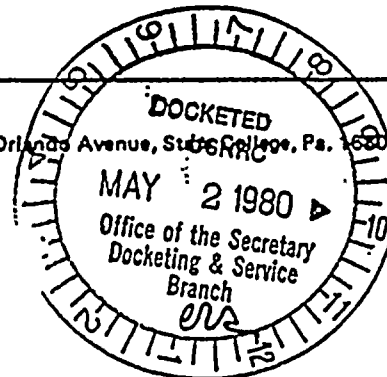


ENVIRONMENTAL COALITION ON NUCLEAR POWER

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION



Docket Nos. 50-387
50-388

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

ECNP Intervenor's' Additional Responses to Applicant and Staff Interrogatories
as Directed by the Board Memorandum of March 27, 1980

ECNP notes for the record that the NRC Staff has failed to make available to ECNP the transcript of the March 20 and 21, 1980, Second Special Prehearing Conference. Hence, these Intervenor's, whose legal representatives are located at a distance of more than 100 miles from the nearest Local Public Documents Room, are at a disadvantage so substantial as to constitute an effective denial of due process in attempting to respond to any matters which may have been discussed at the March 20 and 21, 1980, Prehearing Conference. Notification of this additional evidence of continuing procedural harrassment of public-interest Intervenor's in this proceeding will be sent to the Commissioners of the NRC in support of ECNP's March 14, 1980, Request to the NRC Commissioners for Expedited Consideration of Actions of an Atomic Safety and Licensing Board and Other Matters.

ECNP further notes that this legal representative who had not been consulted about scheduling by the Board prior to that proceeding was not able to attend the March 21, 1980, session due to prior commitments¹. Thus these Intervenor's have no

¹Neither authorized ECNP representative was able to attend that March 21 session due to prior commitments, nor had ECNP been consulted concerning the date or the likelihood of a two-day session.

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knowledge of what subjects were discussed on March 21, 1980. ECNP's representative requested of the Chairman, Mr. Bechhoefer, at the close of the day on March 20, 1980, that he direct the NRC Staff Counsel to send a copy of the transcripts to ECNP, as had eventually been done following the First Special Prehearing Conference. ECNP, with this filing, asks the Board to direct the Staff counsel to forward, as before, copies of the March 20 and 21, 1980, transcripts to the ECNP Intervenors so as not to deny us our due process to participate in this proceeding.

1. (Staff Interrogatories S-1.1 through S-1.11; Applicant Interrogatories 1A-1 through 1A-5) In accordance with the Board's directive (at p. 2 of its March 27, 1980, Memorandum) to provide a "generalized basis" for the contention concerning the assessment of the quantity and health effects of radon-222 which will be released during the fuel cycle required for the Susquehanna reactors and which is therefore attributable to that plant, ECNP states the basis that the requirements of the National Environmental Policy Act of 1969 (NEPA) must be met. NEPA requires that the Environmental Impact Statement (EIS) must consider all environmental effects associated with a facility for the full detoxification period (NEPA, Section 102 (2)(C); and NRDC v. NRC, 547F. 2d 633, 639, Vermont Yankee v. NRDC, U.S. slip opinion, 1978). ECNP reiterates its earlier response (January 18, 1980) that 10 CFR 51.20(e), Table S-3, provides at this time no such assessment for radon-222, (See Commissioner's Orders of March 2 and April 11, 1978) and that until such an assessment has been completed, a number to fully account for radon-222 inserted in Table S-3, and the full environmental impacts of radon-222 attributable to Susquehanna have been factored into the Susquehanna EIS, that EIS remains incomplete, the cost/benefit analysis therefore cannot be accurately made, and a license to operate Susquehanna cannot legally issue. These factors constitute the generalized basis for this contention. At the present time, the Nuclear Regulatory Commission has held further evidentiary hearings on the release of radon-222 before an NRC Appeal Board (February 26-28, 1980) but has reached no further decisions. Additional hearings on the health effects of the quantities of radon-222 attributable to a reference reactor or a specific reactor have not yet been scheduled. The NRC Staff and Applicant have readily and conveniently available to both parties the full testimonies and transcripts pertaining to radon-222 in the NRC Public Documents Room, 1717 H Street NW, Washington, D.C. Both parties are invited to note that testimonies in the February 26-28, 1980, evidentiary hearings before the NRC Appeal Board, as well as references and documents cited therein, render the number of curies claimed in the DES at p. 4-26 and 4-27 inaccurate, and unacceptable. These later numbers, do not, however,

constitute the maximum number of curies of radon-222 attributable to the lifetime operation of the Susquehanna reactors which may be released to the environment for the full period of toxicity. The sections of the DES referenced by the Board in its March 27th memorandum are rendered obsolete by the evidence in the February 26-28, 1980, Appeal Board hearings on radon and by the geologic uncertainties cited in U.S.G.S. Circular 814.

