

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

Glenn O. Bright
Dr. James H. Carpenter
James L. Kelley, Chairman

In the Matter of

CAROLINA POWER AND LIGHT CO. et al.
(Shearon Harris Nuclear Power Plant,
Units 1 and 2)

Dockets 50-400 OL
50-401 OL

Wells Eddleman's Interrogatories to NRC Staff
- Re 8F1, 8F2 and 15AA (2d round: 3d set overall)

102. With respect to your answers to (1) Interrogatory 3
(11) Interrogatory 17 (111) Interrogatory 26 (iv) Interrogatories 61,
INTERROGATORIES
66, and 76 (re 8F1 only) (v) 85-89, 92, 96, and 101 (re 8F2 only)
(vi) Interrogatories 31, 34, 44, 53, 54, 58 (re 15AA only), filed
12 October 1983, please answer the following: (Note that you
answer 3, 17 and 26 four times in the responses, once each for
Contentions 8F1, 8F2, 15AA and 132)

(a) Does the person who prepared this answer know of any
dissenting opinion (opinion differing with the answer given)
held by anyone on the NRC Staff?

(b) does the supervisor or person in charge of the review
branch which prepared answers to this interrogatory know of
any dissenting opinion (differing with the answer given) held
by anyone on the NRC Staff?

(c) does anyone else who reviewed, revised, or approved
this answer know of any dissenting opinion (differing with the
answer given) held by anyone on the NRC Staff?

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(102 continued)

(d) If answer to any of parts (a), (b) or (c) above is affirmative for any interrogatory for any contention among those listed above under Interrogatory 102, please:

(i) identify the person who holds the dissenting opinion (and each person who holds a dissenting opinion), and

(ii) state, for each such person, the nature, rationale and basis of the dissenting opinion, including a statement of the dissenting opinion itself.

103. Please state all significant bases, calculations, and lines of reasoning used in your AISI re (i) Contention 8F1 (ii) Contention 8F2 (iii) Contention 15AA.

104. Does the Staff know anything about the health effects of particulate emissions from coal plants?

105. What documents contain information known to the Staff concerning health effects of particulate emissions from coal-burning power plants? Please list all such documents you possess.

106. Has the Staff performed any specific analysis of the health effects of the particulate emissions given in Table S-3?

107. Please state exactly what, if anything, was done by NRC Staff in order to assess the health effects of coal particulate emissions given in Table S-3, including but not limited to (i) studies of toxicity of such particulates (ii) studies of interaction of such particulates with gaseous coal emissions (e.g. the "gas-aerosol complex) which produce health effects (iii) studies of carcinogenicity of such particulates (iv) studies of the pathways by which such coal particulates enter the lung (v) studies of uptake of materials from coal particulate in the lung (vi) other studies of the health effects of coal particulates (vii) any studies done in connection with preparing Table S-3

(107 continued)

which concern the health effects of coal particulates

(viii) any comparison of the health effects of coal pollution

(including particulates) with health effects of nuclear pollution

(emissions from nuclear power plants)

108. Does the Staff or any person on it who analyzes or answers this question believe that coal particulates have no health effects?

109. Please state all basis for any belief that coal particulates do not have health effects. (e.g. belief given re 108 above)

110. If you can't answer Interrogatory 76 (see p.18 of Oct 12 1983 response by NRC Staff), how can you say that the health effects of coal particulates are taken sufficiently into account in the DES for Harris?

Please state all basis for your answer to the above question.

111. If you have no analysis of health effects of coal particulates in the DES and FES (see responses to Interrogatories 27 and 66, ppl4 and 16 of 10-12-83 responses), can you truthfully say that the DES or FES considers the health effects of coal particulates?

112. Is there any concentration or amount of coal particulates in air that NRC Staff believes will result in zero health effects if breathed? If so, what is that concentration or amount?

113. Can coal particulates cause health effects by interacting with other environmental pollutants (e.g. (i) Sulfur oxides (ii) sulfur and nitrogen oxides (iii) nitrogen oxides (iv) acid precipitation), or not?

114. Has Staff analyzed health effects of coal particulates in conjunction with typical levels of (i) sulfur oxides (ii) sulfur oxides and nitrogen oxides (iii) nitrogen oxides (iv) acid precipitation?

115. (ref response to Interrogatory 2, p.20, 10-12-83)

Does the Staff believe that a level of (i) dose commitments (ii) health effects, resulting from radiation, is acceptable as long as it is less than that resulting from natural background radiation?

