

NRC STAFF  
9/29/81

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

PENNSYLVANIA POWER & LIGHT CO.  
ALLEGHENY ELECTRIC COOPERATIVE, INC.

(Susquehanna Steam Electric Station,  
Units 1 & 2)

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Docket Nos. 50-387  
50-388

TESTIMONY OF STEPHEN H. CHESNUT  
RELATED TO ONSITE EMERGENCY PLANNING

(Contention 6)

Q.1 State your name and position with the NRC.

A. My name is Stephen H. Chesnut. I am an employee of the U.S. Nuclear Regulatory Commission (NRC) assigned to the Emergency Preparedness Licensing Branch, Division of Emergency Preparedness, Office of Inspection and Enforcement.

Q.2 Have you prepared a statement of professional qualifications?

A. Yes. A copy of this statement is attached to this testimony.

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Q.3 State the nature of the responsibilities that you have had with respect to the Susquehanna Steam Electric Station.

A. I have been responsible for reviewing and evaluating the Susquehanna Emergency Plan for conformance with the planning standards and requirements of 10 CFR Part 50, Appendix E and the guidance criteria of NUREG-0654, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants." Based on this review, I provided input for NUREG-0776, the Safety Evaluation Report for Susquehanna Station. I am also responsible for addressing those contentions related to the Applicants' Emergency Plan and onsite emergency planning and preparedness.

Q.4 What is the purpose of this testimony?

A. The purpose of this testimony is to address Contention 6a and that part of Contention 6c dealing with onsite emergency preparedness.

Q.5 Contention 6a states:

The plan fails to account adequately for narrow roads and adverse weather in the vicinity of the site.

What NRC criteria or regulations exist with regard to accounting for narrow roads and adverse weather around a nuclear site?

A. 10 CFR 50.47(b)(10) which contains planning standards for emergency plans provides that guidelines for taking protective actions within the emergency

planning zones should be developed and in place. NUREG-0654, Criterion II.J.8, provides further guidance and indicates that a licensee's plans should contain time estimates for evacuation of the plume exposure EPZ. Appendix 4 to NUREG-0654 provides further guidance as to how evacuation time estimates should be provided. NUREG-0654, Appendix 4, states that a range of conditions which might exist during an evacuation should be considered, including adverse weather conditions. Traffic capacities and evacuation time estimates should be prepared using the actual roadway network, and hence any narrow roadways which may be used as an evacuation route would be considered in preparation of the evacuation time study.

Q.6 Have the Applicants prepared evacuation estimates which consider narrow roads and adverse weather which complies with NRC guidance?

A. Yes. In response to staff comments to an earlier evacuation study, the Applicants have provided a new study "Susquehanna Steam Electric Station Plume Exposure EPZ Evacuation Time Estimates", prepared by HMM Associates. These evacuation estimates are based on computer modeling of several evacuation scenarios. Evacuation network capacities were determined by calculations based on physical descriptions of the roadway network compiled through field surveys of each roadway and intersection in the network. The study considered permanent, transient, and special facility population distributions and computed evacuation times. Evacuation time analyses were made for three time periods, (1) Weekday (2) Nighttime, and (3) Weekend. Adverse weather conditions

(assuming heavy rainfall or moderate snow) were calculated for the daytime scenario. The daytime scenario, when schools and workplaces were fully staffed, was found to be the most limiting and was chosen for modeling adverse weather evacuations. Other limiting adverse weather conditions evaluated were: (1) flooding of the Susquehanna River, (2) icing conditions, and (3) winter storm conditions.

The Applicants will consider the evacuation time estimates when making protective action recommendations to State or local agencies.

Q.7 Contention 6c states, in part:

"The plan includes insufficient information with respect to either the training of or the adequacy of radiation hazard safeguards to protect local emergency unit....which may be required to deal with onsite situations."

