

10 MR. GRUHN: Yes.

11 MR. CUNLIFFE: Are those documented in any
12 tables in the testimony?

13 MR. GRUHN: No, we did not give you
14 information. In fact, there is a ruling that that is
15 confidential information, the high accident locations
16 both on a federal and state level. So if we were to
17 submit it, it would have to be in confidence.

18 MR. CUNLIFFE: Okay.

19 CHAIRMAN KATZ: Is this Homeland Security?

20 MR. GRUHN: No, it's -- it's an issue
21 dealing with the potential liabilities involved --

22 CHAIRMAN KATZ: Oh --

23 MR. GRUHN: -- with high accident
24 locations.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 CHAIRMAN KATZ: Lawyers --

2 MR. WALSH: There --

3 MR. CUNLIFFE: Insurance --

4 MR. WALSH: -- there was a Supreme Court
5 case recently that came out --

6 CHAIRMAN KATZ: This comes back to lawyers
7 --

8 MR. WALSH: There was --

9 CHAIRMAN KATZ: Yes, Mr. Walsh, go ahead.

10 MR. WALSH: There was a Supreme Court case
11 that recently came out on this very issue where state
12 departments of transportation maintained accident records
13 pursuant to a federal program. And part of that federal
14 program recognized the fact that if these records were
15 made available to the public, it would be basically
16 admissions that these DOTs knew about these dangerous
17 conditions and it would inhibit the interests of the
18 departments of transportation to gather these records and
19 maintain them. So Congress in its infinite wisdom
20 decided that it would make these records unavailable for
21 the general public to inspect.

22 CHAIRMAN KATZ: Lawyers.

23 MR. TAIT: Like doctors in hospitals.

24 CHAIRMAN KATZ: Go ahead, Mr. Cunliffe.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. CUNLIFFE: And lastly, you speak about
2 implementing a plan to shut down a construction site
3 during a particular event, and -- you were concerned
4 about that happening. And I just want to know what has
5 DOT experienced on their projects? If there was a
6 particular event that they needed to button up the site
7 in a timely manner to help with the traffic?

8 MR. GRUHN: Basically when that happens,
9 we tell the contractor to pull out all stops, get it
10 done, we don't care how you do it. We would anticipate
11 the same thing. You know, a prime example would be
12 similar to the incident in Bridgeport. If there had been
13 construction going on on Route 1, which was the parallel
14 route that we had to divert all the traffic, we would
15 have closed that project up. And in fact, we did stop
16 all lane closures and construction activities requiring
17 lane closures on interstate highways during that
18 incident.

19 MR. CUNLIFFE: And if such incidences were
20 to -- like the I-95 incident -- would those construction
21 projects have to come to a standstill at least for a
22 momentary period?

23 MR. GRUHN: For -- for whatever the period
24 of time is. Again, it's very difficult to say what you

HEARING RE: CL&P and UI
JUNE 16, 2004

1 would do. It depends on the magnitude of the incident,
2 how long it's going to be there, what the activity going
3 on at the time was and what could reasonably be done to
4 close up that activity, so it's very difficult. But
5 obviously if there was an incident, we would try to
6 provide as many lanes as possible during the clearance of
7 the incident for whatever that duration was.

8 MR. CUNLIFFE: Thank you. Those are my
9 questions, Chairman.

10 CHAIRMAN KATZ: Thank you. Mr. Emerick.

11 MR. EMERICK: Yes. Mr. Gruhn, in terms of
12 locating splicing vaults, I understand you're concerned
13 about it being in the right-of-way and the length of the
14 splicing operation and closing down that lane. In terms
15 of Route 1, how does our right-of-way overlay with the
16 actual pavement area?

17 MR. GRUHN: There is probably very little
18 excess right-of-way behind -- beyond the pavement area.
19 Again, it's very difficult to say, it varies all through
20 that whole corridor. In some locations, you know, there
21 may be a five-foot sidewalk and that's it. In other
22 locations there may be more. Typically when we have to
23 widen a lane in that corridor, we have to buy property to
24 do it. So it's a very limited right-of-way.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. EMERICK: I realize it's not your job
2 to try and find a solution to the splicing vaults. Some
3 of your other difficulties I can imagine that eventually
4 those get worked out, new materials are found in terms of
5 skid plates. But in terms of vault location, I guess I'm
6 hard pressed to figure out what could be done to address
7 your concern.

8 MR. GRUHN: Well, one thing, quite
9 frankly, is the Applicants could purchase rights to
10 install it on property adjacent to our right-of-way. A
11 lot of the Route 1 corridor where there is commercial
12 development, it's parking immediately adjacent to our
13 right-of-way, the stores are set back and they could
14 purchase rights to install the vault under that parking
15 lot for example and get it out of the roadway so that
16 you're not impacting traffic during the splicing periods.

