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September 30, 1991

Mr. Warren Minners, Director
Division of Safety Issues Resolution
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Minners:

Thank you for your 18 September 1991 response to my 22 August 1991 inquiry to Bill Morris with which you enclosed a copy of NUREG-1437, *Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Draft Report for Comment, August 1991*. [As an aside, your letter was addressed to Daniel James. I'm used to seeing Janes rendered as Jones, James, and even Junos but this is the first time David has been permuted to Daniel.] The information you provided was very useful for my presentation at the IEEE's Power Engineering Society Transmission and Distribution Conference in Dallas last week.

I read Section 4.5 of the aforementioned impact statement and discovered some errors which I have listed below.

1. Page 4-53, line 7 and page 4-124, line 5: James should be Janes.
2. Page 4-56, line 40: The reference to Chapter 7 is more likely to be ORNL/TM-11728 by Easterly, et al. than Easterly's article in the *American Journal of Epidemiology*.

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3. Page 4-57, line 35: The units in the denominator of the expression (10 to 100 mA/cm²) should be m². The threshold current density for direct stimulation of nervous tissue is of the order 0.1 mA/cm² (1 A/m²), see for example: Bernhardt J (1979): The direct influence of electromagnetic fields on nerve- and muscle cells of man within the frequency range of 1 Hz to 30 MHz. *Rediat. Environ. Biophys.* 16: 309. A current density of 1 mA/cm² (10 A/m²) is above the threshold for fibrillation in the dog.
4. Page 4-59, line 17 et seq.: To my knowledge EPA has no legislative authority to set standards for exposure to power frequency electric and magnetic fields. EPA could use the authorities it inherited from the Federal Radiation Council, 42 U.S.C. 2021 (h), to provide guidance to other federal agencies:

The Administrator shall advise the President with respect to radiation matters, directly or indirectly affecting health, including guidance for all Federal agencies in the formulation of radiation standards and in the establishment and execution of programs of cooperation with States.

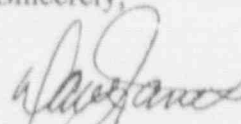
Using this authority EPA has issued Federal Guidance for radon exposure of uranium miners, the use of diagnostic x rays in federal facilities, occupational exposure to ionizing radiation and has proposed Federal Guidance for radiofrequency exposure of the public. However each Federal agency would have to implement the guidance, EPA has no direct implementing role. Health and Human Services could invoke the Radiation Control for Health and Safety Act and treat transmission lines as "electronic products" and write performance standards for the lines analogous to the leakage standard for microwave ovens. However HHS has historically deferred to other federal agencies the Federal Communications Commission and the Environmental Protection Agency, to take the lead for regulation of environmental sources of non-ionizing radiations.

From the information generated by the IEEE panel at the meeting last week, it is obvious that neither the private sector or the federal government is moving quickly to establish standards for the control of public exposure to power frequency electric and magnetic fields. Incidentally there are no federal standards (Occupational Safety and Health Administration) standards for occupational exposure. Federal policy in this area is uneven. In implementing their NEPA responsibilities, federal agencies require compliance with the National Electric Safety Code and state standards where they exist; seven states have standards for electric fields, one for magnetic fields. The Bonneville Power Administration has announced a policy of avoiding increases in long term involuntary exposures if practical alternatives exist and has a moratorium on the construction of structures on the right-of-way like basketball backstops and picnic tables that tend to increase exposure. The Federal Energy Regulatory Commission states that transmission lines should be sited as far as practicable from residences and schools and recommends conductor spacing and placement be designed to minimize EMF effects. The Rural Electrification Administration has concluded "that there is sufficient evidence to indicate that the possibility of

a casual (sic) link between the presence of electric power lines and the increased risk of childhood cancers can not be dismissed." The Nuclear Regulatory Commission in its draft EIS has decided that applicants do not need to address the issue of chronic effects in license renewal applications.

Again, thank you for your timely response to my inquiry.

Sincerely,

A handwritten signature in cursive script, appearing to read "David E. Janes".

David E. Janes
Vice President