BEFORE THE

UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of	:	
	:	Docket No. 50-352
PHILADELPHIA ELECTRIC COMPANY		

APPLICATION FOR AMENDMENT

OF

FACILITY OPERATING LICENSE

NPF-39

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Philadelphia Electric Company, Licensee under Facility Operating License NPF-39 for Limerick Generating Station Unit 1, hereby requests that the Technical Specifications contained in Appendix A of the Operating License be amended as indicated by vertical bars in the margin of the attached pages 3/4 6-46 and B3/4 6-5. Licensee also requests the addition of a new page B3/4 6-6 to allow for additional information.

The amendment of the Technical Specifications Section 4.6.5.1.1.c.2 (Surveillance Requirements) requested herein consists of the inclusion of a consideration of wind speed during verification of Reactor Enclosure secondary containment integrity. The current

Technical Specification Surveillance Requirement states that the Reactor Enclosure secondary containment integrity shall be demonstrated at least once per 18 months by "Operating one standby gas treatment subsystem for one hour and maintaining greater than or equal to 0.25 inch of vacuum water gauge in the Reactor Enclosure secondary containment at a flow rate not exceeding 1250 cfm." The requested Technical Specification amendment adds the phrase "...with wind speeds of less than or equal to 7.0 mph as measured on the wind instrument on Tower 1 elevation 30' or, if that instrument is unavailable, Tower 2 elevation 159'." In addition, it is requested that the bases for Technical Specification Section 3/4.6.5 be amended to include a discussion of Reactor Enclosure secondary containment leakage and meteorological conditions. The proposed change will provide clarification that the leakage criteria corresponds to meteorological conditions consistent with the assumptions utilized in the design basis offsite dose analysis (less than or equal to 7.0 mph wind speed).

Discussion:

The Limerick Generating Station post Loss-of-Coolant Accident (LOCA) offsite dose analysis was performed assuming a Reactor Enclosure secondary containment air leakage rate of 1250 cfm during the operation of the Standby Gas Treatment System (SGTS) following a Design Basis Accident (DBA) as discussed in FSAR Section 15.6. The calculational basis associated with the post-accident Atmospheric Dilution Factors (X/Qs) used in the DBA LOCA analysis is presented in FSAR Section 2.3.4. While the post-accident X/Qs represent a

statistical interpretation of historical meteorological data, the highest ground level wind speed which can be associated with these values is 7 mph based upon Pasquill-Gifford stability class G for a ground level release. The proposed change assures that the Reactor Enclosure secondary containment is verified under meteorological conditions consistent with the assumptions utilized in the design basis analysis.

Reactor Enclosure secondary containment isolations have occurred during routine operations at Limerick Generating Station. During these isolations, the SGTS has initiated and operated as designed, providing an opportunity to indirectly monitor the leakage rate via SGTS exhaust flow instrumentation in the Main Control Room. It has been observed that the SGTS exhaust flow increases with measured wind speed which indicates an increase in Reactor Enclosure secondary containment leakage.

The reason for the increased Reactor Enclosure secondary containment leakage with increased wind speed is a combination of wind effects on the building and the conservative location of the roof-mounted Reactor Enclosure outside air pressure reference. The roof area of the Reactor Enclosure becomes a negative pressure region due to wind effects.[1] By placing the Reactor Enclosure outside air

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1. ASHRAE HANDBOOK 1985 FUNDAMENTALS, Chapter 14 "Air Flow Around Buildings", (American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc., 1985).

pressure reference on the roof and maintaining the Reactor Enclosure secondary containment at a 0.25 inch w.g. vacuum in respect to this reference, it is assured that all other wall areas are maintained at a minimum 0.25 inch w.g. vacuum. However, during periods of higher wind speed, the differential pressure across some of the walls, similar to that of an upwind wall, will be greater than 0.25 inch w.g. due to wind effects on the building. The net result is that increased wind speed creates an overall Reactor Enclosure secondary containment vacuum that exceeds the 0.25 inch w.g. vacuum used for design purposes and thus increases leakage.

System Affected by the Proposed Change:

The system affected by the proposed increase in Reactor Enclosure secondary containment leakage rate during periods of elevated wind speed is the Standby Gas Treatment System (SGTS).

As discussed in the Final Safety Analysis Report (FSAR) Section 6.5, the SGTS, in its safety-related mode of operation, is designed to exhaust sufficient filtered air from the Reactor Enclosure secondary containment in order to maintain a pressure of 0.25 inch water gauge vacuum during secondary containment isolation. The SGTS filters the exhausted air and will remove radioactive particulates and both radioactive and nonradioactive forms of iodine.

The SGTS is common to Units 1 and 2. Each of the two redundant SGTS filter trains consists of an electric air heater, two banks of High Efficiency Particulate Air (HEPA) filters (upstream and downstream of charcoal adsorber), a vertical 8-inch deep charcoal

adsorber bed, and associated dampers, ducts, instruments, valves, and controls.

For its safety-related mode of operation, two redundant 100% capacity SGTS fans are provided for use in conjunction with the SGTS filter trains. Each fan has a controllable capacity of 500 to 3000 cfm, which is sufficient to establish and maintain the Reactor Enclosure at 0.25 inches w.g. negative pressure in relation to atmospheric pressure during secondary containment isolation. The air flow varies in response to Reactor Enclosure secondary containment differential pressure controls, which modulate flow control dampers provided for each fan.