(S-1.1) As has been explained--and accepted by the Board--in response to Applicant's Interrogatory 1A-1, there is no assessment of radon-222 in 10 CFR 51.20(e), Table S-3. Since this standardized table is used by the Staff to assess the environmental effects of the uranium fuel cycle in order to comply with the requirements of NEPA, there can be no adequate radon assessment for the Susquehanna facility until all quantities of radon and their health effects for the full detoxification period have been accounted for. See also ECNP January 18, 1980, Response to Applicant's Interrogatory 1A-1.

The Staff's Draft Environmental Statement (DES) at 4.5.5 (pp. 4-25 through 4-28) fails to address the full quantities of radon-222 and their health effects attributable to the lifetime fuel requirements of Susquehanna for the full period of toxicity. See also response above.

(S-1.2, S-1.3, and S-1.4) It is difficult, in the DES 4.5.5., to find any correct assumptions. In the view of these Intervenors, only a full accounting of all radon-222 produced and capable of being released to the environment and the most conservative assessment of the full health effects for the full period of toxicity will be an acceptable compliance with NEPA. Such accounting and assessment must be based on assumptions of worst-

condition releases and maximum potential health effects, including but not limited to most conservative assumptions about the relative biological effectiveness of alpha emitters, the magnitudes of inhalation and ingestion doses, contamination of ground water supplies, changes in pluvial conditions in consequence of climatological changes as well as geologic changes maximizing the releases of radon from mines and mills and inactive and abandoned mill tailings, stabilized or not.

See, for example, U.S. Geological Survey Circular 814, "Isolation of Uranium Mill Tailings and Their Component Radionuclides from the Biosphere--Some Earth Science Perspectives," by Edward Landa, 1980, for a partial cataloging of present uncertainties on this topic.

(S-1.5) The assumptions cited as examples above and any other pertinent assumptions relating to the full assessment of the full quantity and health consequences of radon attributable to the fuel requirements for the lifetime operation of the Susquehanna reactors can only function to increase the Staff's estimate of radon in the DES.

(S-1.6, S-1.7, S-1.8, S-1.9) ECNP reiterates that the only acceptable number for radon is the full amount (see above). Under NEPA, it is the responsibility of the NRC Staff, not the Intervenors, to provide such calculations. They have not done so for the full detoxification period in the DES. ECNP Intervenors are not in a position to provide such information. The Staff is again directed to the evidentiary record on the radon issue in Three Mile Island, Unit 2, Operating License Docket No. 50-320; Perkind's, Units 1, 2, and 3, Docket No. STN 50-488, 489, and 490; and NRC Appeal Board hearings, March 23, 1978, Docket No. 50-320, and the consolidated proceeding on the radon issue before an NRC Appeal Board, February 26-28, 1980, with the proviso that the Intervenors do not accept the estimates of NRC or

Applicant witnesses in those records as estimating the full amount of radon attributable to Susquehanna. Health effects hearings have not yet been held. ECNP Intervenors remind the Staff that the Board in this proceeding has relieved the public-interest Intervenors of any obligation to carry out extensive research in order to satisfy discovery requests (see ECNP's Responses to Board's Memorandum and Order on Discovery Motions (II), dated January 18, 1980.

- (S-1.10) Even the relatively minor changes in the numbers of curies of radon cited in the Ralph Wilde testimony in the February 26-28, 1980, evidentiary hearings before an NRC Appeal Board will operate to increase the health effects from radon and hence will add to the cost side of the cost/benefit analysis for Susquehanna. Inclusion of all curies of radon attributable to Susquehanna will increase the health effects and hence operate to tip the cost/benefit analysis.
- (S-1.11) Among others, the study, "Radioecological Assessment of the Wyhl Nuclear Power Plant," Department of Environmental Protection, University of Heidelberg, NRC Translation 520, May, 1978, revised July, 1979, suggests substantial under-estimations of transport and transfer factors in the estimation of the health effects of radioactive releases associated with a nuclear power reactor. Re-evaluation of the existing literature utilized in the development of present radiation standards is therefore required for all radioactive materials associated with the entire fuel cycle for the Susquehanna reactors in order to determine the extent to which the health effects may have been under- or misrepresented. The March, 1980, National Institutes of Health symposium on health effects of low-level radiation further suggests that inadequate research in these areas has led to an under-estimation of the

effects of radioactive releases associated with the complete fuel cycle. A complete review, with specificity, of the literature on health effects of all isotopes to be released during the fuel cycle for the Susquehanna reactors is clearly beyond the Board's March 27, 1980, Memorandum at p. 2, as well as being beyond the Board's earlier specification that public-interest intervenors are not required to engage in extensive research.

