middletown | norwalk

July 28, 2004

Ms. Pamela B. Katz
Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Docket No. 272: The Connecticut Light and Power Company and The United Illuminating Company Application for a Certificate of Environmental Compatibility and Public Need for the construction of a new 345-kV electric transmission line and associated facilities between the Scovill Rock Switching Station in Middletown and the Norwalk Substation in Norwalk, including the reconstruction of portions of existing 115-kV and 345-kV electric transmission lines, the construction of Beseck Switching Station in Wallingford, East Devon Substation in Milford, and Singer Substation in Bridgeport, modifications at Scovill Rock Switching Station and Norwalk Substation, and the reconfiguration of certain interconnections**

Dear Chairman Katz:

RE: Errata pages for the Supplemental Testimony II of Dr. William H. Bailey Concerning Options to Establish 'Buffer Zones' by Reducing 60-HZ Magnetic Fields read into the record at the Connecticut Siting Council hearing on July 27, 2004

The following errata pages for the testimony of Dr. Bailey read into the record at the Connecticut Siting Council hearing on July 27, 2004 are attached

- Updated Exhibit 2 to Dr. Bailey testimony
- Corrected page 5 of Dr. Bailey testimony
- Corrected page 9 of Exhibit 1 to Dr. Bailey testimony

Sincerely,

Anne Bartosewicz, Project Director
The Connecticut Light & Power Company

cc: Service List

Updated Exhibit 2 to Supplemental Testimony of Dr. William H. Bailey [1]

Table 1. Magnetic Fields Associated with Buffer Zone Statutory Facilities Adjacent to PROPOSED ROUTE: Measurements, and Calculated Values for Existing, Proposed, and Low-Field Design Options

Location Name				Cross Section	Measurements of Fields from Existing Transmission Lines and Other Sources		Distance to ROW[3] (feet)	Calculated Fields for Existing Lines, and for Proposed and Low-Field Design Options (Transmission Sources Only)									
								Existing Magnetic Field (mG)		Proposed Magnetic Field (mG)		Low-field Option A[4] Magnetic Field (mG)		Low-field Option B[4] Magnetic Field (mG)		Low-field Option C[4] Magnetic Field (mG)	
ID No.	Facility	Facility Category	Town		Measurement Distance (ft)[2]	Magnetic Field (mG)		Average Load[5]	Peak Load[6]	Average Load[5]	Peak Load[6]	Average Load[5]	Peak Load[6]	Average Load[5]	Peak Load[6]	Average Load[5]	Peak Load[6]
R-11	Royal Oak Neighborhood	Residential Area[7]	Durham/ Middletown[8]	2	0	0.8	0	13.9	22.2	17.1	22.7	12.4	**18.5**	6.2	9.1	12.4	**23.1**
R-70	Valley View Drive	Residential Area	Wallingford	2	0	5.6	0	13.9	22.2	17.1	22.7	12.4	**18.5**	6.2	9.1	12.4	**23.1**
R-01	North High Hill Road Neighborhood	Residential Area	Meriden	3	20	18.6	20	9.1	22.1	4.1	8.9	2.0	3.0	4.2	8.8	-	-
DC-09	Cathy Britton	Day Care	Meriden	4	220	1.9	110	2.5	5.6	1.8	2.5	1.7	2.5	-	-	-	-
R-02	High Hill/Sweet Birch Road Neighborhood	Residential Area	Meriden	4	180	2.2	110	2.5	5.6	1.8	2.5	1.7	2.5	-	-	-	-
R-03	High Hill Road/Whiskey Wind Rd	Residential Area	Wallingford	5	20	3.6	40	3.5	8.6	9.3	27.5	2.5	9.2	2.5	1.9	-	-
R-04	South High Hill Road Neighborhood	Residential Area	Wallingford	5	440	2.5	10	4.7	11.4	13.7	41.4	3.6	14.0	3.7	3.3	-	-
R-05	North Williams Road Neighborhood	Residential Area	Wallingford	5	100	3	30	13.9	33.8	16.4	37.3	11.6	20.6	0.9	7.9	-	-
R-13	Mulligan Drive Neighborhood	Residential Area	Wallingford	5	0	8.1	10	5.2	12.6	15.9	48.5	4.2	16.5	4.3	4.1	-	-
R-14	Mariot Circle Neighborhood	Residential Area	Wallingford	6 East	60	0.6	10	0.1	0.8	4.8	16.7	4.5	15.9	4.1	14.2	3.7	12.9
P-13	Ball Fields on South Cherry St[9]	Public Playground	Wallingford	6 West	Within ROW	5.3	0	0.3	1.8	5.1	19.0	-	-	-	-	-	-
R-07	Mansion Road Neighborhood	Residential Area	Wallingford	7	200	0.9	60	1.1	9.4	3.4	12.0	2.2	7.5	1.0	3.8	-	-
R-08	Old Farms Road Neighborhood	Residential Area	Cheshire	7B	0	3.5	0	0.4	4.6	6.2	21.4	5.5	19.1	1.1	3.9	-	-
R-09	Old Farms Road Neighborhood	Residential Area	Cheshire	8A	50	4	70	1.8	10.4	2.7	8.5	0.7	2.2	1.2	4.1	-	-
R-10	Darley Road Neighborhood	Residential Area	Hamden	8 North	120	0.4	30	1.4	12.1	8.8	30.5	2.7	10.6	1.7	6.8	-	-
P-19	Baseball Field at Jewish Community Center	Youth Camp	Woodbridge	8 Middle	0	9.2	100	0.5	3.4	3.3	11.0	0.7	3.0	0.6	2.5	-	-
DC-47	Jewish Community Center	Day Care	Woodbridge	8 Middle	0	10.6	60 [10]	1.4 [11]	6.5 [11]	3.3 [11]	11.1 [11]	1.4 [11]	6.3 [11]	0.3	1.8	-	-
S-09	Ezra Academy/Gan Hayeled Nursery School	School	Woodbridge	8 South	15	1.1	15 [10]	1.6 [11]	6.4 [11]	7.3 [11]	20.7 [11]	0.9 [11]	5.0 [11]	0.5	3.9	-	-
S-11	Racebrook Elementary School	School	Orange	8 South	885	0.1	850	0.0	0.1	0.1	0.4	0.0	0.0	0.0	0.0	-	-
P-48	Eisenhower Park Ball Field	Public Playground	Milford	8 South	24	4.6	175	0.1	0.7	1.5	4.6	0.1	0.6	0.1	0.6	-	-

