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Docket Nos.: 50-352/353

Mr. Edward G. Bauer, Jr.
Vice President & General Counsel
Philadelphia Electric Company
2301 Market Street
Philadelphia, Pennsylvania 19101

Dear Mr. Bauer:

Subject: Request for Additional Information - Limerick (Accident Evaluation)

The Systems Analysis Section and the Meteorology Section of the Accident Evaluation Branch have reviewed the Limerick FSAR. This review has indicated a need for the additional information delineated in Enclosure 1.

Please provide us, within 7 working days from receipt of this letter, with the date(s) on which you plan to respond to the above. Any questions concerning this information request should be directed to Dr. Harvey Abelson, (301) 492-9774, the Licensing Project Manager.

Sincerely,

A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing

Enclosure:
As stated

cc: See next page

OFFICE	DL:LB#2/PM	DL:LB#2/BC					
SURNAME	HAbelson:pt	ASchwencer					
DATE	7/13/82	7/ /82					

Limerick

Mr. Edward G. Bauer, Jr.
Vice President & General Counsel
Philadelphia Electric Company
2301 Market Street
Philadelphia, Pennsylvania 19101

cc: Troy B. Conner, Jr., Esquire
Conner and Wetterhahn
1747 Pennsylvania Avenue, N. W.
Washington, D. C. 20006

Mr. Robert W. Adler
Assistant Counsel
Commonwealth of Pennsylvania, DER
505 Executive House
P. O. Box 2357
Harrisburg, Pennsylvania 17120

Honorable Lawrence Coughlin
House of Representatives
Congress of the United States
Washington, D. C. 20515

Roger B. Reynolds, Jr., Esquire
324 Swede Street
Norristown, Pennsylvania 19401

Lawrence Sager, Esquire
Sager & Sager Associates
45 High Street
Pottstown, Pennsylvania 19464

Joseph A. Smyth
Assistant County Solicitor
County of Montgomery
Courthouse
Norristown, Pennsylvania 19404

Eugene J. Bradley
Philadelphia Electric Company
Associate General Counsel
2301 Market Street
Philadelphia, Pennsylvania 19101

Mr. Vincent Boyer
Senior Vice President
Nuclear Operations
Philadelphia Electric Company
2301 Market Street
Philadelphia, Pennsylvania 19101

Mr. Marvin I. Lewis
6504 Bradford Terrace
Philadelphia, PA 19149

Frank R. Romano, Chairman
Air & Water Pollution Patrol
61 Forest Avenue
Ambler, PA 19002

Charles W. Elliott, Esquire
Thomas & Hair
123 North Fifth Street
Allentown, PA 18102

Judith A. Dorsey, Esquire
Limerick Ecology Action
1315 Walnut Street, Suite 1632
Philadelphia, PA 19107

Mr. Karl Abraham
Public Affairs Officer
Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19806

Mr. Jacque Durr
Resident Inspector
U.S. Nuclear Regulatory Commission
P. O. Box 47
Sanatoga, PA 19464

James M. Neill, Esquire
Associate Counsel for Del-Aware
Box 511
Dublin, PA 18917

Joseph H. White III
11 South Merion Avenue
Byrn Mawr, PA 16801

Thomas Gerusky, Director
Bureau of Radiation Protection
Dept. of Environmental Resources
5th Floor, Fulton Bank Bldg.
Third & Locust Streets
Harrisburg, PA 17120

Director, Pennsylvania Emergency
Management Agency
Basement, Transportation &
Safety Building
Harrisburg, PA 17120

John Shniper
Meeting House Law Bldg. & Gallery
Mennonite Church Road
Schuykill Road (Rt. 724)
Spring City, PA 19475

Robert L. Anthony
Friends of the Earth of the
Delaware Valley
103 Vernon Lane, Box 186
Moylan, PA 19065

W. Wilson Goode
Managing Director
City of Philadelphia
Philadelphia, PA 19107

William A. Lochstet
119 E. Aaron Drive
State College, PA 16801

Walter W. Cohen
Consumer Advocate
Office of Attorney General
1425 Strawberry Square
Harrisburg, PA 17120

