

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD
BEFORE ADMINISTRATIVE JUDGES

Lawrence Brenner, Chairman
Dr. Richard F. Cole
Dr. Peter A. Morris

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USNRC

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OFFICE OF SECRETARY
NUCLEAR REGULATORY COMMISSION

In the Matter of : Docket Nos. 50-352-OL
PHILADELPHIA ELECTRIC COMPANY : 50-353-OL
(Limerick Generating Station, : April 27, 1984
Units 1 and 2)

RESPONSE OF CITY OF PHILADELPHIA TO
PHILADELPHIA ELECTRIC COMPANY'S FIRST SET
OF INTERROGATORIES ON SEVERE ACCIDENTS

1. State whether the City intends to present any expert witnesses on the subject matter at issue in the contentions and issues sponsored by Limerick Ecology Action and the City admitted by the Licensing Board on March 20, 1984 (Tr. 8772-89) related to the treatment of severe accidents pursuant to the National Environmental Policy Act ("severe accident contentions"). If so, identify each expert witness and state (a) his professional qualifications; (b) the contention and subject matter on which the expert is expected to testify; (c) the substance of the facts and opinions to which the expert is expected to testify; (d) the grounds for each opinion. Identify by court, agency or other body, each proceeding in which such individual rendered testimony on this subject.

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A. The City has not reviewed the transcript cited in order to ascertain the scope and precise nature of the admitted LEA contentions. As to the City's issues, the City does not know at this time whether it will file expert witness testimony.

2. State whether the City intends to present any factual witnesses on the subject matter at issue in the severe accident. If so, identify each such factual witness and further state (a) his professional qualifications; (b) the contention and subject matter on which the witness is expected to testify; (c) the substance of the facts to which the witness is expected to testify. Identify by court, agency, or other body, each proceeding in which such individual rendered testimony on this subject(s).

A. The City does not know at this time whether it will present testimony on the NEPA environmental impact issues related to a severe accident.

3. Identify by title, author, publisher and date of issuance or publication, all documents that the City relies upon as a basis for contentions or that the City intends to use (by way of reference or evidentiary proffer) in presenting its direct case in cross-examining other witnesses on the severe accident contention and all documents to which the City intends to refer in conducting cross-examination of other witnesses who may testify in connection with any such contention.

A. If the City does cross-examine on its issues of concern or LEA contentions, it will rely on one or some of the following documents: the DES/FES, any answers

to questions on the subject matter provided by the Staff and PECO, the SARA, PECO's CRAC2 meteorological data, any new evacuation study, any irrelevant material CRAC runs deems that may be done by the City or others, and/or any other documents that are subsequently deemed relevant to the DES/FES and the requirements of NEPA.

4. To the extent that your answer to any interrogatory is based upon one or more documents, (a) identify each such document on which your answer is based; (b) identify the specific information in such document upon which you rely; (c) explain how the information provides a basis for your answer.

A. See answer to interrogatory No. 3.

5. To the extent that your answer is based upon any study, calculation, research or analysis, (a) describe the nature of the study, calculation, research or analysis and identify any documents which discuss or describe the study, calculation, research or analysis; (b) identify the person(s) or entity(ies) who performed the study, calculation, research or analysis; (d) describe the results of such study, calculation, research or analysis; (e) explain how such study, calculation, research or analysis provides a basis for your answer.

A. See answer to Interrogatory No. 3.

6. To the extent that your answer is based upon conversations, consultations or correspondence or other communications with one or more individuals or entities, please identify each such individual or entity; (b) state the educational and professional background of each such individual, including occupation and institutional affiliations; (c) describe the nature of each communication, including time and context, and describe the information received from each such individual or entity; (e) explain how such information provides a basis for your answer.

A. The City has had informal discovery with PECO and some limited discussions with the Staff with regard to these matters. Any discussions the City has had with its consultants are privileged.

7. To the extent that the City possesses information or documents expressing facts or opinions which are relevant to the specific interrogatories below, but which do not support intervenor's position or which have not otherwise been fully provided in the answers thereto, please provide such information and documents.

A. None available.

With regard to Contention DES-1:

8. State the City's understanding (and basis thereof) of the criteria used by Applicant and Staff as to how individuals located beyond the 10-mile plume exposure EPZ were to be relocated for each case analyzed and state the City's agreement or disagreement with such criteria and the basis therefore.

The Staff's evacuation and relocation assumptions are set forth at page 5-21 of the DES. There is no discussion there as to how relocation would occur other than the assumption that extension of emergency planning would occur. See also FES at 5-80 through 5-82. PECO's SARA analysis is not the basis of the Staff's NEPA analysis which is at issue here.

9. State the City's understanding of the largest number of individual's for each sector which could be relocated in the time periods utilized by Applicant and Staff for each case analyzed.