2. ECNP has had no opportunity, nor has this public-interest party adequate resources in time or money, to have developed independent assessments of the releases of Technetium-99; it is the obligation of Staff and Applicant to do so. Similarly, ECNP has not developed an independent assessment of health effects of Tc-99.

3. Whether or not Intervenors have identified any isotopes other than radon-222 or technetium-99, the health effects of which they wish to have considered, it is the obligation of Staff and Applicant, under NEPA to consider all health effects attributable to the operation of Susquehanna.

One finds in the DES at p. 4-25, dose commitments for 100 years. This time period is inadequate to account for the health effects of long-lived radioactive isotopes which will be released during the fuel cycle required for Susquehanna. The Staff's NEPA obligation is to account for these effects for the full period of toxicity. NEPA does not oblige public-interest Intervenors to do so. ECNP sees no reason otherwise to alter its initial valid and adequate responses to Staff Interrogatories S-1.12 through S-1.15, except to note that it is now approaching three years since the NRC Staff became aware of Dr. Kepford's analysis of radon-222 emanations and their health effects in the still-incomplete TMI-2 operating license proceedings on that subject.

With respect to the Applicant's Interrogatories 1B-1 through 1B-4, ECNP again directs the Applicant to the studies cited in ECNP's earlier adequate responses to these interrogatories, viz., the Heidelberg Report, cited elsewhere in this filing, and John W. Gofman, Health Physics, November, 1979, among others. ECNP has not the resources to undertake full independent assessments of the health effects of all radioactive materials in the nuclear fuel cycle. Such an undertaking was part of the work of the Lawrence Radiation Laboratory's Biomedical Division for much of a decade, as we recall. ECNP is not in a position to expand upon its earlier adequate responses to these questions.

4. (Applicant Interrogatories 2-1, 2-2, and 2-9) ECNP lacks the financial resources at this time for independent investigation adequate to provide a detailed nuclide-by-nuclide analysis of releases from the Susquehanna facility. It is, and always has been, the obligation of NRC Staff and Applicant, not the Intervenor, to do so for the full range of isotopes which are expected to be, or which might be, released from the Susquehanna reactors.

The assessment of residual risks from low-level radiation resultant from Susquehanna's releases is dependent upon the accuracy and completeness of the assessments used to determine health effects from low-level radiation exposures and the risks associated with such exposures. ECNP's position in its Contention 2 is that such assessments, in order to comply with NEPA, must be based upon the newest and most conservative findings concerning low-level radiation effects, including but not limited to the Heidelberg Report and Gofman study, both cited above, and a re-examination of the accuracy of the assumptions and models of Regulatory Guide 1.109 and all atmospheric diffusion models utilized in the Applicant's Environmental Report or the DES. For example, see Kepford Technical Report filed in the Salem 1, Spent Fuel Storage Expansion Proceeding, August, 1979, on inaccuracy of the atmospheric dispersion model assumed in dose calculations and prediction of health effects in the May 10, 1979, Ad Hoc Population Dose Assessment Group Report of NRC, HEW, and EPA.

To be full and complete in compliance with NEPA, the low-level radiation residual risk assessment must include analyses of the consequences of routine emissions and those caused by accidents, incidents, unanticipated events, and any other designations for unplanned releases which may in sum exceed normal allowable limits. See March 20, 1980, letter to NRC Commissioner John Ahearne from the Chairman of the President's Council on Environmental Quality and the accompanying Environmental Law Institute study, "NRC's Environmental Analysis of Nuclear Accidents: Is It Adequate?" dated February 4, 1980.

Nor are assessments of low-level radiation population dose effects and residual risks complete and accurate when limited to the population within the 50-mile radius of the Susquehanna reactors (ER 5.2.4.4). Similarly, a 50-mile reach downriver from the plant does not include the full effects of water discharges (ER 5.2.2.2).

ECNP, denied adequate (or any) funding by the NRC's continuing refusal to assist pro bono public interest litigants, has not had and does not have at the present time the resources required to respond to these interrogatories with greater specificity in the time periods allowed.

5. (S-3.1) ECNP will for the present accept the fuel requirement as stated in the DES: 14,700 metric tons of uranium for forty years, or approximately 404 short tons per year, subject to change, should new or newly discovered information invalidate these numbers.

(S-3.2) The results of the NURE study will, of course, be subject to comment upon evaluation. For the time being ECNP will accept the results. We reserve the right to alter our position after the studies have been subjected to review or if additional information comes to our attention. ECNP points out that table 8.9 of the DES includes an unweighted total of reserves and probable, potential and speculative resources. Such totals are unsubstantiated, without real significance, and must not be relied upon as acceptable estimates of "known and assured reserves."