- A. The Susquehanna SES Emergency Plan indicates those local emergency units that it relies upon to provide emergency services in the event of an emergency at the Susquehanna Steam Electric Station. Those emergency services relied upon can be characterized in three categories: (1) police support, (2) fire and rescue support, and (3) local medical support, and are listed in Section 5.5.3 of the Susquehanna SES Emergency Plan.

Q.8 What training is provided to these local emergency units?

A. In the Susquehanna SES Emergency Plan, PP&L has committed to provide training to local offsite support organizations. Specific general specialized training will be provided.

The local fire and rescue companies will be invited to participate in training to include: interfaces with site security force during emergencies, basic health physics training, Susquehanna facility layout, off-site fire protection system equipment, differences between fire company equipment and on-site equipment, communications systems, review of appropriate emergency planning documents and procedures, and interface with the onsite emergency organization.

Local medical support organizations and personnel will be invited to participate in a training program that will include: interfaces with the site security force during emergencies; basic health physics indoctrination and training; Susquehanna facility layout; interfaces among the on-site emergency organization, local medical support personnel and Radiation Management Corporation; radiological aspects of emergency medical treatment; health physics procedures for decontamination; and Berwick Hospital radiation emergency procedures.

The State police will, on at least an annual basis, be invited to participate in a training program including appropriate Emergency

Implementing Procedures, classification of emergencies, communications and expected areas of responsibilities.

In addition to formalized training, drills and exercises will be conducted and will provide additional training opportunities. Drills involving the local emergency units include: (1) Medical Emergency drill (at least annually) involving cases of contaminated/injured and/or over-exposed individuals (2) Fire Emergency Drill (annually involving fire units) and (3) Radiation Emergency Exercise (annually) that involves State and county governments in addition to various local emergency units.

Q 9 How will local emergency units and personnel be protected from radiation hazards?

A. Local emergency units will be invited to participate in annual training which will include health physics and radiation protection training. Additionally, when in high radiation areas on site, the local emergency personnel will be provided with dosimetry and will be escorted by plant personnel with health physics experience. Site health physics teams will maintain radiation monitoring equipment for use in emergencies and will assist the emergency units in minimizing exposure. The licensee's Health Physics Procedures and Emergency Plan Implementing Procedures (EPIPs) provide instructions to emergency personnel on how to minimize and limit radiation exposure.



STEPHEN H. CHESNUT  
PROFESSIONAL QUALIFICATIONS  
OFFICE OF INSPECTION AND ENFORCEMENT  
U. S. NUCLEAR REGULATORY COMMISSION

My name is Stephen H. Chesnut. I am currently a Nuclear Engineer assigned to the Emergency Preparedness Licensing Branch, Division of Emergency Preparedness, Office of Inspection and Enforcement. My duties include the review and evaluation of Nuclear Power Reactor Emergency Plans.

I received a Bachelor of Science degree in Mechanical Engineering in 1974 from the U. S. Naval Academy.

From 1974 to 1979 I was a commissioned officer in the U. S. Navy Nuclear Power program. While in the U. S. Navy, I completed considerable training in the operation and supervision of nuclear power plants. I served as division officer of several divisions responsible for personnel training, plant operation, nuclear material maintenance, and radiological controls on board a nuclear submarine. Additionally, I qualified and served as Acting Chief Engineer Officer, responsible for the overall operation, supervision, and maintenance of a naval nuclear power plant.

Following my tour in the U. S. Navy, I spent one year as a senior engineering consultant, employed by Booz, Allen and Hamilton. During this period, I served as a consultant to the Department of the Navy, and provided technical engineering reviews and recommendations to the TRIDENT nuclear submarine acquisition program.

I joined the NRC in May 1980 where I am responsible for reviewing and evaluating nuclear power plant emergency plans, conducting Emergency Plan Appraisals on site, and monitoring licensee performance at emergency drills and exercises. These reviews result in the identification of discrepancies and specific recommendations to improve overall Emergency Preparedness of Nuclear Reactor Sites. I am currently the Emergency Preparedness Team Leader for the Nuclear Power Plants in Pennsylvania.