A. The City has not performed an evacuation or relocation study for each sector to determine whether the population could or would "relocate" and in what time frame.

10. State the City's understanding and basis therefore as to the effect on the doses to individuals, risk and ultimate conclusion for each case analyzed if sheltering in basements for 24 hours was assumed instead of the relocation option used.

A. The City has done no such analysis at this time.

11. State the City's understanding and basis therefore as to the effects on the doses to individuals, risk and ultimate conclusions for each case analyzed if a 48 hour delay in relocation with "normal activity" for those individuals within the City of Philadelphia were utilized.

A. The City has done no such analysis as of this date. PECO's Response to City Interrogatories stated that PECO had done some analysis of this issue. See Discovery 31, Response 12 (Supplemental), March 21, 1984.

12. State the City's agreement or disagreement and basis therefore with the response and the table attached which comprise Applicant's Answer to the City of Philadelphia's Request No. 12 (Supplemental) (March 21, 1984), including any known disagreements with the assumptions and methodology in the evaluation.

A. The City's CRAC expert is not available to analyze these results in detail. The City has not developed a critique of PECO's input assumptions to its CRAC2 analysis which in some instances are different from the Staff's DES analysis.

13. State any plans which have been made, are being made, or are planned for relocation of individuals residing within 50 miles of the Station (outside the plume exposure EPZ) for any situation other than a nuclear emergency arising out of the operation of Limerick.

The City has no direct knowledge of any area outside of its political boundaries. The only completed evacuation plans in place in Philadelphia are in three (3) small high risk areas in the City. Those are the Bridesburg Chemical Complex (approximately 1 mile radius), the South Philadelphia Energy Complex (approximately 1/2 mile radius), and an area surrounding the Philadelphia Gas Works facility in the Richmond Section (1/2 mile radius).

In 1981, at the request of the Federal and State Emergency Management Agencies, the City developed a "Preliminary Crisis Relocation Plan" (for a nuclear attack) to provide a starting point for further planning if a crisis relocation plan were to be developed for the City.

With regard to Contention DES-2:

14. Describe any studies or analysis which demonstrate that the assumed two-hour excavation delay time used by the Staff and the delay times used by Applicant fail to take into account actual data and experience.

15. Describe the effect on the individual doses, risk and ultimate conclusions if a mean evacuation delay time of three hours were utilized in the Staff's or Applicant's calculations.

A. (14-15) The City at this time has no position on the assumed two-hour evacuation delay time.

16. Describe any studies conducted by or in the possession of the City showing the sensitivity of delay time to individual dose, risk and the ultimate conclusions.

A. Such an analysis may have been done in SARA, see page 10-10.

With regard to Contention DES-3:

17. State the basis for the assertion that Hans and Sell estimate that 50% of the population will not evacuate.

A. This assertion was not made by the City nor has the City as of this date attempted to ascertain the basis of this assumption.

18. Describe the effect on individual dose, risk and the ultimate conclusions if it is assumed that 6, 10, 20, 30, 40, and 50% of the population fails to evacuate despite instruction to do so.

A. The City has done no such analysis as of this date.

19. State the City's agreement or disagreement with the assumptions, methodology, results and conclusions of the study described in Applicant's Answer to the City of Philadelphia's Request No. 12 (Supplemental) (March 21, 1984).

A. The City has not done a critique of the SARA analysis or the study described in Request No. 12 (Supplemental) (March 21, 1984). See response Interrogatory No. 12.

With regard to Contention DES-4:

20. Identify and describe any DES, FES, probabilistic risk assessment issued by the NRC which describes the specific impacts alleged by the contention.

21. For each admitted subpart, describe the City's estimate or results of calculations showing the impact and describe the effects of the ultimate conclusions.

22. Describe and discuss what quantifiable impacts are being treated in a non-quantifiable manner and describe how this obscures the total impact of severe accidents.

A. (20-22) The City has not reviewed this contention and its basis in detail and takes no position on the issues at this time.

With regard to City-13:

23. Provide the results of any dose-distance curves generated, stating the assumptions, methodology and input.

A. The individual, Mr. Fred Finlayson, who did the initial analyses is not available to respond to this question. (Mr. Finlayson will not be available to the City until April 30 at which time he will be assisting the City in an analysis of the environmental impacts on Philadelphia of a severe accident at Limerick.) If the question relates to past runs done for illustrative purposes and used in the City's issues of concern, those runs will not be the subject of testimony, if any, that the City may file. No additional runs have been done as of this date.