116. What is the natural background level of alpha-emitting elements in (i) air (ii) fresh water (iii) oceans, i.e. the background level not produced by uranium mining or the nuclear fuel cycle?

117. Please identify all documents which give information inquired about in Interrogatory 116 above, which you possess.

118. What is the natural background level of non-alpha-emitting radioisotopes (excluding those produced by nuclear fission initiated by humans) in (i) a typical American's body (ii) a reference person's body (iii) the air (iv) the fresh water (v) the oceans in the United States or its territorial limits, to your knowledge?

119. In computing "natural background" in the analysis cited from DES page C-7 (your response to Interrogatory 2a, p.20, 10-12-83) did NRC Staff count (i) nuclear weapons fallout (ii) venting from underground testing of nuclear weapons (iii) emissions from military or weapons production reactors (iv) emissions from uranium mining for weapons (v) emissions from nuclear bombs, nuclear power plants, uranium mining, or other nuclear activities outside the US, as "background"? which ones, and how?

120. How was "background" radiation measured or assumed for the purposes of the analysis quoted at page C-7 in the DES? Did it include any of the emissions inquired about in interrogatory 119 above?

121. What is the Staff's "general knowledge of capacity factors for PWRs" referred to in your response to interrogatory 34 (p.36 of 10-12-83 response)?

or anyone on it

129. Is the Staff aware of any other NRC proceeding in which the health effects of (i) coal emissions of any kind (ii) radioactive emissions of any kind, as set forth in Table S-3, are or have been at issue?

130. If answer to 129 is affirmative, please identify each such proceeding and state or produce a copy of each contention relating to health effects of Table S-3 emissions (i) from coal-fired power production (ii) which are radioactive. Please state which proceeding each such contention is from.

131. Has any decision been reached on any of the contentions identified in response to 130 above? If so, please identify any document(s) containing each such decision for each such proceeding in which the contention was at issue.

132. When, if ever, does NRC intend to issue a final document (NUREG-0668 being a draft) concerning NRC translation 520?

133. To what extent do NRC's models of dispersion of radionuclides in the environment and their transfer to humans depend on

(i) uptake studies carried out in soil that had been baked in ovens (or other~~wise~~) before the experiments were done?

(ii) uptake studies carried out in soil that had been sterilized by exposure to ultraviolet light (or other~~wise~~) before the experiments were done?

(iii) uptake studies carried out in soils which had been previously shown to take up less, rather than more, of radioactive materials deposited on them?

(iv) Studies involving plants grown from seed in soil~~x~~ exposed to continuous doses of radioactive material or continuous deposition thereof?

(v) Studies involving full-grown plants transplanted into soil exposed to radioactive material?

(vi) Studies in which plants in radioactive-material-contaminated soil were removed and analyzed after being in the soil less than (aa) a week (bb) a month?

122. Is it correct to state that none of the information asked about in Interrogatory 34, other than the Staff's "general knowledge of capacity factors for PWRs", and "data in NUREG-C 120 with respect to Westinghouse and EBASCO PWRs" was used in making Staff's 55% CF estimate in the DES for Harris?

123. If answer to 122 is other than affirmative, please state in full all such information you used, providing all work papers and documents containing any such information for inspection and copying.

124. What is the average capacity factor of (i) Westinghouse PWRs in the US (lifetime) (ii) Westinghouse PWRs in the US larger than 690 MWe (DER) (iii) EBASCO-built PWRs in the US (iv) EBASCO-built PWRs in the US larger than 690 MWe (DER) (v) PWRs built by EBASCO outside the US (vi) PWRs built with Westinghouse equipment (NSSS) outside the US (vii) Westinghouse PWRs over 690 MWe (DER) built outside the US (viii) Westinghouse/EBASCO PWRs in the US over 690 MWe DER?

125. Has NRC Staff or anyone on it calculated any of the above-asked averages (in interrogatory 124 above) (i) at any time? (ii) since 1/1/83?

126. Can NRC Staff guarantee that Harris 1's capacity factor in operation will be at least 55%?

127. Will NRC take any responsibility for Harris 1's capacity factor being less than 55% if it is below 55%?

128. Does NRC Staff have any documents giving its CF estimates (i) at the CP stage for Harris (ii) at the OL stage for any PWRs? Please identify each such document you possess.

PRODUCTION OF DOCUMENTS:

Wells Eddleman hereby requests NRC Staff to make available documents identified in response to the above interrogatories, for inspection and copying at a time and place agreeable to me and them.