



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of	)	
PHILADELPHIA ELECTRIC COMPANY	)	Docket Nos. 50-277
ET AL.	)	50-278
(Peach Bottom Atomic Power Station	)	
Station, Units 2 and 3)	)	
METROPOLITAN EDISON COMPANY ET AL.	)	Docket No. 50-320
(Three Mile Island Nuclear Station	)	
Unit No. 2)	)	
PUBLIC SERVICE ELECTRIC AND GAS CO.	)	Docket Nos. 50-354
(Hope Creek Generating Station,	)	50-355
Units 1 and 2)	)	

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NRC STAFF OPPOSITION TO  
PETITION FOR REVIEW OF ALAB-701

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January 17, 1983

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NRC STAFF OPPOSITION TO  
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The NRC staff opposes the Intervenor<sup>1/</sup> Petition for Review of ALAB-701, which deals with "the environmental effects associated with the release of radioactive radon gas (radon-222) to the atmosphere as a result of the mining and milling of uranium for reactor fuel", and whether "these effects are sufficiently significant to tip the NEPA

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<sup>1/</sup> The Intervenor represents the Citizens for a Safe Environment and the Environmental Coalition on Nuclear Power in the Peach Bottom proceeding.

cost-benefit balance against the operation of those facilities."

Philadelphia Electric Co. (Peach Bottom Atomic Power Station, Units 2 & 3), et al., ALAB-701, 16 NRC \_\_\_\_ (November 19, 1982, slip op. at 2).<sup>2/</sup>

In Philadelphia Electric Co. (Peach Bottom Atomic Power Station, Units 2 & 3), et al., ALAB-640, 13 NRC 487 (1981), the Appeal Boards considering these matters on a consolidated basis had determined the amount of radon released in the mining and milling of uranium for use as fuel in a nuclear power reactor, on an annualized basis.<sup>3/</sup> They

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<sup>2/</sup> Pursuant to 43 Fed. Reg. 15613 (April 14, 1978), proceedings were begun to revise Table S-3 in 10 C.F.R. § 51.20(e) setting out the amount of radiation released in the uranium fuel-cycle. To date a new Table S-3 value for radon-222 releases has not been promulgated.

<sup>3/</sup> This proceeding had its genesis in a 1978 Commission determination that values for radon releases in Table S-3 of 10 C.F.R. § 51.20(e) were in error, and that Licensing and Appeal Boards were to determine radon releases and the health effects stemming from those releases in individual cases before them, pending a redetermination of the values in the Table. See 43 Fed. Reg. 15613, 15615-6 (April 14, 1978). Thereupon, the Licensing Board considering the Perkins facility held hearings on these issues and concluded that radon emissions stemming from the mining and milling of uranium added so little radiation to the environment (the natural background radiation) as to be undetectable and insignificant from a health effects standpoint. Duke Power Co. (Perkins Nuclear Station, Units 1, 2 & 3), LBP-78-25, 8 NRC 87, 100 (1978). A "lead case" approach was employed by the Appeal Boards for the 17 proceedings then upon appeal, whereby the parties to those proceeding were given an opportunity" to supplement, contradict or object to the Perkins record and the Perkins Licensing Board decision. ALAB-480, 7 NRC 796, 804-06 (1978). Ultimately, Intervenor in five proceedings were heard challenging the record and results in the Perkins proceeding. These five proceedings were consolidated and the consolidated proceeding divided into two parts - the first to conduct hearings and determine the amount of radon releases from the uranium fuel cycle, and after those amounts were established to consider the health effects of such amounts of radon releases. See 10 C.F.R. § 2.716. The remaining 12 proceedings in which the radon release issue was not put in contest by a party were held in abeyance until the consolidated proceeding was determined. ALAB-540, 9 NRC 428, 433; ALAB-562, 10 NRC 437 (1979). (In the interim two of the applications involved in the five consolidated proceedings have been withdrawn leaving the three captioned proceedings consolidated upon appeal.) ALAB-640 was the determination of the quanta of radon releases. A more complete history of these proceedings appears in ALAB-640, 13 NRC 490-493; and ALAB-701, 16 NRC \_\_\_\_ (slip op. at 3-8).

further determined, by a divided vote, that a fuller opportunity should be given for the parties in the consolidated proceeding to demonstrate whether these releases might have sufficient health effects to tip the NEPA cost-benefit balance on any of the facilities, 13 NRC at 539-45. No party sought review of ALAB-640.

