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September 30, 2020

Melanie A. Bachman, Esq.  
Executive Director/Staff Attorney  
Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051

Re: Docket 490 - The United Illuminating Company Application for a Certificate of Environmental Compatibility and Public Need for the Old Town Substation Rebuild Project

Dear Ms. Bachman:

Enclosed for filing with the Connecticut Siting Council ("Council") is The United Illuminating Company's pre-hearing submission.

I certify that a copy hereof has been furnished on this date via electronic mail and/or first class mail, postage prepaid, to all parties, intervenors and participants of record according to the Council's service list for this docket as of this date. A copy has also been filed with the Council as an electronic web filing and is complete.

Should the Council have any questions regarding this filing, please do not hesitate to contact me.

Very truly yours,



Bruce L. McDermott

Enclosure

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**STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL**

The United Illuminating Company Application for a Certificate of Environmental Compatibility and Public Need for the Old Town Substation Rebuild Project that Entails Construction, Maintenance and Operation of a 115/13.8- kilovolt (kV) Air-insulated Replacement Substation Facility Located on the Existing Old Town Substation Parcel at 282 Kaechele Place and two Parcels Immediately North Totalling Approximately 3 Acres that are Owned by The United Illuminating Company at 312 and 330 Kaechele Place, Bridgeport, Connecticut, and Related Transmission Structure and Interconnection Improvements. :

Docket No. 490

September 30, 2020

**PRE-HEARING SUBMISSION OF THE UNITED ILLUMINATING COMPANY**

The United Illuminating Company (“UI”) hereby submits its response to the September 16, 2020 memorandum issued by the Connecticut Siting Council (the “Council”) in preparation for the October 15, 2020 hearing before the Council on UI’s above-captioned Application (the “Project”):

**I. Witnesses**

UI expects the following individuals will appear before the Council as available witnesses:

- 1) Todd Berman, Manager of Environmental Programs & Projects, UI, 100 Marsh Hill Road, Orange, CT 06477. Mr. Berman will provide information on the environmental review, effects, proposed mitigation measures and environmental permitting requirements.
- 2) Samantha Marone, Manager, Public Outreach, UI, 100 Marsh Hill Road, Orange, CT 06477. Ms. Marone will provide information on municipal and customer outreach implemented for the Project.

- 3) Richard Pinto, PMP, Senior Project Manager, Substation Projects, UI, 100 Marsh Hill Road, Orange, CT 06477. Mr. Pinto will provide information on the Project and its design as well as technical information concerning the Project's safety and reliability, the site selection process, and the environmental effects and proposed mitigation measure, and other matters as outlined in UI's Application to the Council.
- 4) Ronald Rossetti, PE, PMP, Manager, Electric Capital Projects, UI, 100 Marsh Hill Road, Orange, CT 06477. Mr. Rossetti will provide information on the Project and its design as well as technical information concerning the Project's safety and reliability, the site selection process, and the environmental effects and proposed mitigation measure, and other matters as outlined in UI's Application to the Council.
- 5) MeeNa Sazanowicz, Transmission Line Standards, UI, 100 Marsh Hill Road, Orange, CT 06477. Ms. Sazanowicz will provide information concerning the transmission aspects of the Project.
- 6) Frank Walsh, Manager, Transmission Planning, UI, 100 Marsh Hill Road, Orange, CT 06477. Mr. Walsh will discuss capacity issues and will provide information on the need for the project.
- 7) Jonathan Wolff, Lead Engineer, Substation Projects, UI, 100 Marsh Hill Road, Orange, CT 06477. Mr. Wolff will provide information on the design of the project.
- 8) Dr. William Bailey, Ph.D., Principal Scientist, Exponent, 17000 Science Drive, Suite 200, Bowie, MD 20715. Dr. Bailey will provide information concerning electric and magnetic fields associated with the Project. Dr. Bailey's curriculum vitae is attached as Attachment A.
- 9) Mike Libertine, Director of Siting & Permitting, All-Points Technology Corporation, P.C., 567 Vauxhall Street Extension, Suite 311, Waterford, CT 06385. Mr. Libertine will provide information related to the visibility of the proposed substation. Mr. Libertine's résumé is attached as Attachment B.

## **II. Pre-Filed Testimony**

At this time, UI does not plan to file direct testimony.

## **III. Documents to be Administratively Noticed**

At this time, UI does not ask that the Council take administrative notice of any documents other than those contained in the Council's Administrative Notice List.

**IV. Exhibits**

At this time, UI does not have additional exhibits to submit.

Respectfully submitted,

**THE UNITED ILLUMINATING COMPANY**



By: \_\_\_\_\_

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**CERTIFICATION**

This is to certify that on this 30<sup>th</sup> day of September, 2020, a copy of the foregoing has been electronically delivered to all other known parties and intervenors.



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Bruce L. McDermott



**Exponent**<sup>®</sup>  
Engineering & Scientific Consulting

## William H. Bailey, Ph.D.

Principal Scientist | Health Sciences  
17000 Science Drive, Suite 200 | Bowie, MD 20715  
(301) 291-2516 tel | [wbailey@exponent.com](mailto:wbailey@exponent.com)

### Professional Profile

Dr. Bailey specializes in applying state-of-the-art assessment methods to environmental and occupational health issues. His 30 years of training and experience include laboratory and epidemiologic research, health risk assessment, and comprehensive exposure analysis. Dr. Bailey has investigated exposures to alternating current, direct current, and radiofrequency electromagnetic fields, 'stray voltage', and electrical shock, as well as to a variety of chemical agents and air pollutants. He is particularly well known for his research on potential effects of electromagnetic fields on the environment and health and has served as an advisor to numerous state, federal, and international agencies. Currently, he is involved in research on exposures to marine life from submarine cables, respiratory exposures to ultrafine- and nanoparticles, and EMF and RF exposure guidelines.