24. Provide the basis for the assertion that Protection Action Guides levels are an unacceptable level of societal risk.

A. Protective Action Guide levels do not attempt to measure acceptable or unacceptable dose levels. The Manual of Protection Action Guides and Protective Actions for Nuclear Incidents, TD-12, September 1982, Federal Emergency Management Agency, EPA-520/1-75-001, September 1975 (Revised June 1980) (page 1.2) states as follows:

A Protective Action Guide under no circumstances implies an acceptable dose. Since the PAG is based on a projected dose, it is used only in an ex post facto effort to minimize the risk from an event which is occurring or has already occurred.

Exposures to populations from an incident may well be above acceptable levels, in an absolute sense. However, since the event has occurred, PAGs should be implemented to ameliorate the impact on already exposed or yet-to-be exposed populations.

On this basis there is not direct relationship between acceptable levels of societal risk and Protective Action Guides. PAGs balance risks and costs against the benefits obtained from protective action, assuming that the projected threat will transpire. The response made in a given situation should be based on PAGs and the spectrum of possible protective actions available at that time.

25. State the measure of "unacceptable level of societal risk" which is being proposed as a measure by Staff or Applicant.

A. To the City's knowledge the Staff has not indicated in this proceeding what would be an unacceptable level of societal risk. The Applicant's position on this issue is not known to the City. However, it is the NRC that must make the NEPA determination of environmental impact.

26. State the basis of agreement or disagreement with the table contained in Applicant's Answer to the City of Philadelphia's Request No. 12 (Supplemental) (March 21, 1984), including any disagreements with the assumptions and methodology, as showing a dose-distance relationship.

A. See response to Interrogatory No. 12.

With regard to City 14:

27. State the average evacuation speed and the basis therefore which the City asserts should be utilized in the Staff's and Applicant's analysis.

A. The Staff appeared to rely on Applicant's 1980 study (FES at 5-80). It is the City's opinion that a thorough NEPA analysis must be based on realistic evacuation speeds and evaluate the dependency of the results on various conceivably realistic assumptions as to possible evacuation speeds. The results of a more recent evacuation time study should be analyzed, grid lock of various durations should be analyzed, and an analysis that portrays the health effects on the population in high density areas should be presented.

28. Provide any evaluation or analysis that has been prepared as to the effect of varying evacuation speed on individual dose and risk.

A. The City has done no such analysis as of this date.

29. Provide the basis for the statement that as evacuees would approach the City their speeds would reduce and state the effect of this phenomenon on individual dose and risk and your basis, therefore.

A. The City has done no evacuation study of this. However, the statement is based on familiarity with normal traffic patterns in higher population density and traffic density conditions as exist toward the City of Philadelphia.

30. Provide the estimate of the frequency of each class of "bad weather" which you assert should be considered and describe the weather situation as far as type, duration and location.

A. The City has not had its CRAC2 expert available in order to determine any assumptions with regard to this matter.

With regard to City-15;

31. For the raw and finished water associated with the Baxter, Queen Lane and Belmont water treatment facilities, provide the following data on a monthly basis for total and soluble and insoluble fractions for the years 1950 through 1983:

- a. Concentrations of Strontium-90
- b. Concentrations of Cesium-134
- c. Concentrations of Cesium-137
- d. Gross alpha activity concentrations
- e. Gross beta activity concentration
- f. Gross gamma activity concentration

A. Data is available back to 1963 at the Bureau of Laboratory Services located at our Belmont Plant and will be made available upon request. The analyses are Gross Alpha and Gross Beta. Data for the first several years represent "grab" samples of the raw river and finished water for each plant. The last samples are composites. In addition, samples were collected periodically of the Delaware River from Morrisville to Marcus Hook. Currently we prepare finished water monthly composites for analyses by the State. Tritium, alpha and beta are run on the finished water. Also, we prepare weekly composites of river and finished water for analyses Gross A and Gross B by the City's Air Management Services Laboratory.

32. State, for the last 10 years, each instance that the City has interdicted a portion or all of its raw or finished water supply stating the date, reservoir, treatment facility or other portion of the water supply involved, point of interdiction, reason for interdiction, length of interdiction, portion of total city water use affected and provide any report or written document which discusses such events.

A. There were three major occasions when the plant intakes were closed due to chemical or oil spills. On occasion intakes are closed upon notification of a

spill or potential spill pending determination of actual water quality. These instances which have been documented can be found in the Water Treatment Section Annual Reports. Examples which have occurred during the past several years are:

3/9/82 to 3/13/82 - The Torresdale intake was opened on outgoing tides only because of an explosion at a chemical plant which released cumene, phenol and acetone to the Delaware.

3/23/82 - The Belmont intake was closed for 8 hours because of a hydrocarbon spill from a fire school in Conshohocken.

3/25/84 - The Belmont intake was closed for 9 hours because of a train derailment which released 15,000 gallons of naptha and fish oil into the Schuylkill river.

33. State the seismic design basis for each of the City's water supply facilities and distribution network.

A. This question does not relate to the environmental impact of Limerick's operation.

April 27, 1984