US Department of Energy

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Mr. John Lehr
Environmental and Hydrologic
Engineering Branch
Division of Engineering
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear John:

This letter provides our comments on the proposed noise monitoring plan prepared by PECO for the Limerick Plant. In general, the plan is satisfactory and was aimed at meeting the intent of the ASLB recommendations and our recommendations in the environmental impact statement. Our discussion below focuses on three issues which require modification or clarification in the proposed Noise Monitoring Plan.

(1) There is confusion concerning the definition of audibility. The plan represents the ASLB ruling correctly as requiring mitigative measures if the transformers core tones are audible at the site boundary. However, audibility is defined as any positive dB level above masking level for any of the four transformer tone frequencies, 120, 240, 360 and 480 Hz. PECO states (p. 44, paragraph 1) that mitigative measures will be undertaken if any of those values are greater than 5 dB. This 5 dB quantity undoubtedly comes from the Vér-Anderson report of Bolt Beranek and Newman, Inc. on transformer tones, but that 5 dB level (above masking) is the threshhold for individual complaints not audibility. We, therefore, suggest a change in the wording that indicates that mitigative measures will be undertaken if any tonal noise component at the site boundary is simply greater than the masking level for that tone.

(2) A definition of masking level is given in paragraph 2, p. 4: "The masking level is defined as 16 dB above ambient spectrum level." This 16 dB is undoubtedly an average over all four tonal frequencies obtained from Medwin (1961)[a]. More recent literature (Fidell[b], 1982) updates those figures as follows:

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[a] Medwin, Herman. "Power Transformer Noise - Prevention and Cure." General Electric Company Report GET-2968. Power Transformer Department. Pittsfield, Massachusetts. August 1961.

[b] Fidell, Sanford. "Graphic Method for Predicting Audibility of Noise Sources." U.S. Air Force Wright Aeronautical Labs Report AFWAL-TR-82-3086. Wright-Patterson Air Force Base, Ohio. 1982.

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	120 Hz	240 Hz	360 Hz	480 Hz
Medwin (1961)	16.5 dB	16.0 dB	16.0 dB	16.0 dB
Fidell (1982)	17.5 dB	17.4 dB	17.8 dB	18.2 dB

Note that the ambient spectrum level is frequency dependent; furthermore, the new reference by Fidell provides larger values than those of Medwin. The Fidell figures are more accurate and should be used (on a frequency basis) instead. This change also happens to favor the Applicant by increasing the masking level computed by about (1.0 + 1.4 + 1.8 +2.2)/4 = 1.6 dB.

(3) We agree that the one time only nature of the Point Pleasant and Bradshaw reservoir noise studies is sufficient to determine if noise problems will exist. The source-receptor distances are very short at both sites (receptors are at the plant boundary), thereby eliminating any significant effects of ground cover or vegetation. At the Limerick Plant site itself, the presence or not of intervening trees may lead to differences worth measuring. We propose that the Limerick site study be done wice, once in winter and once in summer.

We have enclosed with this letter text modifications to the PECO noise plan for your consideration. Please contact me at (312) 972-5820 or (FTS) 972-5280 if you have any questions or wish further clarification.

Sincerely,

Tony Policastro

Dr. Anthony J. Policastro
Environmental Research Division

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Enclosures