Dr. Bailey has been a visiting scientist at the Cornell University Medical College and has lectured at Rutgers University, the University of Texas (San Antonio), and the Harvard School of Public Health. He was formerly Head of the Laboratory of Neuropharmacology and Environmental Toxicology at the New York State Institute for Basic Research, Staten Island, New York, and an Assistant Professor and NIH postdoctoral fellow in Neurochemistry at The Rockefeller University in New York.

### Academic Credentials & Professional Honors

Ph.D., Neuropsychology, City University of New York, 1975

M.B.A., University of Chicago, 1969

B.A., Dartmouth College, 1966

Sigma Xi

The Institute of Electrical and Electronics Engineers/International Committee on Electromagnetic Safety (Subcommittee 3, Safety Levels with Respect to Human Exposure to Fields (0 to -3 kHz) and Subcommittee 4, Safety Levels with Respect to Human Exposure to Radiofrequency Fields (3 kHz to 3 GHz)

Elected member of the Committee on Man and Radiation (COMAR) of the IEEE Engineering in Medicine and Biology Society, 1998-2001

### Academic Appointments

Visiting Scientist, Department of Pharmacology, Cornell University Medical College, New York, NY, 1986-2012

Visiting Scientist, The Jackson Laboratory, Bar Harbor, ME, 1984-1985

Head, Laboratory of Neuropharmacology and Environmental Toxicology, NYS Institute for Basic Research in Developmental Disabilities, Staten Island, NY, 1983-1987

Assistant Professor, The Rockefeller University, New York, NY, 1976-1983

Postdoctoral Fellow, Neurochemistry, The Rockefeller University, New York, NY, 1974-1976

Dissertation Research, The Rockefeller University, New York, NY, 1972-1974

CUNY Research Fellow, Dept. of Psychology, Queens College, City University of New York, Flushing, NY, 1969-1971

Clinical Research Assistant, Department of Psychiatry, University of Chicago; Psychiatric Psychosomatic Inst., Michael Reese Hospital, and Illinois State Psychiatric Inst, Chicago, IL, 1968-1969

### **Teaching Appointments**

Lecturer, University of Texas Health Science Center, Center for Environmental Radiation Toxicology, San Antonio, TX, 1998

Lecturer, Harvard School of Public Health, Office of Continuing Education, Boston, MA, 1995, 1997

Lecturer, Rutgers University, Office of Continuing Education, New Brunswick, NJ, 1991-1995

Adjunct Assistant Professor, Queens College, CUNY, Flushing, NY, 1978

Lecturer, Queens College, CUNY, Flushing, NY, 1969-1974

### **Prior Experience**

President, Bailey Research Associates, Inc., 1991-2000

Vice President, Environmental Research Information, Inc., 1987-1990

Head of Laboratory of Environmental Toxicology and Neuropharmacology, New York State Institute for Basic Research, 1983-1987

Assistant Professor, The Rockefeller University, 1976-1983

### **Professional Affiliations**

The Health Physics Society (Affiliate of the International Radiation Protection Society)

Society for Risk Analysis

International Society of Exposure Analysis

New York Academy of Sciences

American Association for the Advancement of Science (Life Time Member)

Society for Neuroscience/International Brain Research Organization

Bioelectromagnetics Society

The Institute of Electrical and Electronics Engineers (Life Member)

The Institute of Electrical and Electronics Engineers Engineering in Medicine and Biology Society

Conseil International des Grands Réseaux Électriques

## Publications

Bailey WH, Cotts B, Dopart PJ. Wireless 5G radiofrequency technology - An overview of small cell exposures, standards and science. *IEEE Access*. 2020 Aug; 8:140792-140797. doi:0.1109/ACCESS.2020.3010677.

IEEE International Committee on Electromagnetic Safety Technical Committee 95. Bailey WH, Bodemann R, Bushberg J, Chou C-K, Cleveland R, Faraone A, Foster KR, Gettman KE, Graf K, Harrington T, Hirata A, Kavet R, Keshvari J, Klauenberg BJ, Legros A, Maxson DP, Osepchuk JM, Reilly JP, Tell RA, Thansandote A, Yamazaki K, Ziskin MC, Zollman PM. Synopsis of IEEE Std C95.1™-2019 "IEEE Standard for Safety Levels With Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz. *IEEE Access*. 2019 Dec; 7(1):171346-171356. doi: 10.1109/ACCESS.2019.2954823.

Bailey WH, Williams AL, Leonhard MJ. Exposure of laboratory animals to small air ions: a systematic review of biological and behavioral studies. *Biomed Eng Online*. 2018 Jun 5;17(1):72. doi: 10.1186/s12938-018-0499-z

Schmiedchen K, Petri AK, Driessen S, Bailey WH. Systematic review of biological effects of exposure to static electric fields. Part II: Invertebrates and plants. *Environ Res*. 2018 Jan;160:60-76. doi: 10.1016/j.envres.2017.09.013. Epub 2017 Oct 3.

Petri AK, Schmiedchen K, Stunder D, Dechent D, Kraus T, Bailey WH, Driessen S. Biological effects of exposure to static electric fields in humans and vertebrates: A systematic review. *Environ Health* 2017 Apr 17; 16(1):41. doi: 10.1186/s12940-017-0248-y.

Bailey WH. Review of epidemiology of electromagnetic fields, Martin Rössli, Editor. *Health Physics* 2015; 109:606-607.

Chang ET, Adami H-O, Bailey WH, Boffetta P, Krieger RI, Moolgavkar SH, Mandel JS. Validity of geographically modeled environmental exposure estimates. *Crit Rev Toxicol* 2014 May; 44:450-466. doi: 10.3109/10408444.2014.902029.

