

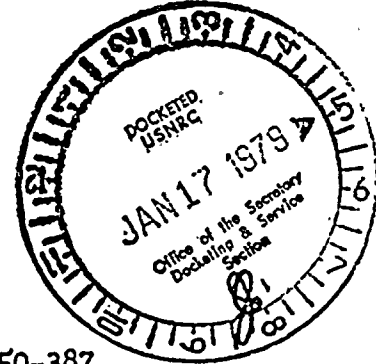
**ENVIRONMENTAL COALITION ON NUCLEAR POWER**

Executive Directors: George Boomsma—R.D. #1; Peach Bottom, Pa. 17563 717-548-2836 Judith Johnsrud—433 Orlando Avenue, State College, Pa. 16801 814-237-3900 215-884-6262

1/13/79

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board



In the Matter of )  
PENNSYLVANIA POWER AND LIGHT COMPANY )  
and )  
ALLEGHENY ELECTRIC COOPERATIVE, INC. )  
(Susquehanna Steam Electric Station, )  
Units 1 and 2) )

Docket Nos. 50-387

50-388

AMENDMENTS TO THE PETITION FOR LEAVE TO INTERVENE

FILED BY THE ENVIRONMENTAL COALITION ON NUCLEAR POWER

The Environmental Coalition on Nuclear Power (ECNP) submits the following supplement to its September 5, 1978, Petition for Leave to Intervene in the captioned proceeding to address three matters:

- A. Notice of Appearance
- B. Clarification of Petitioners' Interest and Standing
- C. Statement of Contentions and Their Bases

Notice of Appearance

Drs. Chauncey Kepford and Judith H. Johnsrud, Executive Board member and Co-Director, respectively, of the Environmental Coalition on Nuclear Power, having been duly authorized by the Executive Board of that organization to represent members' interests in any and all

administrative and legal proceedings, herewith enter their notice of appearance as representatives of these Petitioners in the proceedings related to the matter captioned above.

Clarification of Petitioners' Interest and Standing

In the September 5, 1978, Petition for Leave to Intervene, the Petitioners' (ECNP) representative, Dr. Johnsrud, advised that an affidavit setting forth interests of ECNP members on the basis of residence near Susquehanna Steam Electric Station, Units 1 and 2 (Susquehanna) would be filed separately. Such an affidavit was filed on September 8, 1978, by Dr. Oliver J. Larmi, R.D. 4, Bloomsburg, Pennsylvania; Dr. Larmi is a member of the Executive Board of the Environmental Coalition on Nuclear Power; to the best of my knowledge other signators of his affidavit are also members of ECNP. In addition, Dr. Johnsrud is employed at Lewisburg, Pennsylvania, within a forty mile radius of Susquehanna.

Statement of Contentions and Their Bases

1. Petitioners contend that the analysis of the effects of the uranium fuel cycle on human health from the beginning to the very end of the fuel cycle, have been seriously misrepresented and underestimated. In particular, the health consequences of the long-lived isotopes (long compared with plant lifetimes) have yet to be considered for the "full detoxification period" of each and every long-lived isotope released, or caused to be released to the environment, by the operation of Susquehanna (See NRDC v. NRC, 547 F. 2d 633, 639 at n. 12). Isotopes such as Tc-99, Se-79, I-129, Cs-135, and

the alpha-particle emitters have, to date, eluded full environmental analysis by those responsible for such analysis.