17 CHAIRMAN KATZ: Have you had that
18 discussion with them?

19 MR. GRUHN: We have suggested it in the
20 past, yes.

21 MR. EMERICK: Okay, thank you.

22 CHAIRMAN KATZ: Mr. Tait?

23 MR. TAIT: No questions.

24 CHAIRMAN KATZ: Mr. Ashton?

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. ASHTON: A couple of questions --

2 CHAIRMAN KATZ: Take a mic.

3 MR. ASHTON: -- thank you --

4 MR. TAIT: Take the mic --

5 AUDIO TECHNICIAN: Take the microphone --

6 MR. ASHTON: Oh, I'm sorry.

7 A VOICE: Take your time --

8 (Multiple voices overlapping,

9 indiscernible)

10 MR. ASHTON: Mr. Gruhn, I believe I heard
11 you correctly, but tell me if I didn't please, that --
12 you said that underground on limited access highways can
13 only occur on an adjoining right-of-way, not on -- and I
14 presume that means not on the right-of-way --

15 MR. GRUHN: No, no, I said immediately
16 adjacent to the right-of-way line.

17 MR. ASHTON: To --

18 MR. GRUHN: It could be in -- within the
19 DOT right-of-way but immediately adjacent to the right-
20 of-way line, as far away from the roadway as possible.

21 MR. ASHTON: Okay. Now, I'm not proposing
22 it but by example I understand the Merritt Parkway has a
23 300-foot wide right-of-way in many instances --

24 MR. GRUHN: The Merritt Parkway does, the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 Wilbur Cross does not.

2 MR. ASHTON: Right. And on the Merritt
3 Parkway, assuming a 300-foot wide right-of-way, that
4 would push construction of an underground line to the
5 very edge of the right-of-way, which could be 100 feet
6 more or less from the --

7 MR. GRUHN: Yeah --

8 MR. ASHTON: -- the traveled portion?

9 MR. GRUHN: -- actually on the Merritt
10 Parkway there is a 300-foot area beyond the pavement --

11 MR. ASHTON: I know --

12 MR. GRUHN: -- not just a 300-foot right-
13 of-way.

14 MR. ASHTON: I know and I think it's
15 wonderful, I applaud you for it --

16 MR. GRUHN: It's beyond -- beyond the
17 pavement. Yes, that is a possibility. The Merritt
18 Parkway is on the National Historic Register --

19 MR. ASHTON: Yeah --

20 MR. GRUHN: -- any work that is done on
21 the parkway would have to be done in accordance with the
22 Historic Register requirements and have permission from
23 both --

24 MR. ASHTON: Yeah --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. GRUHN: -- the State Historic
2 Preservation Office and the National Historic Register
3 people. I don't know what those requirements would be.
4 Typically --

5 MR. ASHTON: You're going beyond where I
6 was going --

7 MR. GRUHN: Okay.

8 COURT REPORTER: One moment please.

9 (Pause). Thank you.

10 MR. ASHTON: In looking at construction of
11 utility facilities -- electric utility facilities on
12 limited access highways, do you have any preference, or
13 maybe that's the wrong word, but do you have a dislike
14 more for underground than overhead, or about the same, or
15 what?

16 MR. GRUHN: They -- they both will cause
17 problems for everybody involved. Particularly, I assume
18 you're talking like along the Wilbur Cross or something
19 like that?

20 MR. ASHTON: Or I-95, yeah.

21 MR. GRUHN: I-95 is -- you know, would be
22 completely different. There's very little right-of-way
23 where you could, quite frankly, install it along I-95.
24 But you know, there are issues with overhead, there are

HEARING RE: CL&P and UI
JUNE 16, 2004

1 issues with underground. They are somewhat different
2 depending upon the locations.

3 MR. ASHTON: Do you consider visibility as
4 a factor in thinking or in accepting an idea to build
5 longitudinal --

6 MR. GRUHN: That is one of the factors
7 that our regulations and permit requirements require us
8 to consider, yes.

9 MR. ASHTON: Okay. Let me turn to the 8-
10 foot depth requirement again. That's longitudinal I
11 believe. That was the term you used. Would a -- let's
12 talk Route 1 in Fairfield. Suppose Southern Connecticut
13 Gas Company wanted to put a 24-inch main along Route 1,
14 would they have to go to an 8-foot depth?

15 MR. GRUHN: No, they would not. Again,
16 the relocation costs are completely different.

17 MR. ASHTON: Okay. Is the -- you said
18 there were some other utilities at 8-foot depths. I
19 assume that's by accident rather than by deliberate
20 requirement?

21 MR. GRUHN: Typically, it's in areas where
22 there was some kind of a conflict.

23 MR. ASHTON: Okay, yeah. Are you
24 concerned about the conflict -- with regard to an

HEARING RE: CL&P and UI
JUNE 16, 2004

1 electric transmission line running longitudinally, are
2 you concerned about transverse -- conflicts between
3 transverse drainage lines?

4 MR. GRUHN: Generally yes. It could also
5 be longitudinally depending upon again where there was
6 the availability to install that line within the right-
7 of-way.

8 MR. ASHTON: Well longitudinally, wouldn't
9 you have the same problem with any other utility? You --
10 it's the kind of thing that utilities in general try to
11 avoid at all cost, don't they?

12 MR. GRUHN: Correct, yes. And again, we
13 try to avoid at all cost. Again, the issue is here we
14 are being told relocation costs are two million dollars
15 for 1500 feet, which is a very expensive relocation. And
16 with our limited budgets that can't even maintain the
17 system with what we have on an annual basis, absorbing
18 that additional cost would be detrimental to the
19 transportation system.