Alexander DD, Bailey WH, Perez V, Mitchell ME, Su S. Air ions and respiratory function outcomes: A comprehensive review. *J Negat Results Biomed* 2013 Sep 9; 12(1):14. doi: 10.1186/1477-5751-12-14.

Perez V, Alexander DD, Bailey WH. Air ions and mood outcomes: A review and meta-analysis. *BMC Psychiatry* 2013 Jan 15; 13(1):29. doi: 10.1186/1471-244X-13-29.

Bailey WH, Johnson GB, Bishop J, Hetrick T, Su S. Measurements of charged aerosols near +/- 500 kV DC transmission lines and in other environments. *IEEE Transactions on Power Delivery* 2012; 27:371-379.

Shkolnikov YP, Bailey WH. Electromagnetic interference and exposure from household wireless networks. 2011 IEEE Symposium on Product Compliance Engineering (PSES), October 1-5, 2011.



Kavet R, Bailey WH, Bracken TD, Patterson RM. Recent advances in research relevant to electric and magnetic field exposure guidelines. *Bioelectromagnetics* 2008; 29:499-526.

Bailey WH, Wagner M. IARC evaluation of ELF magnetic fields: Public understanding of the 0.4 $\mu$ T exposure metric. *Journal of Exposure Science and Environmental Epidemiology* 2008; 18:233-235.

Bailey WH, Erdreich L. Accounting for human variability and sensitivity in setting standards for electromagnetic fields. *Health Physics* 2007; 92:649-657.

Bailey WH, Nyenhuis JA. Thresholds for 60-Hz magnetic field stimulation of peripheral nerves in human subjects. *Bioelectromagnetics* 2005; 26:462-468.

Bracken TD, Senior RS, Bailey WH. DC electric fields from corona-generated space charge near AC transmission lines. *IEEE Transactions on Power Delivery* 2005; 20:1692-1702.

Bailey WH. Dealing with uncertainty in formulating occupational and public exposure limits. *Health Physics* 2002; 83:402-408.

Bailey WH. Health effects relevant to the setting of EMF exposure limits. *Health Physics* 2002; 83:376-386.

Kavet R, Stuchly MA, Bailey WH, Bracken TD. Evaluation of biological effects, dosimetric models, and exposure assessment related to ELF electric- and magnetic-field guidelines. *Applied Occupational and Environmental Hygiene* 2001; 16:1118-1138.

Bailey WH. ICNIRP recommendation for limiting public exposure to 4 Hz-1 kHz electric and magnetic fields. *Health Physics* 1999; 77:97-98.

Bailey WH. Principles of risk assessment with application to current EMF risk communication issues. In: *EMF Risk Perception and Communication*. Repacholi MH, Muc AM (eds), World Health Organization, Geneva, 1999.

De Santo RS, Bailey WH. Environmental justice tools and assessment practices. *Proceedings, American Public Transit Association*, 1999.

Bailey WH, Su SH, Bracken TD. Probabilistic approach to ranking sources of uncertainty in ELF magnetic field exposure limits. *Health Physics* 1999; 77:282-290.

Bailey WH. Field parameters. *Proceedings, EMF Engineering Review Symposium, Status and Summary of EMF Engineering Research*. Bracken TD and Montgomery JH (eds), Oak Ridge National Laboratory, Oak Ridge, TN, April 28-29, 1998.

Bailey WH. Policy implications. *Proceedings, EMF Engineering Review Symposium, Status and Summary of EMF Engineering Research*. Bracken TD and Montgomery JH (eds), Oak Ridge National Laboratory, Oak Ridge, TN, April 28-29, 1998.

Bailey WH. Probabilistic approaches to deriving risk-based exposure guidelines: Application to extremely low frequency magnetic fields. In: *Non-Ionising Radiation*. Dennis JA and Stather JW (eds), Special Issue of *Radiation Protection Dosimetry* 1997; 72:327-336.

Bailey WH, Su SH, Bracken TD, Kavet R. Summary and evaluation of guidelines for occupational exposure to power frequency electric and magnetic fields. *Health Physics* 1997; 73:433-453.

Bracken TD, Senior RS, Rankin RF, Bailey WH, Kavet R. Magnetic field exposures in the electric utility

industry relevant to occupational guideline levels. *Applied Occupational and Environmental Hygiene* 1997; 12:756-768.

Blondin J-P, Nguyen D-H, Sbeghen J, Goulet D, Cardinal C, Maruvada P-S, Plante M, and Bailey WH. Human perception of electric fields and ion currents associated with high voltage DC transmission lines. *Bioelectromagnetics* 1996; 17:230-241.

Bailey WH, Charry JM. Acute exposure of rats to air ions: Effects on the regional concentration and utilization of serotonin in brain. *Bioelectromagnetics* 1987; 8:173-181.

Bailey WH, Charry JM. Measurement of neurotransmitter release and utilization in selected brain regions of rats exposed to dc electric fields and atmospheric space charge. *Proceedings, 23rd Hanford Life Sciences Symposium, Interaction of Biological Systems with Static and ELF Electric and Magnetic Fields*, 1987.

Pavildes C, Aoki C, Chen J-S, Bailey WH, Winson J. Differential glucose utilization in the parafascicular region during slow-wave sleep, the still-alert state and locomotion. *Brain Research* 1987; 423:399-402.

Bailey WH, Charry JM. Behavioral monitoring of rats during exposure to air ions and DC electric fields. *Bioelectromagnetics* 1986; 7:329-339.

Charry JM, Shapiro MH, Bailey WH, Weiss JM. Ion-exposure chambers for small animals. *Bioelectromagnetics* 1986; 7:1-11.

Charry JM, Bailey WH. Regional turnover of norepinephrine and dopamine in rat brain following acute exposure to air ions. *Bioelectromagnetics* 1985; 6:415-425.