2. Petitioners contend that the cost-benefit analysis performed by the Staff and Applicant is wholly falsified. This cost-benefit analysis does not represent an analysis "conducted fully and in good faith" (See Calvert Cliffs' Coordinating Committee v. USAEC, D.C. Cir., 1971, slip opinion, p. 11). Instead, the analysis conducted was designed to arbitrarily reduce environmental and health costs while simultaneously inflating alleged benefits. In particular, radiation exposure from various isotopes, both short- and long-lived, is compared with various background sources of radiation exposure. Yet no justification has thus far been advanced for comparing any cost attributable solely to the operation of Susquehanna with costs attributable to background radiation sources which exist independently of the Susquehanna reactors. In addition, this comparison of radiation attributable to Susquehanna with background radiation distorts completely the cost-benefit analysis of Susquehanna because the benefit side of the analysis receives no such comparison. No comparison of the energy generated by Susquehanna is made, for example, with the solar energy incident on the United States. Further, the analysis is faulty because it neglects completely the health costs due to all of the long-lived radioactive isotopes released, or caused to be released, to the environment by the operation of Susquehanna. After all, "The Commission's prime area of concern in the licensing context . . . is public health and safety" (Vermont Yankee v. NRDC, U.S. slip opinion, p. 28, 1978).

3. Petitioners assert that known and assured reserves of uranium are insufficient to supply the lifetime fuel required for Susquehanna 1 and 2 in a growing nuclear economy. The

historic growth rate for nuclear generated electricity, a measure of uranium consumption, is about 32% annually, for the years 1961 through 1977. Even if this growth rate drops more than in half to 15%, all of the estimated reserves of uranium will have been consumed prior to the end of the thirty year life of Susquehanna 1 and 2. As a result, much higher fuel prices will result, and environmental damage will increase greatly with the mining of ever lower grade ores. The problems of disposal of mill tailings, now deemed trivial by some, will rapidly mount. Yet no environmental impact assessment has been made of the interrelated fuel supply-mill tailings problems as uranium is consumed, as these problems pertain to the entire operational lifetime of Susquehanna.

4. Petitioners contend that there is no need for Susquehanna. The information supplied by the Applicant shows that, with very modest increases in electrical energy conservation efforts, all of the need for Susquehanna 1 and 2 will disappear completely. Applicant's Environmental Report (ER, p. 1.1-2) gives load growth ranges. Table 1.1-15 of the ER shows that at the Very Low Growth rate scenario, the entire output of Susquehanna 1 and 2 will be available for sale outside the service area of the Applicant as the units come on line. The conservation programs suggested by the Applicant are not designed to encourage either meaningful energy conservation or efficient energy use. Instead, these programs are aimed at encouraging continued electrical energy usage, regardless of whether electricity is the most efficient form of energy for the job at hand or not. The Applicant has not considered the alternative to Susquehanna, as required by NEPA, of more strict energy conservation measures. For example, there is no comparison of cost for upgrading the thermal insulation in existing residences and commercial buildings in the service area of the Applicant with the cost to complete the Susquehanna plant. The discussion of the Applicant's anticipated load growth is based on increased use of electricity for space heat in residences and commercial establishments, together with the continued practice of

over-use of electric lighting, both for indoor use and for advertising and display.

In addition, the Applicant presents no discussion of the negative impact of increased electrification of industrial operations (through "modernization," to become more "efficient") upon employment. This impact is readily seen by comparing the number of workers needed to achieve a given output of an "inefficient" plant with the employees needed in a modern, efficient, mechanized plant to achieve the same output. The Applicant thus grossly underestimates the unemployment created by the Applicant in its service area.

5. Petitioners contend that the models used to calculate individual and population doses are inaccurate and obsolete. These deficiencies are compounded by the arbitrary selection of data for the purpose of underestimating radiation doses. In particular, the milk transfer coefficient for iodine has been underestimated (See Health Physics, 35, p. 413-16, 1978). In addition, these models use factors which convert alpha-particle dose in rads to rems which are far too low (See Health Physics, 34, p. 353-60, 1978), and which underestimate the radiation effect, on a per rad basis, for the very low energy beta and gamma radiations, as from H-3 and C-14 (See Health Physics, 34, p. 433-8, 1978). Furthermore, the entire set of radiation standards is based primarily on the data from Hiroshima and Nagasaki, where the doses received by survivors were essentially instantaneous. For radiation effects from the entire uranium fuel cycle, as will be caused by the operation of Susquehanna 1 and 2, the doses received both by workers and by members of the public will be low doses delivered at, in general, low dose rates. The bomb blast data have no demonstrable relevance to this chronic, low dose situation. See Health Physics, 33, p. 369-85, 1977, and British Journal of Cancer, 37, p. 448-51, 1978.