20 MR. ASHTON: Have you in -- in your --

21 MR. HEFFERNAN: Can I just ask a question
22 while you're --

23 MR. ASHTON: Sure.

24 MR. HEFFERNAN: The question I have is you

HEARING RE: CL&P and UI
JUNE 16, 2004

1 say eight feet and that's basically a fiscal
2 consideration because you have to move the line. If
3 there was no fiscal consideration, how deep would it have
4 to be?

5 MR. GRUHN: Again, that's very difficult
6 to say because I can't tell you today what additional
7 work we may have to do on the transportation system five
8 years into the future or ten years into the future. We
9 have a transportation plan that typically goes out three
10 to five years. I can tell you how many jobs in the Route
11 1 corridor are on that plan, and I believe we have table
12 here that details that, but --

13 MR. HEFFERNAN: Well, how deep do the
14 other utility lines have to be, for instance a gas line -
15 -

16 MR. GRUHN: They vary. For example, water
17 lines are down a minimum of 48 inches for frost
18 protection generally.

19 MR. HEFFERNAN: Okay.

20 MR. GRUHN: Telephone ducts, depending on
21 the duct bank, can be typically -- to the top of the duct
22 bank will be two and a half, three feet --

23 MR. HEFFERNAN: Okay, but you're not sure
24 on this one here yet, you haven't really studied where

HEARING RE: CL&P and UI
JUNE 16, 2004

1 you would want it to be if there wasn't a fiscal
2 consideration?

3 MR. GRUHN: Again, generally what we say
4 is if they're down eight feet -- if they're not going to
5 pay the relocation costs and they're down eight feet, any
6 work that we typically would have to do on the
7 transportation system would probably avoid their duct
8 bank and the need to relocate --

9 MR. HEFFERNAN: Yeah, but if there wasn't
10 a fiscal cost, I mean where would they have to be?

11 MR. GRUHN: If they could -- if their
12 relocation cost was zero --

13 MR. HEFFERNAN: Yeah, if it wasn't going
14 to cost you to relocate the line?

15 MR. GRUHN: Okay. Basically what we have
16 agreed to with them on Docket 217 is two and a half --

17 MR. AFRAZI: Two and a half to three feet
18 --

19 MR. GRUHN: -- to three feet from the
20 surface of the roadway to the top of their facility.

21 MR. HEFFERNAN: Okay. I'm just -- I'm
22 just curious as to how much more it would cost them to go
23 to eight feet to two and a half --

24 MR. GRUHN: Well, you'd have to ask --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. HEFFERNAN: -- (indiscernible) --

2 MR. GRUHN: Yeah, you'd have to ask
3 Northeast Utilities that question.

4 MR. HEFFERNAN: Okay.

5 CHAIRMAN KATZ: Yeah, just -- be careful
6 people, one at a time okay.

7 MR. HEFFERNAN: Alright, that's -- thank
8 you, Phil.

9 MR. ASHTON: Referring to page 6 of your
10 testimony, Mr. Gruhn, it's numbered Item 2F, and this
11 gets into this whole issue. As I think about Route 1,
12 for the majority of its run, it's a relatively flat road
13 --

14 MR. GRUHN: Correct --

15 MR. ASHTON: -- flat in terms of both flat
16 -- being flat and relatively gentle grades. There are
17 some little ups and downs. Do you think an 8-foot
18 requirement is reasonable for the entire length or is
19 your concern about these little ups and downs which may
20 get whacked out as that road becomes improved --

21 MR. GRUHN: Well, it's -- it's a
22 combination of if we have to change the grade, obviously
23 we go down and then we're closer to the facility. The
24 major concern is, and especially in flat areas, the

HEARING RE: CL&P and UI
JUNE 16, 2004

1 ability to outlet drainage is drastically reduced. For
2 example, on Route 1 all the outlets will be on the south
3 side of Route 1. So if there's a drainage facility on
4 the north -- a drainage -- if we have to put a catch
5 basin in on the north side of Route 1, somewhere, somehow
6 we have to get to the south side.

7 MR. ASHTON: I guess -- I understand your
8 problem. I'm involved with it and with you believe it or
9 not in one in Meriden right now. I'm very sympathetic to
10 that. However, I'm concerned that there be an economic
11 balance here that recognizes that moving a transverse
12 crossing a hundred feet down the road where it can be
13 accomplished at five foot versus one location where it's
14 got to go eight foot is not a heck of a big compromise.
15 I mean that's not a big deal. And at the same time the
16 construction of a line eight foot down versus five foot
17 is approaching -- it's a lot more of a problem. I mean
18 it's -- it's --

19 MR. GRUHN: I understand --

20 MR. ASHTON: -- and I want to make sure
21 that --

22 MR. GRUHN: Right, I understand, but you
23 have to understand that for drainage systems water flows
24 by gravity --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. ASHTON: Right, but --

2 MR. GRUHN: -- going a hundred feet down
3 the road to go transversely, if the stream that I have to
4 get into is not a hundred feet down the road, that
5 doesn't do me any good, I can't get the water back up the
6 road to the stream.