Bracken TD, Bailey WH, Charry JM. Evaluation of the DC electrical environment in proximity to VDTs. *Journal of Environmental Science and Health Part A* 1985; 20:745-780.

Gross SS, Levi R, Bailey WH, Chenouda AA. Histamine modulation of cardiac sympathetic responses: A physiological role. *Federation Proceedings* 1984; 43:458.

Gross SS, Guo ZG, Levi R, Bailey WH, Chenouda AA. 1984. Release of histamine by sympathetic nerve stimulation in the guinea pig heart and modulation of adrenergic responses. *Circulation Research* 1984; 54:516-526.

Dahl D, Bailey WH, Winson J. Effect of norepinephrine depletion of hippocampus on neuronal transmission from perforant pathway through dentate gyrus. *Journal of Neurophysiology* 1983; 49:123-135.

Guo ZG, Gross SS, Levi R, Bailey WH. Histamine: Modulation of norepinephrine release from sympathetic nerves in guinea pig heart. *Federation Proceedings* 1983; 42:907.

Bailey WH. Biological effects of air ions on serotonin metabolism: Fact and fancy. pp. 90-120. In: *Conference on Environmental Ions and Related Biological Effects*. Charry JM (ed), American Institute of Medical Climatology, Philadelphia, PA, 1982.

Weiss JM, Goodman PA, Losito BG, Corrigan S, Charry JM, Bailey WH. Behavioral depression produced by an uncontrollable stressor: Relationship to norepinephrine, dopamine, and serotonin levels in various regions of rat brain. *Brain Research Reviews* 1981; 3:167-205.

Weiss JM, Bailey WH, Pohorecky LA, Korzeniowski D, Grillione G. Stress-induced depression of motor activity correlates with regional changes in brain norepinephrine but not in dopamine. *Neurochem Res*. 1980; 5:9-22.

Bailey WH. Ion-exchange chromatography of creatine kinase isoenzymes: A method with improved specificity and sensitivity. *Biochemical Medicine* 1980; 24:300-313.

Bailey WH, Weiss JM. Evaluation of a 'memory deficit' in vasopressin-deficient rats. *Brain Research* 1979; 162:174-178.

Bailey WH, Weiss JM. Effect of ACTH 4-10 on passive avoidance of rats lacking vasopressin (Brattleboro strain). *Hormones and Behavior* 1978; 10:22-29.

Pohorecky LA, Newman B, Sun J, Bailey WH. Acute and chronic ethanol injection and serotonin metabolism in rat brain. *Journal of Pharmacology and Experimental Therapeutics* 1978; 204:424-432.

Koh SD, Vernon M, Bailey WH. Free-recall learning of word lists by prelingual deaf subjects. *Journal of Verbal Learning and Verbal Behavior* 1971; 10:542-574.

### **Book Chapters**

Cotts B, Graf K, Bailey WH, Murphy P. Electromagnetic interference considerations for electrical power systems. In *The Power Grid: Smart, Secure, Green and Reliable*. D'Andrade B (ed), Academic Press, New York, NY 2017.

Bailey WH. Principles of risk assessment and their limitations. In: *Risk Perception, Risk Communication and its Application to EMF Exposure*. Matthes R, Bernhardt JH, Repacholi MH (eds), International Commission on Non-Ionizing Radiation Protection, Oberschleissheim, Germany, 1998.

Bailey WH. Biological responses to air ions: Is there a role for serotonin? pp. 151-160. In: *Air Ions: Physical and Biological Aspects*. Charry JM and Kavet R (eds). CRC Press, Boca Raton, FL, 1987.

Weiss JM, Bailey WH, Goodman PA, Hoffman LJ, Ambrose MJ, Salman S, Charry JM. A model for neurochemical study of depression. pp. 195-223. In: *Behavioral Models and the Analysis of Drug Action*. Spiegelstein MY, Levy A (eds), Elsevier Scientific, Amsterdam, 1982.

Bailey WH. Mnemonic significance of neurohypophyseal peptides. pp. 787-804. In: *Changing Concepts of the Nervous System*. Morrison AR, Strick PL (eds), Academic Press, New York, NY, 1981.

Bailey WH, Weiss, JM. Avoidance conditioning and endocrine function in Brattleboro rats. pp 371-395. In: *Endogenous Peptides and Learning and Memory Process*. Martinez JL, Jensen RA, Messing RB, Rigter H, McGaugh JL (eds), Academic Press, New York, NY, 1981.

Weiss JM, Glazer H, Pohorecky LA, Bailey WH, Schneider L. Coping behavior and stress-induced behavioral depression: Studies of the role of brain catecholamines. pp. 125-160. In: *The Psychobiology of the Depressive Disorders: Implications for the Effects of Stress*. Depue R (ed), Academic Press, New York, NY, 1979.

### **Technical Reports**

Snyder DB, Bailey WH, Palmquist K, Cotts BRT, Olsen KR. Evaluation of Potential EMF Effects on Fish Species of Commercial or Recreational Fishing Importance in Southern New England. U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Headquarters, Sterling, VA. OCS Study BOEM 2019-049, August 2019.

Normandeau, Exponent, Tricas T, Gill A. Effects of EMFs from undersea power cables on elasmobranchs and other marine species. U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Regulation, and Enforcement, Pacific OCS Region, Camarillo, CA. OCS Study BOEMRE 2011-09, May 2011.

Jardini JA, et al. Electric field and ion current environment of HVDC overhead transmission lines. Report of Joint Working Group B4/C3/B2.50, CIGRÉ, August 2011.

Johnson GB, Bracken TD, Bailey WH. Charging and transport of aerosols near AC transmission lines: A literature review. EPRI, Palo Alto, CA, 2003.