Updated Exhibit 2 to Supplemental Testimony of Dr. William H. Bailey [1]

Table 1. Magnetic Fields Associated with Buffer Zone Statutory Facilities Adjacent to PROPOSED ROUTE: Measurements, and Calculated Values for Existing, Proposed, and Low-Field Design Options

Location Name				Cross Section	Measurements of Fields from Existing Transmission Lines and Other Sources		Distance to ROW[3] (feet)	Calculated Fields for Existing Lines, and for Proposed and Low-Field Design Options (Transmission Sources Only)									
								Existing Magnetic Field (mG)		Proposed Magnetic Field (mG)		Low-field Option A[4] Magnetic Field (mG)		Low-field Option B[4] Magnetic Field (mG)		Low-field Option C[4] Magnetic Field (mG)	
ID No.	Facility	Facility Category	Town		Measurement Distance (ft)[2]	Magnetic Field (mG)		Average Load[5]	Peak Load[6]	Average Load[5]	Peak Load[6]	Average Load[5]	Peak Load[6]	Average Load[5]	Peak Load[6]	Average Load[5]	Peak Load[6]
DC-81	Orange High Plains Community Center	Public Playground	Orange	8 South	Within ROW	2.3	0	1.6	27.7	16.0	55.7	5.9	20.3	2.9	10.4	-	-
DC-81	Orange High Plains Community Center	Day Care	Orange	8 South	Within ROW	2.3	140	0.1	2.1	2.3	7.8	0.5	1.2	0.4	1.1		
R-29	Salem Road Neighborhood	Residential Area	Woodbridge	8 South	30	0.3	0	3.9	15.8	11.2	31.0	1.7	9.0	0.6	6.0	-	-
R-32	Bittersweet Road Neighborhood	Residential Area	Orange	8 South	10	0.9	0	1.6	27.7	16.0	55.7	5.9	20.3	2.9	10.4	-	-
R-33	Dogwood Road Neighborhood	Residential Area	Orange	8 South	20	2.2	20	1.9	7.6	8.0	22.5	0.9	5.7	0.5	4.2	-	-
R-34	Overland Drive Neighborhood	Residential Area	Orange	8 South	10	1.3	0	1.6	27.7	16.0	55.7	5.9	20.3	2.9	10.4	-	-
R-35	South Racebrook Road Neighborhood	Residential Area	Orange	8 South	10	6.2	0	1.6	27.7	16.0	55.7	5.9	20.3	2.9	10.4	-	-
R-36	Hall Drive Neighborhood	Residential Area	Orange	8 South	160	2.4	0	1.6	27.7	16.0	55.7	5.9	20.3	2.9	10.4	-	-
R-37	Orange Center Road Neighborhood	Residential Area	Orange	8 South	140	2.5	0	1.6	27.7	16.0	55.7	5.9	20.3	2.9	10.4	-	-
R-38	Pine Tree Neighborhood	Residential Area	Orange	8 South	20	2.8	10	2.6	10.8	9.5	26.3	1.2	7.1	0.5	5.0	-	-
R-39	Treat Lane Neighborhood	Residential Area	Orange	8 South	50	2.2	10	2.6	10.8	9.5	26.3	1.2	7.1	0.5	5.0	-	-
R-40	Woodruff Road Neighborhood	Residential Area	Milford	8 South	70	2.1	0	3.9	15.8	11.2	31.0	1.7	9.0	0.6	6.0	-	-
R-47	Lookout Hill Road Neighborhood	Residential Area	Milford	8 South	170	0.6	15	1.1	19.3	11.9	41.1	4.0	13.4	2.3	7.9	-	-
R-48	Oronoque Road Neighborhood	Residential Area	Milford	8 South	130	1.2	40	1.0	4.3	5.9	16.9	0.6	3.9	0.4	3.1	-	-
R-49	Cornfield Road Neighborhood	Residential Area	Milford	8 South	220	0.4	10	2.6	10.8	9.5	26.3	1.2	7.1	0.5	5.0	-	-