7 MR. ASHTON: I understand. I want to make
8 sure though that societially we're not spending a hundred
9 dollars to save one dollar --

10 MR. GRUHN: I -- I agree a hundred percent
11 --

12 MR. ASHTON: -- which wouldn't make sense.

13 MR. GRUHN: Yeah, I agree -- I agree a
14 hundred percent.

15 MR. ASHTON: Okay. Would you define for
16 me what a grade separation structure is? I'm sorry, I --

17 MR. GRUHN: A bridge.

18 MR. ASHTON: A bridge. That's what I
19 thought it was -- (laughter) -- you know, I --

20 MR. GRUHN: It's one of those engineering
21 terms that we had to throw in just to confuse everybody.

22 MR. ASHTON: Yeah. It says under --
23 except under special cases -- this is on page 8, number
24 Item 6, except under special cases -- except for special

HEARING RE: CL&P and UI
JUNE 16, 2004

1 cases, under strictly controlled conditions new utilities
2 will not be permitted to be installed longitudinally
3 within non access lines --

4 MR. GRUHN: Correct.

5 MR. ASHTON: Are you familiar with the
6 Mass Pike?

7 MR. GRUHN: Yes, I am.

8 MR. ASHTON: Are you -- are you aware that
9 -- or would you believe subject to check that an optical
10 fiber telephone cable was run down the median and along
11 the edge of that right-of-way for many miles?

12 MR. GRUHN: Yes. Massachusetts has some -
13 - some different rules. The Mass Pike does allow
14 utilities. And in fact, we checked this just recently,
15 they do allow utilities longitudinally within the Mass
16 Turnpike. Relocation of the utilities is a hundred
17 percent utility cost. The Mass highway who has all other
18 state highways within the State of Massachusetts does not
19 reimburse utilities for relocation costs at all. It's a
20 hundred percent utility cost.

21 MR. ASHTON: Outside of the reimbursement
22 issue, why -- is there any material reason why
23 Connecticut should not consider, consider not grant,
24 utilities longitudinally on limited access highways,

HEARING RE: CL&P and UI
JUNE 16, 2004

1 especially where adequate right-of-way exists?

2 MR. GRUHN: We -- we have considered --
3 and again as I have stated before, we will permit it
4 longitudinally out at the right-of-way line. It is our
5 policy that we do not permit it anywhere near the travel-
6 way because of issues of safety and traffic congestion
7 when anything has to be done on that line.

8 MR. ASHTON: How about -- I'm thinking of
9 I-91 where in many instances you have a median strip
10 which far exceeds a hundred feet, how about in a case
11 like that?

12 MR. GRUHN: Again, our policy has been and
13 continues to be at the right-of-way line and not in the
14 center of the roadway. There are issues with entering
15 the median area. We have to do it occasionally with our
16 maintenance vehicles. And in any typical year our
17 maintenance vehicles get struck by vehicles as they are
18 trying to enter and exit from that median area. It is
19 not a safe place for anybody to be. I don't even like
20 going out there, and I have to.

21 MR. ASHTON: Okay. I think that's all,
22 Madam Chairman. I haven't had a chance to read it all,
23 but --

24 CHAIRMAN KATZ: Thank you. Mr. Wilensky.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. WILENSKY: Just a couple of brief
2 questions. You're talking about the 8-foot depth on the
3 state highways. What about local roads, what's your
4 feeling there or do you care?

5 MR. GRUHN: Local roads typically do not
6 have the potential for reconstruction in most cases that
7 a state highway would. They don't have the travel
8 volumes a state highway would. They don't have the other
9 utilities that a state highway would. And they don't
10 have the development going on that the state highway
11 would. So typically, it would appear that in local roads
12 the depth would not be the issue that it is in a high
13 volume state highway.

14 MR. WILENSKY: So primarily your concern
15 is a state -- I gather your concern is a state highway?

16 MR. GRUHN: Our -- that's what I'm
17 responsible for. If I were --

18 MR. WILENSKY: The other -- my --

19 MR. GRUHN: To be quite frankly, if I were
20 a town engineer, I would have to look at, you know, what
21 the issues are. And again, it depends on which road it
22 is. There are town roads that are very heavily developed
23 and that might have future potential development.

24 MR. WILENSKY: My last question is I

HEARING RE: CL&P and UI
JUNE 16, 2004

1 noticed under Question 16 on page 12 you talk about the
2 various costs involved here. On these state -- on the
3 state roads, and maybe some of them are federal highways,
4 I don't know, are you reimbursed some of that cost by the
5 Federal Government?