Steven P. Hershey, Esquire
Consumers' Education & Protective
Association
Sylvania House
Juniper & Locust Streets
Philadelphia, PA 19107

Alan J. Nogee
The Keystone Alliance
3700 Chestnut Street
Philadelphia, PA 19104

Sugarman & Denworth
Suite 510
North American Building
121 South Broad Street
Philadelphia, PA 19107

Donald S. Bronstein, Esq.
The National Lawyers Guild
Third Floor
1425 Walnut Street
Philadelphia, PA 19102

Lawrence Brenner, Esq., Chairman*
Administrative Judge
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. Richard F. Cole*
Administrative Judge
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. Peter A. Morris*
Administrative Judge
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Limerick Generating Station

Docket Nos. 50-352/353

Request for Additional Information

FSAR - Meteorology & Accident Analysis

451.4 (2.3) Much of the information presented in the discussion of severe weather phenomena is not up to date. For example, the frequency of hurricanes is based on a period of record ending in 1963 and the tornado statistics are based on a period of record that ended in 1976.

(1) Identify all hurricanes that have affected the site since 1963 and update the number of storms (winds exceeding 74 mph) for those which have occurred since 1967.

(2) Identify tornadoes that have occurred in the vicinity of the site since 1976, and provide revised estimates of mean path area, annual frequency and strike probability of tornadoes resulting from this change in data base.

(3) Similarly, update the occurrence of thunderstorms, hail, ice storms and freezing rains, and high air pollution potential.

451.5 (2.3.1) Provide the basis of using a mean tornado path area of 0.32 square miles to determine the tornado strike probability.

451.6 (2.3.1) Table 2.3.1-7 presents values for design basis tornado parameters which are consistent with Region I values in

Regulatory Guide 1.76. However, FSAR Section 2.3.1.2.4 text discusses deviations from Regulatory Guide 1.76 and FSAR Section 3.3.2.1 text states that structures required to be tornado-resistant are designed to withstand tornado parameter values which differ from those in Table 2.3.1-7. Provide a clarification of what tornado parameter values were utilized in assessing the adequacy of plant design. If the actual design basis values differ from those presented in Regulatory Guide 1.76, provide a justification for the use of the parameter and provide an analysis of the ability of safety-related structures, systems and components to withstand the stresses resulting from the parameter values in Regulatory Guide 1.76.

451.7 (2.3.1) In FSAR Section 2.3.1.2.5, it is stated that a gust factor of 1.3 is commonly used at the 30-foot level associated with the 100-year wind speed whereas, in FSAR Section 3.3.1.1, it is stated that a gust factor of 1.1 associated with a wind in excess of the 100-year wind is used. Clarify the basis for using a gust factor wind speed. Combination in Section 3.3.1.1 instead of the combination in Section 2.3.1.2.5 as a design basis?

451.8 (2.3.2) Tables 2.3.2-26 through 2.3.2-31 present wind direction frequency distributions and Tables 2.3-2 through 2.3.2-25 present joint frequency distributions of wind direction and wind speed by atmospheric stability class. In both of these sets of distributions, calms are distributed by wind direction.

(1) Provide the definition of calm wind conditions, based on data reduction procedures, used to produce the frequency of calms in the tables.

(2) Provide a description of how the calm conditions were distributed according to the joint frequency of wind direction, wind speed and atmospheric stability class (vertical temperature difference method) in the tables and provide the actual frequencies of calm distributed by wind direction and atmospheric stability.

(3) Provide the basis for any departure from the definitions of calm in Regulatory Guide 1.111. Regulatory Guide 1.111 states that calms should be defined as hourly average wind speeds below the starting speed of the vane and anemometer, whichever is higher, and that calms, in joint frequency distributions should be assigned, as a separate wind speed class, to wind directions in proportion to the directional distribution, within an atmospheric stability class, of the lowest noncalm wind speed class.

451.9 (2.3.2) Five years (1972-1976) of data record have been submitted in joint frequency distribution form and hour-by-hour on magnetic tape. Regulatory Guide 1.70 (Revision-3) states that the data set should include the most recent one year period for an operating license application.