Bailey WH. Probabilistic approach to ranking sources of uncertainty in ELF magnetic-field exposure limits. In: Evaluation of Occupational Magnetic Exposure Guidelines, Interim Report, EPRI Report TR-111501, 1998.

Bracken TD, Bailey WH, Su SH, Senior RS, Rankin RF. Evaluation of occupational magnetic-field exposure guidelines; Interim Report. EPRI Report TR-108113, 1997.

Bailey WH, Weil DE, Stewart JR. HVDC Power Transmission Environmental Issues Review. Oak Ridge National Laboratory, Oak Ridge, TN, 1996.

Bailey WH. Melatonin responses to EMF. Proceedings, Health Implications of EMF Neural Effects Workshop, Report TR-104327s, EPRI, 1994.

Bailey WH. Recent neurobiological and behavioral research: Overview of the New York State powerlines project. In: Power-Frequency Electric and Magnetic Field Research, EPRI, 1989.

Bailey WH, Bissell M, Dorn CR, Hoppel WA, Sheppard AR, Stebbings, JH. Comments of the MEQB Science Advisors on Electrical Environment Outside the Right of Way of CU-TR-1, Report 5. Science Advisor Reports to the Minnesota Environmental Quality Board, 1986.

Bailey WH, Bissell M, Brambl RM, Dorn CR, Hoppel WA, Sheppard AR, Stebbings JH. A health and safety evaluation of the +/- 400 KV powerline. Science Advisor's Report to the Minnesota Environmental Quality Board, 1982.

Charry JM, Bailey WH, Weiss JM. Critical annotated bibliographical review of air ion effects on biology and behavior. Rockefeller University, New York, NY, 1982.

Bailey WH. Avoidance behavior in rats with hereditary hypothalamic diabetes insipidus. Dissertation, City University of New York, 1975.

### **Invited Presentations**

Chou CK, Petersen R, Foster K, Hirata A, Ziskin M, Reilly JP, Tell R, Faraone A, Klauenberg BJ, Kavet R, Graf K, Cleveland R, Thansandote A, Bushberg J, Bailey W, Osepchuk J, Legros A, Yamazaki K, Bodemann R. Revision of IEEE Standards C95.1-2005 and C95.6-2002. BioEM2018 - Joint Annual Meeting of The Bioelectromagnetics Society and the European BioElectromagnetics Association, Piran, Portorož, Slovenia, June 29, 2018.

Bailey WH. Thresholds for peripheral nerve stimulation by ELF magnetic fields in humans. Presentation at Bundesamt für Strahlenschutz Workshop on Action and Perception Thresholds of Static and ELF Magnetic and Electric Fields and Contact Currents in Humans, Munich, Germany, October 26-27, 2016.

Bailey WH. Update on scientific developments regarding extremely low frequency and radiofrequency fields and health. Committee on Man and Radiation (COMAR) of the IEEE Engineering in Medicine and Biology Society, January 11, 2016.

Bailey WH. Measurements of charged aerosols around DC transmission lines and other locations. International Committee on Electromagnetic Safety TC95/ Subcommittee 3: Safety Levels with Respect to

Human Exposure to Electromagnetic Fields, 0 - 3 kHz, December 2011.

Bailey WH, Erdreich LS. Human sensitivity and variability in response to electromagnetic fields: Implications for standard setting. International Workshop on EMF Dosimetry and Biophysical Aspects Relevant to Setting Exposure Guidelines. International Commission on Non-Ionizing Radiation Protection, Berlin, March 2006.

Bailey WH. Research-based approach to setting electric and magnetic field exposure guidelines (0-3000 Hz). IEEE Committee on Electromagnetic Safety, December 2005.

Bailey WH. Conference Keynote Presentation. Research supporting 50/60 Hz electric and magnetic field exposure guidelines. Canadian Radiation Protection Association, Annual Conference, Winnipeg, June 2005.

Bailey WH. Scientific methodology for assessing public health issues: A case study of EMF. Canadian Radiation Protection Association, Annual Conference, Public Information for Teachers, Winnipeg, June 2005.

Bailey WH. Assessment of potential environmental effects of electromagnetic fields from submarine cables. Connecticut Academy of Science and Engineering, Long Island Sound Bottomlands Symposium: Study of Benthic Habitats, July 2004.

De Santo RS, Coe M, Bailey WH. Environmental justice assessment and the use of GIS tools and methods. National Association of Environmental Professionals, 27th Annual Conference, Dearborn, MI, June 2002.

Bailey WH. Applications to enhance safety: Research to understand and control potential risks. Human Factors and Safety Research, Volpe National Transportation Systems Center/Dutch Ministry of Transport, Cambridge, MA, November 2000.

Bailey WH. EMF health effects review. EMF Exposure Guideline Workshop, Brussels Belgium, June 2000.

Bailey WH. Dealing with uncertainty when formulating guidelines. EMF Exposure Guideline Workshop, Brussels Belgium, June 2000.

Bailey WH. Field parameters: Policy implications. EMF Engineering Review Symposium, Status and Summary of EMF Engineering Research, Charleston, SC, April 1998.

Bailey WH. Principles of risk assessment: Application to current issues. Symposium on EMF Risk Perception and Communication, World Health Organization, Ottawa, Canada, August 1998.

Bailey WH. Current guidelines for occupational exposure to power frequency magnetic fields. EPRI EMF Seminar, New Research Horizons, March 1997.

Bailey WH. Methods to assess potential health risks of cell telephone electromagnetic fields. IBC Conference — Cell Telephones: Is there a Health Risk? Washington, DC, June 1997.

Bailey WH. Principles of risk assessment and their limitations. Symposium on Risk Perception, Risk Communication and its Application to EMF Exposure, International Commission on Non-Ionizing Radiation Protection, Vienna, Austria, October 1997.