6 MR. GRUHN: On interstate highway projects
7 we are reimbursed by state government -- by the Federal
8 Government --

9 MR. WILENSKY: Yeah --

10 MR. GRUHN: -- Sohrab, are we on the other
11 --

12 MR. AFRAZI: Yes --

13 MR. GRUHN: Yeah.

14 MR. AFRAZI: -- yes.

15 MR. WILENSKY: So when you talk about a 17
16 million dollar cost here, a portion of that is reimbursed
17 by the Federal Government? Am I --

18 MR. GRUHN: That --

19 MR. WILENSKY: -- am I correct on that?

20 MR. GRUHN: That is correct, but you have
21 to remember that that comes out of the same budget that
22 the roadway maintenance comes out of, that the bridge
23 repairs come out of, that the capacity improvements come
24 out of, that the traffic signal work comes out of. So if

HEARING RE: CL&P and UI
JUNE 16, 2004

1 you take a million dollars for utility relocation or two
2 million dollars for utility relocation, that's two
3 million dollars of traffic signals I can't install, it's
4 two million dollars of guide rail I can't install, it's
5 two million dollars of paving that can't be done --

6 MR. WILENSKY: So in other words, all your
7 --

8 MR. GRUHN: -- because the -- the pot
9 doesn't go up because we take you utility costs out of
10 it.

11 MR. WILENSKY: What you're saying is you -
12 - I gather you're saying -- do you get an allocation and
13 then you then determine where that allocation should go,
14 is that how it works?

15 MR. GRUHN: That is correct, yes.

16 MR. WILENSKY: Okay.

17 MR. GRUHN: Yeah, there is a limited
18 budget that comes into the State from the Federal Highway
19 Administration and all costs associated with a project
20 come out of that limited amount. So if utility costs for
21 the project go up, that means there's less projects that
22 can be done --

23 MR. WILENSKY: Okay, thank you, sir --

24 MR. GRUHN: -- and right now, quite

HEARING RE: CL&P and UI
JUNE 16, 2004

1 frankly, the money is not enough to maintain the system
2 that we have.

3 MR. WILENSKY: Thank you, sir. Thank you,
4 Madam Chairman.

5 CHAIRMAN KATZ: Thank you. Mr. Lynch.

6 MR. LYNCH: Just one quick question. The
7 Applicant asked you earlier about non-skid metal plates -
8 -

9 MR. GRUHN: Correct --

10 MR. LYNCH: -- and my question to you is
11 has your department or any of your permitted contractors
12 ever used these non-skid plates?

13 MR. GRUHN: No, we have not.

14 MR. LYNCH: Thank you.

15 CHAIRMAN KATZ: Any redirect by?

16 MR. WALSH: I just have one question and
17 as a perfect follow-up to the last question. With regard
18 to using plates in the roadway on a longitudinal basis,
19 does that have any impact on vehicle patterns and use by
20 the public of the lane with the plates on it?

21 MR. GRUHN: Typically, yes. It's been our
22 experience that people shy away from steel plates. So
23 they will try to drive in the lane without the steel
24 plates and that will affect the traffic capacity.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. WALSH: So even if there are plates in
2 the roadway covering the excavation, is it your testimony
3 that for all intents and purposes that lane will still be
4 out of operation for use by the general public?

5 MR. GRUHN: The number of vehicles that
6 that lane will carry will be significantly reduced. It
7 will not be out of operation. You know, people if they
8 are stuck in one lane will go in the other lane and use
9 it, but you will not have the same capacity that you
10 would have if you did not have plates in the roadway.

11 MR. WALSH: Thank you. No further
12 questions.

13 CHAIRMAN KATZ: Women will use the other
14 lane. (Laughter).

15 Okay, I believe that concludes cross-
16 examination of DOT, and we finished today, correct?
17 Thank you very much for staying late. And we have to
18 talk about tomorrow -- oh, yes, we're going to -- Mr.
19 Fitzgerald --

20 MR. FITZGERALD: There's just two pending
21 items, there was my request for administrative notice and
22 the UK cancer study that were left on the table for
23 people to look at at noontime --

24 CHAIRMAN KATZ: Yes. Is there any

HEARING RE: CL&P and UI
JUNE 16, 2004

1 objection to the Applicant taking administrative notice
2 of the materials that were here on the table? Hearing
3 none, we will take administrative notice.

4 MR. FITZGERALD: Thank you.

5 MR. TAIT: And the other one --

6 (indiscernible) --

7 MR. FITZGERALD: The childhood cancer
8 study.

9 CHAIRMAN KATZ: Okay. A couple of
10 procedure -- oh, I'm sorry --

11 MR. TAIT: Any objections to that being
12 admitted?

13 CHAIRMAN KATZ: Hearing none, we will take
14 that as an exhibit.

15 MR. FITZGERALD: 113.

16 CHAIRMAN KATZ: Exhibit 113.

17 (Whereupon, Applicants' Exhibit No. 113
18 was received into evidence as a full exhibit.)

19 CHAIRMAN KATZ: Okay. We -- KEMA prepared
20 some materials which are being passed out, correct, to
21 all parties, that we are going to ask questions on
22 tomorrow, at least preliminary questions. And if the
23 Applicant decides it needs more thought, then -- but we
24 wanted to give you a heads up. Okay, I'd like to talk

HEARING RE: CL&P and UI
JUNE 16, 2004

1 about tomorrow --

2 A VOICE: Do you want to excuse the DOT
3 guys?

4 CHAIRMAN KATZ: Yes, you are excused.
5 Thank you very much.

6 Tomorrow at 9:45 -- now I promised a lot
7 of things to a lot of people, so if -- hopefully I have
8 all of this straight --

9 MR. TAIT: And you won't be here.

10 CHAIRMAN KATZ: And I won't be here. 9:45
11 we have a prehearing conference.

12 At 10:00 o'clock we are going to put Dr.
13 Ginsberg on for some brief testimony that he would like
14 to offer. And hopefully very brief or non-existent
15 cross-examination.