1 See page 7 of "Supplemental Testimony II of Dr. William H. Bailey" dated July 19, 2004
2 Approximate distance from right-of-way where measurements were taken. Frequently, these measurements could not be taken at boundaries of facilities.
3 From GIS and aerial photos. For residential areas, the distance to right-of-way is the closest structure to the right-of-way.
4 Low-field options A, B and C correspond to low-field options for each cross section listed in Exhibit 1 of "Supplemental Testimony II of Dr. William H. Bailey" dated July 19, 2004
5 Based on 15 GW New England Average Load
6 Based on 27.7 GW New England Peak Load
7 Defined as a group of houses within 300 feet of the transmission right-of-way and within a length of approximately 2,000 feet along the right-of-way
8 Neighborhood is in both Durham and Middletown
9 This facility is being abandoned because of chemical contamination
10 Distance to building

Updated Exhibit 2 to Supplemental Testimony of Dr. William H. Bailey [1]

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ID No.	Facility	Facility Category	Town		Measurement Distance (ft)[2]	Magnetic Field (mG)		Average Load[5]	Peak Load[6]	Average Load[5]	Peak Load[6]	Average Load[5]	Peak Load[6]	Average Load[5]	Peak Load[6]	Average Load[5]	Peak Load[6]

11 Reflects site-specific line configurations at this location

Because of the design of existing transmission lines and the placement of the new proposed line on one side of these lines, the magnetic fields on each side of the right-of-way will not be equal. For another 24 miles (52% of the proposed route), the fields on one side of the right-of-way would be reduced by the design options as compared to existing field levels, as per the calculation model. On the opposite side of these sections of right-of-way, the same degree of field reduction would not be achieved, i.e. the magnetic field level would be higher than that modeled for the existing lines alone. For approximately 5.4 miles (12% of the proposed route), fields would go up on both sides of the right-of-way, even using the low magnetic field line designs. However, as noted, in most of these areas, the fields are already quite low and fall within the range of magnetic fields associated with distribution lines.

Q. It has been asserted in Exhibits and testimony in this case (*see*, for instance, prefiled testimony of Dr. Ginsberg, DOH Ex. 5, at 2 and attached Fact Sheet; and Ginsberg Tr., 5/12/04 at 172) that typically, the magnetic field associated with a 345-kV transmission line decays to "background levels" of around "a milligauss" within about 300 feet from the edge of the right-of-way. Would that statement accurately characterize the fields that would be associated with the overhead lines constructed using the low magnetic field designs to which Exhibit 1 relates?

Q. No. As Exhibit 1 shows, except for a few sections of the line, the low magnetic field designs cause the magnetic field from the proposed 345-kV line and existing 345 and 115-kV lines at a typical loading of 15 GW to fall below 2 mG, and often below 1 mG, within 150 feet of the edge of the right-of-way.

Re-routing as a Means of Reducing Magnetic Fields

Q. Do the illustrations in Exhibit 1 reflect any other field reduction strategies besides the low magnetic field line design options?

A. Yes. In Cross Sections 2 (design options 2 & 3) and 7B (design option**s** 1 **& 2**) the existing 115-kV lines would be removed from the right-of-way and placed underground beneath town streets as part of the strategy to reduce magnetic fields.

Q. Do the design options shown in Exhibit 1 include any options to reroute sections of the overhead lines away from the existing right-of-way?

A. No. The design options shown are not site-specific. They do not, for instance, take into account the effects of route adjustments that have been discussed, such as the bypass around the Royal Oak Subdivision in Durham or potential relocations of the right-of-way on the B'nai Jacob property and the JCC complex in Woodbridge.

Q. Are there other possible options to reduce magnetic fields at specific locations along the proposed route, in addition to such route adjustments?