The Appeal Boards particularized the procedures to be followed in determining the health effects of those amounts of radon releases determined in ALAB-654, 14 NRC 632 (1981). The Appeal Boards recognized that the Licensing Board in the Perkins proceeding [Duke Power Co. (Perkins Nuclear Station, Units 1, 2 & 3), LPB-78-25, 8 NRC 87, 100 (1978)] had previously determined that like amounts of radon released from the uranium fuel-cycle were negligible in comparison with naturally occurring background radiation, and that the Licensing Board had further determined, upon expert medical testimony subject to cross-examination, that the health effects of such releases were negligible. 14 NRC 634-35. The Appeal Boards repeatedly provided an opportunity for parties claiming that a hearing was needed to consider the health effects of the negligible amount of uranium fuel-cycle radon releases, in contradistinction to what was established in the Perkins proceeding, to show the existence of a genuine issue of material fact in regard to the environmental effects of those releases by the documented opinion of qualified authority on the effects of these incremental fuel cycle radon releases on human health, taking into account natural radon emissions in the environment and fluctuation in those emissions. 14 NRC at 634-35.

After the procedures prescribed in ALAB-654 were followed, the Appeal Boards in ALAB-701 concluded that no further evidentiary proceedings were

needed as it had not been shown by the documented opinion of a qualified authority that a genuine issue of material fact existed on the health effects of radon releases in the uranium fuel-cycle, and that the issues could be decided on the basis of the existing record. They thereupon determined that the amount of radon released as a result of the uranium fuel-cycle added so little radiation to the environment (or natural background radiation) as to be negligible and not capable of affecting the NEPA cost/benefit balance for the subject facilities.

In the Petition for Review of ALAB-701 the Intervenors seek to raise the following three issues:

- That the Appeal Boards erred in rejecting the affidavits of Dr. Chauncy Kepford, submitted to show a genuine issue of fact on the health effects of the radon emissions, as not affidavits of a qualified expert on the subject of the health effects of the radon emissions.
- That the Appeal Boards erred in determining that no showing had been made that any genuine issue of fact existed over those determined in the Perkins proceeding; and
- That the Appeal Boards erred in determining that the health effects of emissions from the uranium fuel-cycle were negligible by comparing the amount of naturally occurring radon emissions and the fluctuation in those emissions with emissions from the uranium fuel-cycle.

For the following reasons the Staff believes that the Intervenors have not sustained their burdens under 10 C.F.R. § 2.786(b)(2) of showing that the Appeal Boards' action was erroneous and why the Commission should exercise its power of review.<sup>4/</sup>

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<sup>4/</sup> In its Petition for Review Intervenors make reference to matters in other proceedings where a so-called "Fraud Brief" was filed on June 12, 1978. Petition at 3. That brief was filed in an attempt to obtain review of ALAB-480. The Commission did not review ALAB-480, and that decision has no relevance to the appeal of ALAB-701.

DISCUSSION

1. The Appeal Boards did not err in determining that Dr. Kepford lacked the requisite expertise to provide evidence on the health effects of radiation. As the Appeal Boards stated: "[W]hen interrogated on voir dire in Perkins, Dr. Kepford candidly and commendably acknowledged his lack of formal education or experience in medicine, health physics or any other discipline having a perceivable relationship to the ascertainment of the health significance of radioactive emission. Tr. 2677-78." ALAB-701, slip op. at 14. The Intervenors cite no evidence to rebut the Appeal Boards' conclusion, based on Dr. Kepford's own testimony, that Dr. Kepford has no expertise in the health effects of radiation.

2. Similarly, the Appeal Boards did not err in concluding that the Intervenors did not make the requisite showing by expert opinion on any genuine issue of fact concerning the health effects of the uranium fuel-cycle over those determined in the Perkins proceeding.

The only opinion presented by the Intervenors to the Appeal Boards was that of Dr. Kepford. As we have established, Dr. Kepford is not an expert on the health effects of radon. Dr. Kepford had testified in the Perkins proceeding, and the Appeal Boards weighed that testimony. Although the Intervenors state on p. 9 of their petition, that there are "manifold, subtle ways in which Dr. Kepford's two affidavits add to his Perkins testimony.", those ways are not identified and cannot be ascertained.<sup>5/</sup> Thus the Appeal

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<sup>5/</sup> See "NRC Staff's Reply to Intervenors' Submission in Response to ALAB-654," February 1, 1982, at 3-8.