16 Then we will do -- continue the cross-
17 examination by ISO of the Applicant that we started. And
18 then we will continue on with the rest of the cross-
19 examination of the list, correct? Am I wrong?

20 MS. RANDELL: You're not --
21 (indiscernible) --

22 CHAIRMAN KATZ: No, ISO was in the middle
23 of cross-examination --

24 MS. RANDELL: No, no, I mean with the ISO

HEARING RE: CL&P and UI
JUNE 16, 2004

1 panel.

2 CHAIRMAN KATZ: No, I was going to let
3 them finish their cross-examination.

4 MS. RANDELL: Okay.

5 CHAIRMAN KATZ: If that's -- if you have a
6 better way, we're --

7 AUDIO TECHNICIAN: Miss Randell, could you
8 grab a microphone.

9 CHAIRMAN KATZ: Yeah.

10 MS. RANDELL: Thank you.

11 CHAIRMAN KATZ: We -- if you have a
12 friendly suggestion, we'll consider it.

13 MS. RANDELL: Well -- okay -- we -- when
14 we got the ISO's testimony last week, as you heard --

15 CHAIRMAN KATZ: Yes --

16 MS. RANDELL: -- Mr. Zak had about a
17 hour's advance notice --

18 CHAIRMAN KATZ: Right --

19 MS. RANDELL: -- and we were hoping
20 actually that they could testify before our panel this
21 week initially because everyone wants to know what the
22 ISO is saying. And so it might make sense to have the
23 ISO go -- the ISO witnesses testify, and then follow up
24 with our witness panel having now heard what the ISO has

HEARING RE: CL&P and UI
JUNE 16, 2004

1 to say. I don't feel real strongly about it because as
2 you all know we're pretty deep into our panel.

3 CHAIRMAN KATZ: Yes, okay. There seems to
4 be some consensus that that's a good idea, and so we will
5 go with it.

6 MS. RANDELL: Okay.

7 CHAIRMAN KATZ: So we will then do --
8 after Dr. Ginsberg, then we'll do the ISO direct
9 testimony --

10 MR. S. DEREK PHELPS: I'm listening to
11 you.

12 CHAIRMAN KATZ: -- then we will --

13 MR. TAIT: And ISO cross?

14 CHAIRMAN KATZ: Yeah, ISO then will be
15 crossed.

16 MR. TAIT: On their direct testimony.

17 CHAIRMAN KATZ: On their direct testimony.

18 MS. RANDELL: Am I correct that as with
19 our panel, that the Council will start --

20 CHAIRMAN KATZ: Yes, I'm getting to --

21 MS. RANDELL: -- on cross on the ISO?

22 CHAIRMAN KATZ: Yes, the Council -- the
23 Council is going to start the heavy lifting --

24 MS. RANDELL: Thank you --

HEARING RE: CL&P and UI
JUNE 16, 2004

1 CHAIRMAN KATZ: -- and we will be the
2 first to cross the ISO panel, okay. Mr. Fitzgerald, you
3 look troubled.

4 MR. FITZGERALD: No, no, I just -- I
5 missed the reference of Dr. Ginsberg.

6 CHAIRMAN KATZ: I'm sorry. Dr. Ginsberg
7 would like to offer some brief testimony.

8 MS. RANDELL: Is he going to have it in
9 writing?

10 CHAIRMAN KATZ: Dr. Ginsberg? Is he still
11 here?

12 DR. GINSBERG: Yeah, I --

13 CHAIRMAN KATZ: To a microphone, Dr.
14 Ginsberg.

15 DR. GINSBERG: Yeah, it would be very
16 brief and I could offer a page or a page and a half for
17 the record --

18 CHAIRMAN KATZ: Okay --

19 DR. GINSBERG: -- by tomorrow morning at
20 10:00. Is that --

21 CHAIRMAN KATZ: Yes.

22 A VOICE: Tony is about to --

23 CHAIRMAN KATZ: He's our witness and we're
24 going to do what we want.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MS. RANDELL: I know -- I know. Mr.
2 Fitzgerald is not going to be here at 10:00. And since
3 as you know he has the primary responsibility --

4 CHAIRMAN KATZ: Yes --

5 MS. RANDELL: -- on EMF as between us --

6 CHAIRMAN KATZ: Okay --

7 MS. RANDELL: -- could we have the
8 opportunity to reserve --

9 CHAIRMAN KATZ: Yes --

10 MS. RANDELL: -- if need be?

11 CHAIRMAN KATZ: Yes. Okay. Would you
12 prefer Dr. Ginsberg at a different time? Perhaps we can
13 be amenable to both Dr. Ginsberg and to you.

