UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

TESTIMONY OF WILLIAM T. LEFAVE CONCERNING
THE FLOODING EFFECTS OF SAFETY RELATED EQUIPMENT
FROM A COOLING TOWER COLLAPSE AT THE LIMERICK GENERATING STATION

Q1. Please state your name, position, and nature of your duties at the NRC.

A1. My name is William T. LeFave and I am a Mechanical Engineer (Auxiliary Systems) in the Auxiliary Systems Branch, Division of Systems Integration. I am responsible for the safety review of auxiliary systems and associated features of proposed design and operating procedures for nuclear power plants. The review includes the adequacy of the flood protection features provided for internal and external flooding events.

Q2. Have you filed a statement of your professional qualifications?

A2. A copy of my professional qualifications is attached.

A3. What is the nature of your testimony?

A3. The nature of my testimony is to support the position that any water introduced into the plant as a result of a failure of the cooling tower basin will not prevent safe plant shutdown.

Q4. Have you read the applicant's testimony as it relates to the possible flooding of safety-related structures?

A4. Yes, I have read the applicant's testimony.

Q5. Do you generally agree with the applicant's testimony as it pertains to internal flooding of safety-related structures from a cooling tower basin failure?

A5. Yes, I generally agree with the conclusions reached in the applicant's testimony. Namely, that the cooling tower basin failure will not prevent safe shutdown.

Q6. Please explain.

A6. Areas where water could enter safety-related structures are limited. There are three roll-up doors in the north wall of the turbine building which could allow water to enter the turbine building in other than the condenser pit areas. There are several also vent openings in the turbine building north wall at grade elevation in the vicinity of the condenser pit. Any water entering the these openings, which are the largest openings on the north wall, will not reach any other structure since the pit areas are watertight except to the yard area at grade. Water entering through the roll-up doors will reach other areas of the turbine building but the design will prevent water from affecting safety-related equipment in the control structure or reactor building. Between the reactor building and turbine building at grade level there are two three-hour fire doors that will limit the water that enters the reactor building during the short duration of standing water in the turbine building. Also, the basement rooms of the reactor building containing safety-related equipment

all have watertight doors. There are steam-tight doors between the control structure and turbine building that will provide protection against flooding the control structure.

Q7. How are safety-related components in the turbine building protected from flooding?

A7. There are no safety-related components in the turbine building necessary for safe shutdown.

Q8. Are there any safety-related components in the yard that could be affected by a cooling tower basin failure. If so, how are they protected?

A8. Yes, there are valve pits for RHR service water and emergency service water systems. They are built as reinforced concrete boxes equipped with gasketed solid steel manhole covers. All valve pits are equipped with drain pipes leading to normal waste drainage systems. Also, safety-related electrical manholes for access to the duct banks between the spray pond and the power block are equipped with gasketed solid steel manhole covers. Finally, all electrical cables in these duct banks are designed to operate under water.

WILLIAM T. LEFAVE
PROFESSIONAL QUALIFICATIONS
AUXILIARY SYSTEMS BRANCH
DIVISION OF SYSTEMS INTEGRATION
OFFICE OF NUCLEAR REACTOR REGULATION

I am a Mechanical Engineer (Auxiliary Systems) and am responsible for the safety review of auxiliary systems and associated features of proposed design and operating procedures for nuclear power plants. The objective of these reviews is to assure no undue risk to the health and safety of the public.

I graduated from Massachusetts Bay Community College in 1964 with an Associate of Science Degree in Electronics. From 1964 to 1970 I attended naval nuclear power schools and was a reactor operator on an SSW submarine through new construction and while at sea. In 1973, I graduated from Lowell Technological Institute with a Bachelor of Science in Nuclear Engineering.

In October of 1973 I accepted a position with the Auxiliary Systems Branch of the Atomic Energy Commission and have remained there to the present as part of the Division of Systems Integration, Office of Nuclear Reactor Regulation.

During these years I have been responsible for the auxiliary system reviews of construction permit, preliminary design approvals, and operating license applications including the following: WPPSS Nuclear Project, Units 1 and 4; Skagit Nuclear Project, Units 1 and 2; Midland Plant, Units 1 and 2; Susquehanna, Units 1 and 2; Fermi Unit 2; RESAR-41; -3S and

414; GESSAR-238 and 251; Floating Nuclear Plant; Callaway and Wolf Creek; GIBBSAR; Erie 1 and 2; Farley 2; South Texas Units 1 and 2; and Pebble Springs 1 and 2. Primary review areas for these plants have included the adequacy of flood protection within the plant from internal and external events. In addition to the above casework, I have been responsible for reviewing and testifying at the Indian Point hearings regarding the effects of flooding within the primary containment. I have also been involved in the initial development and recent revisions of the Auxiliary Systems Branch's Standard Review Plan sections including Sections 3.4.1, "Flood Protection," 3.6.1, "Plant Design for Protection Against Postulated Piping Failures in Fluid Systems Outside Containment," 9.3.3, "Equipment and Floor Drainage System," and "Circulating Water Systems." These SRP sections are all relevant to flooding effects.