6. Petitioners contend that the analysis of alternatives, as required by NEPA and the Commission's rules, is woefully inadequate and incomplete. This analysis does not consider serious efforts at energy conservation, end use efficiencies, or what have come to be known as "Second Law Efficiencies." In addition, no discussion has been presented concerning the health benefits of energy conservation in conjunction with the conservation alternative to Susquehanna. There has also been no comparison of the health costs attributable to the operation of Susquehanna with those of not operating Susquehanna. Only with these types of comparison can the true health cost of Susquehanna be evaluated.

Solar energy in any of its various forms is not considered as an alternative to Susquehanna. By ignoring this commonly used alternative energy source, the Applicant is hoping to prevent home use of solar heating and hot water applications. Further encouragement of reliance on expensive electrically operated mechanical heating and cooling devices, like heat pumps, in the name of energy conservation, seems to defeat not only energy conservation, but also the development of solar energy. The primary beneficiary of this defiance of NEPA is the Applicant.

7. Petitioners contend that emergency response and evacuation planning by the Applicant, the Director and Staff of the Office of Radiological Health of the Pennsylvania Department of Environmental Resources, the State and County Civil Defense Agencies, and others responsible for protection of the health and safety of the public in the event of a radiological emergency affecting the population beyond the site boundary of Susquehanna is not complete and sufficient to assure prompt notification and evacuation of all areas in which persons may be exposed to radiation doses in excess of those permitted by existing radiation exposure standards for the general public and Protective Action Guides. The recent Planning Basis Report of the NRC and Environmental Protection Agency

(NUREG-0396/EPA 520/1-78-016, December, 1978, p. 5) notes that "more specific guidance with respect to accidents whose consequences would be more severe than the design basis accidents explicitly considered in the licensing process [is] appropriate."

In view of the Nuclear Regulatory Commission's expressed reservations about the reliability and validity of the probability estimates in the Reactor Safety Study, WASH-1400 (See, e.g., NUREG/CR-0400 and NUREG-0396/EPA 520/1-78-016, pp. I-6 through I-10, including notes at pp. I-8 and I-9; see also transcript of the December 21, 1978, and subsequent NRC Commissioners' meetings and Commissioners' draft policy statements on WASH-1400), and in view of the explicit limitation of the validity of the Reactor Safety Study's analyses through the year 1980, prior to the operational lifetime of Susquehanna 1 and 2, Petitioners contend that no probability analysis exists to justify the Applicant's and Staff's failure to address the full consequences to the plant and to the genetic and somatic health and the safety of the public, and the full long-term costs of property damage of the design basis accident (including sensitivity analyses) and of accidents more severe than the design basis accident. Petitioners contend that no operating license for Susquehanna 1 and 2 should issue until the Applicant, Commonwealth, Luzerne County, Salem Township officials and any others sharing responsibility for public health and safety have prepared and tested -- with drills that include participation of all of the potentially affected public -- emergency preparedness and evacuation plans for the design basis accident and for worst-case (Class 9) accidents. Risk analysis is incomplete and inadequate to comply with NEPA and the Commission's mandate under the Atomic Energy Act of 1954, as amended, in the absence of full analysis of both the probability and consequences of worst-case accidents. The existing studies of disaster response are inadequate to demonstrate, in the absence of tests involving those who would be affected, the capability of emergency response and evacuation plans to provide the protection required for the public.