We would also like to comment on section 8.5.2. of the DES. In the first paragraph (page 8-16) the report implies that the domestic industry and imports will combine within ten to fifteen years to more than triple current annual production in the \$30 and under range. Such wishful projections require substantial support in these times of capital scarcity and increasing domestic and foreign political activity in opposition to uranium mining and milling. Furthermore, decreases in demand due to plant cancellations may result in the tapering off of the search, the converse of the expectations of the Staff in section 8.5.5.2 on page 8-18

Should the industry not meet the goal and produce, say, 30,000 tons per year by 1992, things will be quite grim in the market place:

(3.2 cont'd.)

$$\frac{30,000 \text{ tons produced}}{\text{year}} \times \frac{2100 \text{ Mw}}{404 \text{ tons/year}} = \dots$$

155,940 Mw fuelable per year, say 156 Gw.

This is considerably less than the 219 Gw predicted by the Staff in the DES.

(3.3) ECNP has no further information with which to answer this question. We will, of course, forward significant information which we acquire to all parties.

(3.6) ECNP will select the figure provided by the Staff in the DES on page 8-16 for January 1, 1978: 49,000 Mwe. The exponent in our formula is thus raised to 22 (2000 - 1978).

$$\frac{(49,000 \text{ Mw})(1.15)^{22}}{(1000 \text{ Mw})/\text{reactor}} = [(49)(1.15)^{22}] =$$

[1060.5926] or, approximately 1060 reactors averaging 1000 Mw each.

(3.7) A general basis for believing uranium prices will rise is experience and "normal" inflation. Throughout section 8.5 of the DES are comments that indicate that the Staff also believes prices will rise. In fact, the Staff seems to rely on price increases to spur the increased annual production.

(Sec. 8.5.5.2) "Industry-investment activities will be influenced by . . . price movements. As is the case with other raw material commodities, increasing demands and higher prices should lead to increased efforts by industry

(3.7 cont'd)

to expand supplies."

(page 8-13, lines 10-12) "Higher prices are needed to produce ores of lower quality and those with more difficult mining and milling characteristics. Such reserves, though well-delineated, are not available if prices are too low."

(8.5.3, para. 3, last two lines) "Additional uranium supplies will be available from foreign sources and, if needed, through utilization of higher-than-\$30-cost resources."

6. (4B-1) ECNP must respectfully ask the Board to supply a copy of the referenced February 11, 1980, response to the Applicant's February 4, 1980, motion, with respect to this interrogatory 4B-1. Our files and memories draw a blank for that date, as does the Local Public Documents Room in Wilkes-Barre. Does the Board mean to refer to the February 18th, 1980, ECNP filing, "Response of [ECNP] to Applicant's Motion to Prohibit ECNP Intervenors from Litigating ECNP Contentions and Motion to Compel"? ECNP can neither affirm or deny that it wishes an unidentified response to be part of its answer, but will do so upon clarification of the Board's reference.

(4B-2) ECNP accepts for the present but subject to change, PP&L's listing of its installed capacity as of March 1978. We understand that PP&L is currently considering construction of a coal-fired plant with Allegheny Rural Cooperative and a trash-burning facility with the city of Lancaster. We would appreciate being informed of any decisions to build these or other facilities or to purchase or sell or close existing facilities, and reserve the right to alter our position subject to new information.

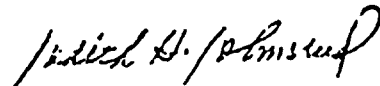
We would like to add that there is a discrepancy between the DES figure 7.4 which assumes a load-growth rate of 3.13% compound growth and PP&L's public statements. In February of 1978, PP&L wrote in

(4B-2 cont'd.)

Energy Conservation Programs that it intended to manage a load-growth rate of 2.5% per year. Thus, the chart as written, is a misstatement of the Applicant's position.

7. ECNP has no information at this time on the herbicides suggested by the Applicants to replace their earlier proposal to add to earlier submissions. No additional information on the proposed herbicides has been provided by the Applicant or Staff. ECNP has, however, submitted requests for information to various appropriate sources.

Submitted by



Judith H. Johnsrud

Co-Director, Environmental
Coalition on Nuclear Power

Dated the 1st day
of May, 1980

CERTIFICATE OF SERVICE

I certify that copies of ECNP INTERVENORS' ADDITIONAL RESPONSES TO APPLICANT AND STAFF INTERROGATORIES AS DIRECTED BY THE BOARD MEMORANDUM OF MARCH 27, 1980 have been served on the parties, by deposit in the U.S. Mail, first class, postage paid, this first day of May, 1980.

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