14 MS. RANDELL: I don't care.

15 MR. FITZGERALD: I'm trying not to --

16 COURT REPORTER: A microphone please.

17 MR. FITZGERALD: I was -- I was originally
18 not -- I was originally not working this work and am now
19 trying not to work tomorrow, but --

20 MR. ASHTON: We know you love it --

21 MR. FITZGERALD: I know -- and I'm -- I
22 need to have a conversation with some people about that.

23 CHAIRMAN KATZ: Okay. Why don't we do
24 this, why we offer Dr. Ginsberg's testimony tomorrow and

HEARING RE: CL&P and UI
JUNE 16, 2004

1 if you'd like to have him come back and be crossed at a
2 future date, we'll do that, okay. He's nodding.

3 MS. RANDELL: Thank you.

4 A VOICE: (Indiscernible) -- wants to
5 speak.

6 CHAIRMAN KATZ: Hmm? Can you come to the
7 microphone please and identify yourself.

8 MS. JODY ELLANT: Yes. I'm Jody Ellant
9 and --

10 COURT REPORTER: Wait, spell --

11 MS. ELLANT: -- I was here with Ezra
12 Academy and B'Nai Jacob --

13 CHAIRMAN KATZ: Wait, wait --

14 COURT REPORTER: She needs to state --

15 MS. ELLANT: Sorry --

16 CHAIRMAN KATZ: State it, spell it --

17 MS. ELLANT: Sorry --

18 CHAIRMAN KATZ: -- and give your
19 affiliation.

20 MS. ELLANT: Jody Ellant, E-l-l-a-n-t.

21 And I was here with --

22 COURT REPORTER: The first name was?

23 MS. ELLANT: Jody, J-o-d-y.

24 CHAIRMAN KATZ: And you're affiliated with

HEARING RE: CL&P and UI
JUNE 16, 2004

1 the Ezra Academy group?

2 MS. ELLANT: The Ezra Academy group. And
3 I want to know if I need -- what -- if they are going to
4 be testifying tomorrow or not? My understanding was that
5 they would be testifying at 10:00, but now I hear we're
6 not. Originally it was 1:00, I'm not sure --

7 CHAIRMAN KATZ: Mr. Schaefer asked you --
8 asked that we put you on at 1:00 o'clock.

9 MS. ELLANT: Oh, okay. Because then I
10 thought Attorney Fitzgerald had asked that we be put on
11 at 10:00 so he could be here. And then Attorney Schaefer
12 left, so --

13 MR. FITZGERALD: No, he and I spoke before
14 he left --

15 MS. ELLANT: Oh --

16 MR. FITZGERALD: -- and he said just go
17 ahead with --

18 MS. ELLANT: Okay. I'm sorry then, I'm --

19 CHAIRMAN KATZ: Talk among yourselves and
20 --

21 MS. ELLANT: Okay. I'm -- I apologize.

22 CHAIRMAN KATZ: Yes, okay. Okay, so what
23 we're going to do then is Dr. Ginsberg is going to offer
24 his testimony tomorrow, but we will bring him back, Mr.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 Fitzgerald in July if you need it, okay. Then we are
2 going to do the ISO panel and the Council will cross
3 first. Then we're going to let ISO continue their cross-
4 examination of the Applicant. I believe he was in the
5 middle of the Applicant, correct?

6 MS. RANDELL: Right.

7 CHAIRMAN KATZ: And then there were
8 parties after the ISO that we had not gotten to, which we
9 will do.

10 At 1:00 o'clock I had promised the
11 Woodbridge Ezra Academy group -- what we're calling the
12 institutional panel as opposed to the scientific panel, I
13 promised them that they will go on at 1:00 o'clock no
14 matter where we are. And that was the way I left it with
15 Mr. Schaefer. Okay, so we will do that.

16 Then after that, we will continue with
17 ISO. And then we'd also like to do --

18 MR. TAIT: By continuing with ISO, what do
19 you mean? We've done their direct, we've done their
20 cross-examination, they've finished their cross --

21 CHAIRMAN KATZ: Right. If they've not
22 finished their cross.

23 MR. TAIT: Oh, okay.

24 CHAIRMAN KATZ: Okay. But I'm just saying

HEARING RE: CL&P and UI
JUNE 16, 2004

1 no matter where we are, at 1:00 o'clock we're doing the
2 Ezra Academy panel.

3 Okay, then we'd like to do EMF mitigation,
4 Dr. Bailey. Dr. Bailey tomorrow?

5 MR. TAIT: Oh, boy --

6 A VOICE: He's not going to be here
7 tomorrow.

8 CHAIRMAN KATZ: Dr. Bailey, you going to
9 be here tomorrow?

10 MR. FITZGERALD: He wasn't --

11 DR. WILLIAM BAILEY: No, I hadn't planned
12 on it --

13 COURT REPORTER: Dr. Bailey, please --

14 MR. ASHTON: You're not going to get
15 through that panel, no way --

16 A VOICE: The answer was he hadn't planned
17 on it.

18 CHAIRMAN KATZ: Okay. Dr. Bailey, my
19 colleagues are telling me that I am being over-optimistic
20 that we're even going to get to EMF tomorrow, so I think
21 you might be off the hook.

22 DR. BAILEY: At a later date I presume.

23 CHAIRMAN KATZ: Oh, yeah.

24 DR. BAILEY: Okay.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 CHAIRMAN KATZ: Okay. Is there anything
2 else that I either promised somebody or that I've
3 indicated that we're covering tomorrow that I've not yet
4 mentioned?