Two serious contradictions additionally inhibit the effective performance of the duties of the two parties having major responsibility for emergency notification of the public and for the protection of the public health in the event of a radiological emergency. First, the Applicant, through various public relations efforts and the communications media, has sought to convince those residing in the vicinity of Susquehanna that the plant poses no significant threat to the public health and safety, but has offered no verifiable foundation for such claims beyond the now-repudiated Reactor Safety Study. The Applicant is the initial source of information -- and the only source of data -- pertaining to the severity and scope of the radiological hazard following an accident at Susquehanna. In the early stages of an accident, the Applicant may be unable or unwilling to ascertain that an offsite radiation hazard exists or will exist, and may be expected to avoid advising other responsible authorities and the public as long as the utility officials believe that emergency evacuation -- detrimental to the utility company's interests -- is not absolutely essential. Furthermore, the Applicant, having impressed upon the public the safety of its nuclear reactors and the alleged extremely low probability of a catastrophic accident, or other responsible officials may be unable to convince endangered residents of the necessity of emergency actions and evacuation.

A second contradiction inhibiting adequate emergency response lies in statements made by the Director of the Pennsylvania Office of Radiological Health, Mr. Thomas M. Gerusky. He has stated at a public meeting that his staff would not be able to respond at all hours to an accident at a nuclear facility. He has also, by affidavit, denied having made such a statement. Furthermore, the Office of Radiological Health has been unsuccessful in obtaining the amount of funding required to provide adequate qualified staff and equipment to be able to expand its capability to monitor and to respond to a radiation emergency situation at Susquehanna.

8. Petitioners contend that routine, or occasional, use of



environmentally persistent or inadequately tested herbicides to maintain clearance of transmission line rights-of-way is a somatic, teratogenic, and potentially mutagenic threat to the health and safety of persons living near or traversing these areas.

9. The archeological investigation of the Applicant's upland site for the Susquehanna Station, hastily chosen following the 1972 flood caused by Hurricane Agnes, was incomplete and inadequate to determine the status of cultural antiquities in advance of the commencement of construction. Completion of archeological investigation in compliance with state and federal law governing protection of antiquities should precede further construction at the site. Petitioners believe the Board should require an independent review of the Applicant's archeological studies.

10. Petitioners assert that the Nuclear Steam Supply System (NSSS) of Susquehanna 1 and 2 contains numerous design deficiencies, some of which may never be resolvable, and which, when viewed together, render a picture of an unsafe nuclear installation which may never be safe enough to operate. The pressure suppression containment structure may not be constructed with sufficient strength to withstand the dynamic forces realized during blowdown. The reactor pressure vessel may not survive the thermal shock of cool ECCS water after blowdown without cracking. The cracking of stainless steel piping in BWR coolant water environments due to stress corrosion has yet to be prevented or avoided. BWR core spray nozzles occasionally crack, a problem which reduces their effectiveness. The ability of Susquehanna to survive Anticipated Transient Without Scram (ATWS, see WASH-1270) remains to be demonstrated. For this ATWS issue, reliance on probabilistic numbers, as  $10^{-7}$  per year, is unwise and unsafe. Overpressurization of the pressure vessel is a serious safety problem, especially in view of the underhanded and wholly inadequate method used to ensure that the ASME stamp was to be applied to nuclear pressure vessels. (See Proceedings of the Annual Winter Meeting, ASME,

November 17-22, 1974, New York, N.Y., paper by A.J. Ackerman.) Numerous problems remain with the adequacy of electrical cable penetrations of the containment structure. The reduced capability of Susquehanna to scram at the end of the fuel cycle due to control rod poison depletion aggravates all of the above problems, such that when all of these, and certainly others such as containment steel liner buckling problems that have not been specifically addressed here, are combined, the conclusion of an inadequate and obsolete design is obvious. (See, for general reference materials, NUREG-0138, NUREG-0153, among others.)

11. Petitioners contend that excessive reliance on "single failure" events (i.e., see FSAR 6.3.2.5) leads to a false sense of security and certainty, especially when it is known that multiple failures occur (See testimony of Dr. David Okrent, ACRS, before the California Legislative Committee on Energy and Diminishing Resources, October 29, 1975, p. 11. See also Joint Committee on Atomic Energy, U.S. Congress, Hearings entitled "Browns Ferry Nuclear Plant Fire, vol. 1, September 16, 1975.).