(1) Provide the joint frequency distributions of wind direction and wind speed by atmospheric stability class (as defined by vertical temperture difference) for the most recent annual cycle of meteorological data (1980 or later) for all levels

of wind and vertical temperature difference measurements based on data from Weather Station No. 1 and, if available, from the other stations. The data selected should represent conditions which were unobstructed by temporary terrain modifications. Provide the frequency (hours and percent) of calms (as defined in question 451.8 from Regulatory Guide 1.111) by stability class and do not include calms in the joint frequency distribution tables by wind direction.

(2) Provide a magnetic tape containing hour-by-hour data for the same annual cycle as in (1) above. The data on the tape should be compiled in the NRC standard format for meteorological data as described in Appendix A of SRP 2.3.3 in NUREG-0800, Revision 2, July 1981.

451.10 (2.3.3) Provide a complete description of the meteorological measurements program (including control room display) to be available during plant operation, considering the criteria in Regulatory Guides 1.101, 1.97 and 1.21. If any of the instruments (e.g., wind direction and speed) and their siting (e.g., with respect to cooling towers) do not meet the criteria in Regulatory Guide 1.23, provide a justification as to how the functions and objectives described in Regulatory Guides 1.101, 1.97 and 1.21 can be achieved without meeting these criteria.

451.11 (2.3.4) Since calm wind conditions at the 30-foot level of Weather Station No. 1 occur 11.3% of the time for the period of record, provide a description of how calm winds were factored into the

analysis of relative concentration (X/Q) values for atmospheric diffusion estimates of accidental releases of radioactive effluents.

451.12 (2.3.4 and 2.3.5) Since short term diffusion estimates were made using three years (1972-1974) of meteorological data and long term diffusion estimates were made using five years (1972-1976) of data, provide the basis for using different data sets for these evaluations.

451.13 (2.3.5) Since the long term diffusion estimates are based on wind measured at the 175-foot level and atmospheric stability is based on the Brookhaven Turbulence Class System and the Smith-Singer vertical dispersion coefficients,

(1) provide the basis for utilization of these parameters, because they differ from those primarily recommended in Regulatory Guide 1.111, and

(2) provide a comparison of these diffusion estimates with diffusion estimates based on wind measured at the 30-foot level and vertical temperature difference as the stability indicator with vertical dispersion curves as indicated in Regulatory Guide 1.111.

450.5 (6.4) Section 6.4 of the FSAR indicates that the control room habitability system automatically isolates upon detection of conditions which could result in the introduction of toxic chemicals or airborne radiation. Please describe the locations and operating characteristics of the detectors.

450.6 (6.5) Section 6.5 of the FSAR indicates that a portion of the RERS discharge flow is directed to the SGTS. However, section 6.7 states that the MSIV-LCS directs leakage to areas served by the SGTS through bleed lines. On the basis of these descriptions, provide the following information:

(1) Identify all areas in the reactor enclosure building not serviced by the RERS and estimate the containment leakage into these areas.

(2) Provide an analysis of the effects on fission products release for those areas serviced by the SGTS, but not served by the RERS. The impact of the lack of pre-filtration on the SGTS (which is provided by the RERS) should be addressed.

(3) Provide the draw down time for the SGTS after containment isolation.

450.7 Section 15.6.2 of the FSAR describes the scenario for an instrument line break, but failed to provide sufficient detail for our independent analysis. Provide the following information so the staff can complete its analysis:

(a) Identify all small lines that carry coolant outside the primary containment that do not have a 1/4" orifice upstream of the primary containment. For these lines provide your estimate of the amount of primary coolant released for the first two hours and for the duration of the accident.

(b) For the lines installed with the 1/4" orifice provide your estimate of the primary coolant released for the first two hours of the accident.

450.8 (15.7) In order not to compute radiological consequences for a spent fuel cask drop accident, it is necessary to find that the cask will never be elevated more than 30 feet above an unyielding surface. Examine the proposed cask handling arrangements to see if such a finding can be made, and if not, analyze the consequences of a cask drop accident.