

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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SERVICES DIVISION  
DEC 15 1980

In the Matter of )  
PENNSYLVANIA POWER AND LIGHT CO. ) Docket Nos. 50-387  
AND ) 50-388  
ALLEGHENY ELECTRIC COOPERATIVE, INC. )  
(Susquehanna Steam Electric Station, )  
Units 1 and 2) )

NRC STAFF ANSWER TO CITIZENS AGAINST NUCLEAR DANGERS  
PETITION FOR A BOARD ORDER REQUIRING APPLICANTS TO ENERGIZE  
THE SUSQUEHANNA TRANSMISSION LINES AT 500 KV AND HIGHER

I. INTRODUCTION

On November 24, 1980, Citizens Against Nuclear Dangers (CAND) filed "Citizens Against Nuclear Dangers Petition and Motions on Summary Disposition" (Petition and Motions). In its Petition and Motions, CAND raised five issues, relating to both Applicants' Motion for Partial Summary Disposition of Contention 17 (Ozone) of August 22, 1980, and to Applicants' Motion for Summary Disposition of Contention 2 (Chlorine) of November 6, 1980. Of these five issues, one requests the Board to issue an order requiring Applicants to energize the Susquehanna facility's "UHV" transmission lines at 500 kV and higher so that tests may be conducted for ozone levels during rain, sleet, and snow(storms) prior to public hearings. With regard to this matter, CAND asserts that these safety and environmental health tests should be conducted by EPA and DOE. A second issue in CAND's Petition and Motions

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concerns CAND's reaffirmation of all other contentions against Applicants as sufficient argument for dismissal of Applicants' Motion for Partial Summary Disposition of Contention 17 (Ozone). The last three issues concern purportedly significant new information CAND alleges it will incorporate into direct testimony during public hearings on Contentions 17 (Ozone) and 2 (Chlorine). The NRC Staff will not address items 2 through 5.<sup>1/</sup> Instead, the Staff will address CAND's request for a Board order. The Staff opposes this motion for the reasons set out below.

## II. STAFF ARGUMENT IN OPPOSITION TO CAND'S PETITION

CAND's request that the Board issue an order requiring Applicants to energize the Susquehanna facility's 500 kV transmission lines at 500 kV and higher<sup>2/</sup> and conduct tests for ozone levels can be properly viewed as a delaying motion tantamount to a request for further discovery. The Commission's Rules of Practice provide for discovery of any matter, not privileged, which is relevant to the subject matter involved in the proceeding including, among other things, the existence, description, nature, custody, condition, and location of any books, documents, or other tangible things. 10 C.F.R. § 2.740(b)(1). Specifically, section 2.741 provides that any party may ask to inspect and copy any designated documents or any tangible things which

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<sup>1/</sup> Section 2.749(a), as amended, of Title 10, Code of Federal Regulations, does not explicitly permit either a response to another party's motion opposing summary disposition or a response to new information in such motion. 45 Fed. Reg. 68919 (October 17, 1980).

<sup>2/</sup> In "Citizens Against Nuclear Dangers Motion in Opposition to Applicants' Summary Disposition Request" of September 10, 1980, CAND alleged that the Susquehanna facility's transmission lines can be energized "as high as 765 kV and 1300 kV."

are within the scope of section 2.740 and which are in the possession, custody, or control of the party upon whom the request is served. Thus, the Commission's discovery rules governing production of documents contemplate that the documents or other tangible things requested are (1) in existence and (2) within the possession, custody, or control of the party upon whom the motion is served. The data requested by CAND is not presently in existence nor within the possession of Applicants.

Furthermore, as pointed out in "NRC Staff Answer in Support of Applicants' Motion for Partial Summary Disposition of Contention 17 (Ozone)" (Staff Answer), filed on November 24, 1980, actual ozone field measurements have been taken at ground level beneath extra high voltage lines such as Susquehanna's 500 kV system. All reported field measurements conclude that EHV transmission lines provide no more than 1 ppb ozone under fair weather conditions. This level is barely detectable by ozone detection instruments. During foul weather conditions which are more favorable for the production of ozone, small amounts of ozone (20 ppb) were measured at the approximate height of a transmission line but no ozone was detected at ground level. (Affidavit of Gerald Gears attached to Staff Answer). Thus, sufficient actual data presently exists to support Applicants' Motion.

CAND's request that the transmission lines be energized at higher than 500 kV is unreasonable. The Susquehanna facility's transmission lines are designed for operation at a maximum phase-to-phase voltage of 550 kV. The hardware and accessories which operate in conjunction with these lines have also been designed to coordinate with this maximum voltage. As discussed in

the attached Affidavit of Gerald Gears, there are several reasons why one would not want to energize transmission lines at voltage levels higher than they are designed for. First, at high voltages, the air surrounding the wires becomes partially ionized and corona discharges result. This represents a leakage of electrical energy. Thus, increasing the voltage of these transmission lines over their design voltage would decrease their efficiency. Second, corona discharges due to operating voltages above design can result in increased stress to insulators, thereby increasing the potential for equipment failure. Increasing the frequency of equipment failure will result in decreasing the flow and delivery of electricity and thus, the overall reliability of the line. Third, operating at voltages above a specific design can seriously damage transformers and other sensitive equipment. To prevent this damage, protective devices are installed on substation equipment so that when voltages exceeding the design are produced, these devices will shut off the flow of electricity. These protective devices act on the order of seconds, so that long term overvoltages are not possible. (Affidavit of Gerald Gears at 3-4).

### III. CONCLUSION

Thus, the Staff concludes that CAND's request for a Board order requiring Applicants to energize the Susquehanna facility's transmission lines at 500 kV or higher so that tests may be conducted for ozone levels and its suggestion

that EPA or DOE conduct these tests are unnecessary and unreasonable.<sup>3/</sup> Accordingly, the Staff believes that they should be denied.

Respectfully submitted,

*Jessica H. Lavery*  
Jessica H. Lavery  
Counsel for NRC Staff

Dated at Bethesda, Maryland  
this 15th day of December, 1980.

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<sup>3/</sup> Gerald Gears spoke to persons in offices responsible for the environmental effects of ozone both in EPA and DOE. His conversations revealed that to the knowledge of these individuals, neither EPA nor DOE presently plans any present or future research into ozone generation by transmission systems. These decisions are based on the research efforts of these individuals and on the research efforts of others in the field. (Gears at 3-4).