Bailey WH. Probabilistic approach for setting guidelines to limit induction effects. IEEE Standards Coordinating Committee 28: Non-Ionizing Radiation, Subcommittee 3 (0-3 kHz), June 1997.

Bailey WH. Power frequency field exposure guidelines. IEEE Standards Coordinating Committee 28: Non-Ionizing Radiation, Subcommittee 3 (0-3 kHz), June 1996.

Bailey WH. Epidemiology and experimental studies. American Industrial Hygiene Conference, Washington, DC, May 1996.

Bailey WH. Review of 60 Hz epidemiology studies. EMF Workshop, Canadian Radiation Protection Association, Ontario, Canada, June 1993.

Bailey WH. Biological and health research on electric and magnetic fields. American Industrial Hygiene Association, Fredrickton, New Brunswick, Canada, October 1992.

Bailey WH. Electromagnetic fields and health. Institute of Electrical and Electronics Engineers, Bethlehem, PA, January 1992.

Bailey WH, Weiss JM. Psychological factors in experimental heart pathology. Visiting Scholar Presentation, National Heart Lung and Blood Institute, Bethesda, MD, March 1977.

### **Presentations**

Williams AI, Bailey WH. Toxicologic assessment of air ion exposures in laboratory animals. Poster presentation at 53rd Annual Meeting of the Society of Toxicology, Phoenix, AZ, March 26, 2014.

Perez V, Alexander DD, Bailey WH. Air ions and mood outcomes: A review and meta-analysis. Poster presentation at the American College of Epidemiology, Chicago, IL, September 8-11, 2012.

Shkolnikov Y, Bailey WH. Electromagnetic interference and exposure from household wireless networks. Product Safety Engineering Society Meeting, San Diego, CA, October 2011.

Nestler E, Trichas T, Pembroke A, Bailey W. Will undersea power cables from offshore wind projects affect sharks? North American Offshore Wind Conference & Exhibition, Atlantic City, NJ, October 2010.

Nestler E, Pembroke A, Bailey W. Effects of EMFs from undersea power lines on marine species. Energy Ocean International, Ft. Lauderdale, FL, June 2010.

Pembroke A, Bailey W. Effects of EMFs from undersea power cables on elasmobranchs and other marine species. Windpower 2010 Conference and Exhibition, Dallas, TX, 2010.

Bailey WH. Clarifying the neurological basis for ELF guidelines. Workshop on Practical Implementation of ELF and RF Guidelines. The Bioelectromagnetics Society 29th Annual Meeting, Kanazawa, Japan, June 2007.

Sun B, Urban B, Bailey W. AERMOD simulation of near-field dispersion of natural gas plume from accidental pipeline rupture. Air and Waste Management Association: Health Environments: Rebirth and Renewal, New Orleans, LA, June 2006.

Bailey WH, Johnson G, Bracken TD. Method for measuring charge on aerosol particles near AC transmission lines. Joint Meeting of The Bioelectromagnetics Society and The European BioElectromagnetics Association, Dublin Ireland, June 2005.

Bailey WH, Bracken TD, Senior RS. Long-term monitoring of static electric field and space charge near AC transmission Lines. The Bioelectromagnetics Society, 26th Annual Meeting, Washington, DC, June 2004.

Bailey WH, Erdreich L, Waller L, Mariano K. Childhood leukemia in relation to 25-Hz and 60-Hz magnetic

fields along the Washington DC — Boston rail line. Society for Epidemiologic Research, 35th Annual Meeting, Palm Desert CA, June 2002. American Journal of Epidemiology 2002; 155:S38.

Erdreich L, Klauenberg BJ, Bailey WH, Murphy MR. Comparing radiofrequency standards around the world. Health Physics Society 43rd Annual Meeting, Minneapolis, MN, July 1998.

Bracken TD, Senior RS, Rankin RF, Bailey WH, Kavet R. Relevance of occupational guidelines to utility worker magnetic-field exposures. Second World Congress for Electricity and Magnetism in Biology and Medicine, Bologna, Italy, June 1997.

Weil DE, Erdreich LS, Bailey WH. Are 60-Hz magnetic fields cancer causing agents? Mechanisms and Prevention of Environmentally Caused Cancers, The Lovelace Institutes 1995 Annual Symposium, La Fonda, Santa Fe, NM, October 1995.

Bailey WH. Neurobiological research on extremely-low-frequency electric and magnetic fields: A review to guide future research. Sixteenth Annual Meeting of the Bioelectromagnetics Society, Copenhagen, Denmark, June 1994.

Blondin J-P, Nguyen D-H, Sbeghen J, Maruvada PS, Plante M, Bailey WH, Goulet D. The perception of DC electric fields and ion currents in human observers. Annual Meeting of the Canadian Psychological Association, Penticton, British Columbia, Canada, June 1994.

Erdreich LS, Bailey WH, Weil DE. Science, standards and public policy challenges for ELF fields. American Public Health Association 122nd Annual Meeting, Washington, DC, October 1994.

Bailey WH, Charry JM. Particle deposition on simulated VDT operators: Influence of DC electric fields. 10th Annual Meeting of the Bioelectromagnetics Society, June 1988.

Charry JM, Bailey WH. Contribution of charge on VDTs and simulated VDT operators to DC electric fields at facial surfaces. 10th Annual Meeting of the Bioelectromagnetics Society, June 1988.

Bailey WH, Charry, JM. Dosimetric response of rats to small air ions: Importance of relative humidity. EPRI/DOE Contractors Review, November 1986. Charry JM, Bailey WH, Bracken TD (eds). DC electric fields, air ions and respirable particulate levels in proximity to VDTs. International Conference on VDTs and Health, Stockholm, Sweden, June 12-15 1986.

Charry JM, Bailey WH. Air ion and DC field strengths at  $10^4$  ions/cm<sup>3</sup> in the Rockefeller University Small Animal Exposure Chambers. EPRI/DOE Contractors Review, November 1985.