5 MR. TAIT: We're covering EMF mitigation?

6 CHAIRMAN KATZ: Not tomorrow.

7 MR. TAIT: Not tomorrow.

8 MR. BALL: The only other issue that I'm
9 aware of is there was a homework assignment for Brian
10 Gregory as I recall for an updated table of fault rates -
11 -

12 CHAIRMAN KATZ: Yes --

13 MS. RANDELL: Yes.

14 MR. FITZGERALD: He -- he will turn that
15 in tomorrow.

16 CHAIRMAN KATZ: Okay. We'll do -- I'm
17 putting that on the list.

18 MR. TAIT: Will he be available for cross-
19 examination?

20 MR. FITZGERALD: Yes.

21 MS. RANDELL: Yes.

22 MR. TAIT: At what time do we want to put
23 him on?

24 MR. FITZGERALD: Anytime you want him.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MS. RANDELL: Take your pick.

2 MR. TAIT: So he's here all day?

3 MR. FITZGERALD: Yes.

4 CHAIRMAN KATZ: Can we do him in the
5 afternoon?

6 MR. TAIT: I don't see why not.

7 CHAIRMAN KATZ: Okay. I'm adding him to
8 the afternoon list.

9 Okay, is there anything else that we need
10 to accomplish or I've inadvertently promised?

11 MR. ASHTON: Pam, this KEMA paper, when is
12 it going to be --

13 CHAIRMAN KATZ: Yeah, the KEMA -- what
14 we'd like to do is -- and before you all go into cardiac
15 arrest, we've thrown this at you at the last minute, we'd
16 like to have you read it tonight, we'd like to ask some
17 preliminary Council staff questions on it tomorrow. And
18 we'll probably do that in the afternoon. Okay? And if
19 you tell us you have to study something or look at
20 something, that's fine, but I'm trying to lay groundwork
21 for July to be more productive.

22 MS. RANDELL: We will provide this to our
23 experts. And as you can imagine, we are only the, if
24 you'll pardon the expression, conduit for this one.

HEARING RE: CL&P and UI
JUNE 16, 2004

1 MR. ASHTON: Not the duct.

2 CHAIRMAN KATZ: Okay. Does that cover --
3 and I wish you all good luck tomorrow, I'll be thinking
4 of you. Okay, we are adjourned.

5

6 (Whereupon, the hearing adjourned at 5:30
7 p.m.)

HEARING RE: CL&P and UI
JUNE 16, 2004

INDEX OF WITNESSES

PAGE

SITING COUNCIL'S WITNESSES:

Dr. Gary Ginsberg

Verification of Exhibit Mr. Haines 8

EZRA ACADEMY ET AL WITNESSES:

Dr. Leonard Bell

Dr. Peter Rabinowitz

Dr. Alan Gerber

Verification of Exhibits by Mr. Schaefer 9

Cross-Examination by Mr. Fitzgerald 15, 109

Cross-Examination by Mr. Ball 127

Cross-Examination by Ms. Kohler 168

Cross-Examination by Mr. Stone 174

Cross-Examination by Mr. Wertheimer 175

Cross-Examination by the Council 183

Dr. Eric Grubman

Cross-Examination by Mr. Fitzgerald 92, 104

Cross-Examination by Mr. Ball 99

Cross-Examination by Ms. Randell 103

Cross-Examination by the Council 105

ADINOLFI WITNESSES:

Douglas Vizard

Verification of Exhibit by the Chairman 85

Cross-Examination by the Council 88

HEARING RE: CL&P and UI
JUNE 16, 2004

DEPARTMENT OF TRANSPORTATION WITNESSES:

Gregory Dorosh
Charles Roman
Arthur Gruhn
Keith lane
Sohrab Afrazi
Patrick Rodgers
John Carey

Verification of Exhibits by Ms. Meskill	208
Cross-Examination by Mr. Henebry	211
Cross-Examination by Ms. Randell	235
Cross-Examination by Mr. McDermott	251
Cross-Examination by Mr. Burturla	268
Cross-Examination by the Council	284
Redirect Examination by Mr. Walsh	305

INDEX OF SITING COUNCIL EXHIBITS

	NUMBER	PAGE
Testimony of G. Ginsberg, 5/6/04	5	8

INDEX OF EZRA ACADEMY ET AL EXHIBITS

Supplemental Testimony of Drs. Bell, Baum, Rabinowitz, Carpenter, 6/7/04	4	10
Appendix to Supplemental Testimony of Drs. Rabinowitz, Baum, Carpenter, 6/7/04	5	10
Supplemental Testimony Re: Buffer Zones	8	12
Appendix to Supplemental Testimony Re: Buffer Zones	9	13

HEARING RE: CL&P and UI
JUNE 16, 2004

INDEX OF ADINOLFI EXHIBITS

	NUMBER	PAGE
EMF Testimony of D. Vizard, 3/10/2000	1	85

INDEX OF DOT EXHIBITS

Interrogatory Responses	7	210
-------------------------	---	-----

INDEX OF APPLICANTS' EXHIBITS

Childhood Cancer Study	113	307
------------------------	-----	-----

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