12. Petitioners contend, when taken together and factored into lifetime monetary full cost determinations for Susquehanna, that plant decommissioning and ultimate dismantling and site decontamination, interim spent fuel storage and subsequent disposal, radioactive waste management and disposal at all stages of the nuclear fuel cycle, and health costs for the full period of toxicity of radioactive materials attributable to the operation of Susquehanna will render this nuclear facility economically non-competitive with virtually any of the many alternative sources of energy or with conservation. Absent national policy determinations, federal legislation, and administrative agency regulation of these issues, Petitioners contend that no operating license should issue for Susquehanna 1 and 2.

For all the foregoing reasons stated in these contentions, the Environmental Coalition on Nuclear Power contends that this Atomic Safety and Licensing Board should examine fully the public health and safety and environmental impacts, costs, burdens, and irreversible damages which will result from the operation of Susquehanna 1 and 2 and should deny an operating license to the Applicant.

These Petitioners wish and intend to conduct a full case of cross-examination of Applicant and Staff and any other witnesses, as well as to present witnesses of their own in support of these contentions, in order to assist this Board in reaching a just determination of the matter at issue. Because of prior participation in numerous AEC and NRC administrative proceedings, however, ECNP, a non-profit public-interest organization, is heavily burdened with debts for these earlier legal cases, many of which have contributed substantially to the betterment of federal regulation of nuclear power reactors, as a reading of the records will reveal. Petitioners therefore, with this filing, renew their prior requests for financial assistance from the Nuclear Regulatory Agency in order to maximize the agency's benefit from our contribution to this proceeding. We ask that, as an immediate and first step in financial relief, the Commission undertake hereafter the reproduction and mailing to other parties on the lengthy service list of subsequent filings by ECNP in this case.

Respectfully submitted,

*Judith H. Johnsrud*  
Judith H. Johnsrud

Co-Director and Representative, ECNP  
433 Orlando Ave., State College, Pa.

Dated January 15<sup>th</sup>, 1979

U. S. NUCLEAR REGULATORY COMMISSION  
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CERTIFICATE OF SERVICE

I hereby certify that copies of Amendments to the Petition for Leave to Intervene Filed by the Environmental Coalition on Nuclear Power, in Docket Nos. 50-387 and 50-388, have been served on the following, by deposit in the U.S. Mail, first class, postage paid, this 15<sup>th</sup> day of January, 1979.

*Judith H. Johnsrud*  
Dr. Judith H. Johnsrud  
Co-Director and Representative, NCRP

Secretary of the Commission  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Charles Bechhoefer, Esquire  
Chairman, ASLB Panel  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Mr. Glenn O. Bright  
ASLB Panel  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dr. Oscar H. Paris  
ASLB Panel  
U.S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Atomic Safety and Licensing  
Board Panel  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Atomic Safety and Licensing  
Appeal Board Panel  
U.S. Nuclear Regulatory Commission  
Washington, D. C. 20555

James M. Cutchin, IV, Esquire  
Office of the Executive Legal  
Director  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Docketing and Service Section  
Office of the Secretary  
U.S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Jay Silberg, Esquire  
Shaw, Pittman, Potts, and Trowbridge  
1800 M Street NW  
Washington, D.C. 20036

Gerald Schultz, Esquire  
Susquehanna Environmental Advocates  
500 South River Street  
Wilkes-Barre, Pa. 18702

Mrs. Irene Lemanowicz, Chairperson  
Citizens Against Nuclear Danger  
P.O. Box 377  
R.D. 1  
Berwick, Pa. 18603

Ms. Colleen Marsh  
558 A, R.D. #4  
Mountain Top, Pa., 18707

Mr. Thomas M. Gerusky, Director  
Bureau of Radiation Protection  
Department of Environmental Resources  
Commonwealth of Pennsylvania  
P.O. Box 2063  
Harrisburg, Pa. 17120