Charry JM, Bailey WH. DC Electrical environment in proximity to VDTs. 7th Annual Meeting of the Bioelectromagnetics Society, June 1985.

Bailey WH, Collins RL, Lahita RG. Cerebral lateralization: Association with serum antibodies to DNA in selected bred mouse lines. Society for Neuroscience, 1985.

Kavet R, Bailey WH, Charry JM. Respiratory neuroendocrine cells: A plausible site for air ion effects. Seventh Annual Meeting of The Bioelectromagnetics Society, June 1985.

Bailey WH, Charry JM. Measurement of neurotransmitter release and utilization in selected brain regions of rats exposed to DC electric fields and atmospheric space charge. 23rd Hanford Life Sciences Symposium, Richland, WA, October 1984.

Bailey WH, Charry JM, Weiss JM, Cardle K, Shapiro M. Regional analysis of biogenic amine turnover in rat brain after exposure to electrically charged air molecules (air ions). Society for Neuroscience, 1983.

Bailey WH. Biological effects of air ions: Fact and fancy. American Institute of Medical Climatology Conference on Environmental Ions and Related Biological Effects, October 1982.

Goodman PA, Weiss JM, Hoffman LJ, Ambrose MJ, Bailey WH, Charry, JM. Reversal of behavioral depression by infusion of an A2 adrenergic agonist into the locus coeruleus. Society for Neuroscience, November 1982.

Charry JM, Bailey WH. Biochemical and behavioral effects of small air ions. Electric Power Research Institute Workshop, April 1981.

Bailey WH, Alonson DR, Weiss JM, Chin S. Predictability: A psychologic/ behavioral variable affecting stress-induced myocardial pathology in the rat. Society for Neuroscience, November 1980.

Salman SL, Weiss JM, Bailey WH, Joh TH. Relationship between endogenous brain tyrosine hydroxylase and social behavior of rats. Society of Neuroscience, November 1980.

Bailey WH, Maclusky S. Appearance of creatine kinase isoenzymes in rat plasma following myocardial injury produced by isoproterenol. Fed Assoc Soc Exp Biol, April 1978.

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Bailey WH, Weiss JM. Effect of ACTH 4-10 on passive avoidance of rats lacking vasopressin (Brattleboro strain). Eastern Psychological Association, April 1976.

## Advisory Appointments

National Institute of Environmental Health Sciences, National Toxicology Program, Participation in research study to update Level of Concern categories to better integrate evidence for toxicity and extent of human exposure, 2017

Bundesamt für Strahlenschutz - Federal Office for Radiation Protection. Summarize recent research and recommend research direction on magnetic field stimulation of peripheral nerves, 2016

Federal Office for Radiation Protection - Germany, Technical input to assessment of static and ELF exposures to public from updating national transmission network, 2016

RWTH Aachen University. Workshop on human perception thresholds in static electric fields from high-voltage direct current (HVDC) transmission lines, 2015

ZonMw - Netherlands Organization for Health Research and Development, 2012; 2007-2008, reviewer for National Programme on EMF and Health

US Bureau of Ocean Energy Management, Regulation and Enforcement, 2009-2010

Canadian National Collaborating Centre for Environmental Health, reviewer of Centre reports, 2008

Island Regulatory and Appeals Commission, province of Prince Edward Island, Canada, 2008

National Institute of Environmental Health Sciences/ National Institutes of Health, Review Committee, Neurotoxicology, Superfund Hazardous Substances Basic Research and Training Program, 2004

National Institute of Environmental Health Sciences, Review Committee Role of Air Pollutants in Cardiovascular Disease, 2004



Working Group on Non-Ionizing Radiation, Static and Extremely Low-Frequency Electromagnetic Fields, International Agency for Research on Cancer, 2000-2002

Working Group, EMF Risk Perception and Communication, World Health Organization, 1998-2005

Member, International Committee on Electromagnetic Safety, Subcommittee 3 - Safety Levels with Respect to Human Exposure to Fields (0 to 3 kHz) and Subcommittee 4 - Safety Levels with Respect to Human Exposure (3kHz to 3GHz), Institute of Electrical and Electronics Engineers (IEEE), 1996-present

Invited participant, National Institute of Environmental Health Sciences, EMF Science Review Symposium: Clinical and In Vivo Laboratory Findings, 1998

Working Group, EMF Risk Perception and Communication, International Commission on Non-Ionizing Radiation Protection, 1997

U.S. Department of Energy, RAPID EMF Engineering Review, 1997

Oak Ridge National Laboratory, 1996

American Arbitration Association International Center for Dispute Resolution, 1995-1996

U.S. Department of Energy, 1995

National Institute for Occupational Safety and Health, 1994-1995

Federal Rail Administration, 1993-1996

U.S. Forest Service, 1993

New York State Department of Environmental Conservation, 1993

National Science Foundation

National Institutes of Health, Special Study Section — Electromagnetics, 1991-1993

Maryland Public Service Commission and Maryland Department of Natural Resources, Scientific Advisor on health issues pertaining to HVAC Transmission Lines, 1988-1989

Scientific advisor on biological aspects of electromagnetic fields, Electric Power Research Institute, Palo Alto, CA, 1985-1989

U.S. Public Health Service, NIMH: Psychopharmacology and Neuropsychology Review Committee, 1984

Consultant on biochemical analysis, Colgan Institute of Nutritional Science, Carlsbad, CA, 1982-1983

Behavioral Medicine Abstracts, Editor, animal behavior and physiology, 1981-1983

Consultant on biological and behavioral effects of high-voltage DC transmission lines, Vermont Department of Public Service, Montpelier, VT, 1981-1982

Scientific advisory committee on health and safety effects of a high-voltage DC transmission line, Minnesota Environmental Quality Board, St. Paul, MN, 1981-1982