The SGTS is automatically actuated in its safety-related mode of operation. Both SGTS filter trains are maintained in the open position. Upon receipt of a secondary containment isolation signal both of the SGTS fans are started and the associated controls are activated to operate appropriate dampers and valves to automatically establish and maintain a 0.25 inch w.g. vacuum in the secondary containment.

Safety Discussion:

The requested amendment of Technical Specification Surveillance Requirement 4.6.5.1.1.C.2 assures that the Reactor Enclosure secondary containment integrity is verified under meteorological conditions consistent with the assumptions utilized in the design basis analysis. The proposed change is the identification of the maximum wind speed (7.0 mph) applicable to the allowable SGTS

flowrate. The current Technical Specification Surveillance Requirement establishes the operation of one SGTS subsystem for one hour, once per operating cycle, while maintaining a pressure greater than or equal to 0.25 inch w.g. vacuum in the Reactor Enclosure secondary containment at a flow rate not exceeding 1250 cfm.

At ground level wind speeds greater than 7 mph, the atmospheric dispersion will be greater (X/Q would be lower) than the post accident X/Q values used in the FSAR design basis LOCA analysis. At a minimum, the difference in X/Q valves would be the inverse ratio of the higher wind speed to 7 mph. For a given windspeed the X/Q values decrease as the atmosphere becomes more unstable. In addition, at higher wind speeds the frequency of occurrence of the most stable (higher X/Q) Pasquill-Gifford stability classes diminishes as wind speed increases. For example, a review of the LGS Tower 1, 30 feet elevation FSAR wind speed data (1972-1976) shows that, with windspeeds greater than 7.5 mph, a total of 4 hours of stability Class G and 56 hours of stability Class F occurred in the 5-year period.

Significant Hazards Consideration Determination:

The Commission has provided guidance concerning the application of the standards in 10 CFR 50.92 for determining whether license amendments involve significant hazards consideration by providing certain examples (51 FR 7750-51) of amendments that are considered not likely to involve significant hazards consideration. Example (i) is "a purely administrative change to technical specifications: for example, a change to achieve consistency

throughout the Technical Specifications, correction of an error or a change in nomenclature". The foregoing requested change fits this example as an item not involving any significant hazards. The proposed change to include a wind speed clarification consistent with the meteorological conditions used in the design basis analysis presented in FSAR Section 15.6, and which formed the basis for the Technical Specification Requirement in Section 4.6.5.1.1.c.2, corrects an error of omission. It should be noted that such a consideration of wind speed during secondary containment leakage testing is provided in the Technical Specifications for several other Boiling Water Reactors, including Philadelphia Electric Company's Peach Bottom Units 2 and 3.

The proposed amendment to the Limerick Operating License does not constitute a significant hazards consideration in that it would not:

i) involve a significant increase in the probability or consequences of an accident previously evaluated. The addition of the wind speed to the Surveillance Requirement in Technical Specification Section 4.6.5.1.1.c.2 does not increase the probability of the Loss of Coolant Accident previously evaluated in FSAR Section 15.6. The consequences of the accident are not increased because the proposed wind condition is one of the assumptions included in the current FSAR analysis.

ii) create the possibility of a new type of accident or a different kind of accident from any accident previously evaluated. Including the wind speed in the Surveillance

Requirement serves to make the Technical Specifications consistent with the Loss of Coolant Accident evaluated in FSAR Section 15.6. No new or different kinds of accidents are created by the consideration of wind speed.

iii) involve a significant reduction in the margin of safety. The addition of the wind speed to the Surveillance Requirement of Technical Specification Section 4.6.5.1.1.c.2 provides consistency with the assumptions for the analysis of the accident evaluated in FSAR Section 15.6. Therefore, there is no effect on margin of safety.

Conclusion:

The proposed Technical Specification change provides clarification that assures the Reactor Enclosure secondary containment leakage rate is verified under meteorological conditions consistent with the assumptions utilized in the design basis offsite dose analysis. Therefore, the proposed Technical Specification change does not affect the amount of radioactive effluent released offsite following a design basis accident. The proposed amendment does not constitute a significant hazards consideration.

Environmental Considerations:

The requested amendment will not result in a change in the amounts of effluents that may be released off-site.

The Plant Operations Review Committee and the Nuclear Review Board have reviewed these proposed changes to the Technical Specifications and have concluded that they do not involve unreviewed safety questions or involve Significant Hazards Considerations and that they will not endanger the health and safety of the public.

Respectfully submitted,
PHILADELPHIA ELECTRIC COMPANY

By _____
Vice President

COMMONWEALTH OF PENNSYLVANIA :

: ss.

COUNTY OF PHILADELPHIA :

J. W. Gallagher, being first duly sworn, deposes and says:

That he is Vice President of Philadelphia Electric Company, the Applicant herein; that he has read the foregoing Application for Amendment of Facility Operating License and knows the contents thereof; and that the statements and matters set forth therein are true and correct to the best of his knowledge, information and belief.

J W Gallagher

Subscribed and sworn to
before me this 23rd day
of March, 1987

Melanie R. Campanella

Notary Public

MELANIE R. CAMPANELLA
Notary Public, Philadelphia, Philadelphia Co.
My Commission Expires February 12, 1990