A. Yes, these can be evaluated on a case-by-case basis.

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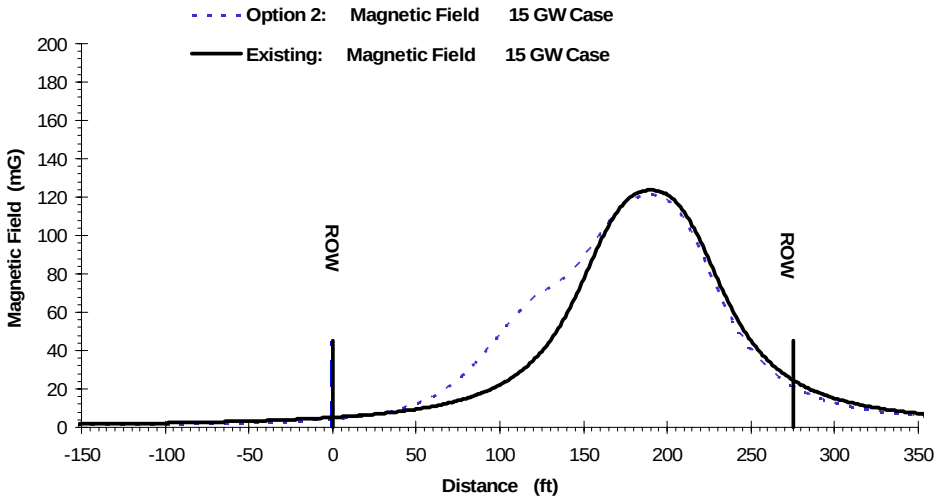
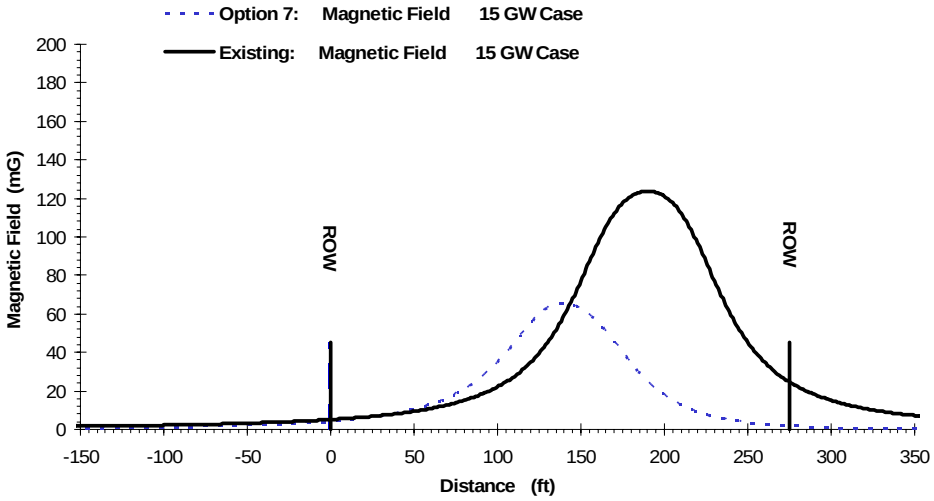
Cross Section 5 (15GW Case)

Typical Segment – Beseck S/S to East Wallingford Junction in the Town of Wallingford

		Transmission ROW																								
	Site Condition	150'	135'	120'	105	90'	75'	60'	45'	30'	15'	S/E Edge	50'	25'	Center	25'	50'	NW Edge	15'	30'	45'	60'	75'	90'	105'	120'	135'	150'
	Existing Lines (For Reference)	1.6	1.8	2.0	2.2	2.4	2.7	3.0	3.4	3.9	4.5	5.2	17.5	29.5	56.1	102.0	123.7	24.7	18.2	13.9	10.9	8.8	7.3	6.1	5.2	4.5	3.9	3.4
0	Proposed Lines on Existing ROW (For Reference)	3.5	3.9	4.3	4.9	5.6	6.4	7.4	8.8	10.5	12.7	15.9	74.0	60.8	26.3	70.9	107.2	27.8	21.0	16.4	13.2	10.8	9.1	7.7	6.6	5.8	5.1	4.5
	OPTIONS																											
2	345kV Delta	1.0	1.1	1.3	1.4	1.6	1.8	2.0	2.4	2.8	3.4	4.2	35.9	61.3	77.4	104.6	121.2	21.2	15.4	11.6	9.0	7.2	5.8	4.8	4.1	3.5	3.0	2.6
6	Reconstructed ROW* (Vertical Construction)	0.9	1.0	1.1	1.2	1.4	1.7	2.0	2.3	2.8	3.5	4.3	25.5	47.8	65.6	52.7	26.4	1.9	1.3	0.9	0.7	0.5	0.4	0.4	0.3	0.3	0.3	0.3





* Rebuilding of the existing 387 line could be considered in isolated areas.