Consultant on biochemical diagnostics, Biokinetics Corp., Stamford, CT, 1978-1980

## Editorships & Editorial Review Boards

Associate Editor, Non-Ionizing Radiation, Health Physics, 1996-present

## ATTACHMENT B

**Michael Libertine, LEP**  
**Vice President**  
**Director of Siting and Permitting**

**All-Points Technology Corporation, P.C.**  
**567 Vauxhall Street Extension**  
**Suite 311**  
**Waterford, CT 06320**  
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### **General Background**

Mr. Libertine joined All-Points Technology Corporation in 2012 as an owner of the firm. He has over 28 years of professional experience in the environmental field. His expertise includes regulatory siting and permitting consulting; environmental assessments/impact statements; NEPA compliance; visibility and aesthetic evaluations; site assessments and field investigations for property transfers; remedial strategy development; environmental due diligence; and Brownfields redevelopment projects.

Mike has assisted clients in the siting and permitting of new and modified telecommunication facilities, renewable energy projects, bulk power substations, and transmission line corridors. Mike is a Licensed Environmental Professional in Connecticut and has completed/supervised over 2,100 environmental site assessments and field investigations throughout New England. He has represented clients and provided expert testimony in front of state and local commissions, including the Connecticut Siting Council, on more than 500 projects.

### **Representative Projects**

#### **Environmental Land Planning, Siting and Permitting – Electric Utilities**

Since 2004, Mike has served as the Program Manager for the siting and permitting of numerous electric utility projects in Connecticut and Massachusetts involving the assessment, siting and permitting of: new bulk power substations; modifications to existing substations; upgrades to transmission line corridors; replacement/installation of electrical system infrastructure; and, other support facilities. These projects require extensive coordination with numerous team members, including client's in-house discipline managers and engineers, outside consultants, legal counsel, staff, and subcontractors. Project-related services include overseeing civil engineering feasibility studies, pre-acquisition due diligence evaluations, natural resources inventories and wetland delineations, habitat evaluations, noise analysis, hazardous waste investigations, site survey, landscape architecture, visual analyses, preparation of technical documents and regulatory applications, coordination with federal, state and local agencies, permitting, public outreach, and expert witness testimony. Mike and his team also have provided environmental monitoring to meet regulatory requirements and those set forth in contract documents and specifications.

#### **Visibility and Aesthetic Assessments**

Over nearly 20 years, Mike has been involved in evaluating visual effects of small and large-scale projects on the environment. He developed a technique that uses the combination of predictive computer modeling and in-field analysis to assess visibility on both a quantitative and qualitative basis. The predictive model provides a measurable assessment of visibility throughout a pre-defined study area, including private properties and other areas inaccessible for direct observations. The field review includes a balloon float and field reconnaissance to record existing conditions, verify results of the model, inventory visible locations, and provide photographic documentation from publicly accessible areas. Photographic simulations are prepared to depict scaled renderings of a proposed development project in its setting. Mike has completed more than 500 visual evaluations for electrical and renewable resource utilities, telecommunication service providers, and developers.

**Environmental Siting and Permitting Services, Commercial Solar Facilities, Connecticut**

Mike has served as Project Manager on numerous approved commercial solar projects ranging in size from less than 1 MW to 20 MW. Mike was responsible for the preparation of environmental assessments to support Petition filings to the Connecticut Siting Council and applications to municipalities. Services included: environmental due diligence and feasibility investigations; site/civil engineering design; wetland delineations; vernal pool studies and impact evaluations; habitat and wildlife assessments; breeding bird surveys; noise analyses, visibility assessments; archaeological surveys; consults and coordination with state agencies; development of protective measures for natural resources; and, securing stormwater permits. Mike and his team have also provided environmental compliance monitoring during construction of these facilities.

**Environmental Permitting Services for Wireless Telecommunications Clients, New England & NY**

Mike has been providing environmental siting, land planning and permitting services on behalf of various telecommunications service providers and tower builders throughout New England and New York since 1997. He has testified on behalf of numerous clients regarding environmental and aesthetic considerations in front of local municipalities, the CT Siting Council and state and federal agencies. Representative services include: due diligence and land use evaluations; preliminary site screenings; preparation of environmental compliance documentation, environmental assessments to fulfill NEPA requirements; Phase I ESAs and Phase II field investigations; remedial planning and oversight; wetlands and vernal pool assessments; vegetative/biological surveys; noise analyses; visibility analyses; graphic support; securing regulatory permits; and, environmental monitoring during and post-construction.

**Environmental Siting and Permitting Services, Proposed Fuel Cell Installations, South Windsor and Colchester, CT**

The siting process for these fuel cell generation facilities required the preparation of an environmental assessment to document existing conditions and evaluate the project's potential impacts on the surrounding area. The environmental study included assessments of water resources, vegetation and wildlife, rare species, historic and cultural resources, noise, air quality, scenic and recreational areas, and other natural resources. Mike also coordinated the site design activities and Development and Management Plan efforts.

**Environmental Evaluations and Regulatory Permitting, Wind Farm Colebrook, Connecticut**

Mike served as the Project Manager for environmental evaluations associated with the development of Connecticut's first commercial wind farm. He supervised due diligence investigations, natural resource studies and environmental permitting activities, including the evaluation of: wetlands and watercourses; flora and fauna; potential noise impacts and flicker phenomena; and, visual/aesthetic considerations. Mike provided expert testimony at local and state public hearings and assisted in preparing the Development and Management Plan and pre-construction coordination efforts of the 3.2 MW project.

**Education**

University of Connecticut, B.S. Natural Resources Management,  
December 1990  
Stonehill College, B.A. Marketing, May 1981

**Licenses**

Licensed Environmental Professional, State of Connecticut,  
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