Boards correctly concluded that Dr. Kepford did not have the expertise to give an affidavit on the health effects of the uranium fuel cycle and he presented no matters which he had not already presented in the Perkins proceeding. The Intervenors failed to show any genuine issue of fact calling for further evidence on the issue of the health effects of the uranium fuel cycle.

3. Finally, the Appeal Boards did not err in considering the total amount of naturally occurring background radiation and fluctuations in that radiation in their determination that the health effects to be caused by radiation stemming from the uranium fuel cycle were negligible.

The Appeal Boards concluded that, "[T]he radon contribution of the uranium fuel cycle is a minute fraction of the radon that is released from other sources -- so minute, indeed, that the contribution is not even detectable." ALAB-701, at 15 [footnote omitted.] Further, the fuel cycle emissions are "vanishingly small" when compared to fluctuations in background radiation from place to place. Id. On this basis the Appeal Boards rejected the Intervenors' thesis that the fuel cycle measurably increases health hazards over that attributable to natural background radon. Id. at 15-16. These matters were established in the record of the Perkins proceeding, are reiterated here, and are unrebutted by the Intervenors [Id. at 15-21]. As the Appeal Boards concluded, "[T]he long term radon release rate associated with a single reactor stands in relation to natural releases roughly in the range from one part in 10,000 to one part in 100,000" [Id. at 19]. On this basis and in view of the wide variations in natural background radiation it was concluded that the incremental health risk attributable to the uranium fuel cycle is negligible and could not alter the NEPA cost-benefit balance. Id. at 21.



The Appeal Boards rejected the Intervenors argument that the fuel cycle for a reactor will cause 0.16 (1/6th) fatality per year and that must be extrapolated over hundreds of thousands or more years to ascertain the health effects of the uranium fuel cycle. They pointed out, that if a reactor fuel cycle resulted in 1/6 of a fatality per year, then natural radon exposure would cause 16,000 deaths per year. For these reasons, the Appeal Boards determined that any possible health effects of the fuel cycle are "vanishingly small" or "negligible." Id at 22-25.

The Commission addressed a similar argument that any possible fatalities from the uranium power reactor program must be weighed against the operation of these reactors, in replying to a petition of Ms. Jeanne Honiker of Nashville, Tennessee, that all nuclear reactors be shut down. The Commission stated, inter alia, in Denial of Petition for Revoking Nuclear Plant Licenses (46 F.R. 39573, 39578 (August 4, 1981)):

In summation, the petition is correct in saying there are some potential health costs of nuclear power, but the petition has failed to show that these costs are likely to be significantly different from the estimates the Commission has used in finding that licensed nuclear facilities, though not risk free, will operate with adequate protection for public health and safety.

And at 39580:

Moreover, since the alternatives to a nuclear power plant, including the alternative of getting by with less electricity, carry health impacts which are also likely to include some deaths, a nuclear facility could not reasonably be deemed to provide inadequate protection solely on the ground that its estimated fatality impact was greater than zero. The Commission thus rejects the petition's argument that nuclear plants must be held per se unlawful. . . .

\* \* \* \*

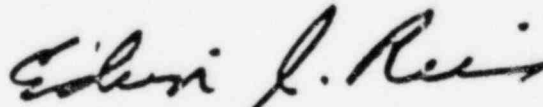
[A] moral judgment on nuclear power must recognize that any of the alternatives, whether use of different technologies for generating electricity or social readjustments for achieving conservation on a major scale, if examined sufficiently closely can almost certainly be linked to at least a few deaths. Thus moral distinctions among the various choices for a policy on electricity generation cannot turn simply on whether a particular choice will cause deaths. They all will. If moral judgements are ultimately to be made about nuclear power, they will have to rest on complex criteria, quantitative where possible, rather than on appealingly simple but unusable principles like "even one death is too many."

No error was made by the Appeal Boards in comparing natural background radiation with radiation from the uranium fuel-cycle when considering the possible health effects of radiation from the uranium fuel cycle.

CONCLUSION

The Intervenors have failed to show that the action of the Appeal Boards in ALAB-701 was erroneous and that Commission review is necessary. Under the standards of 10 C.F.R. § 2.786(b)(2), the Petition for Review should be denied.

Respectfully submitted,



Edwin J. Reis  
Assistant Chief Hearing Counsel

Dated at Bethesda, Maryland  
this 17th day of January, 1983

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SERVICE LIST

I hereby certify that copies of "NRC STAFF OPPOSITION TO PETITION FOR REVIEW OF ALAB-701" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class, or, as indicated by an asterisk, through deposit in the Nuclear Regulatory Commission's internal mail system, this 17th day of January, 1983:

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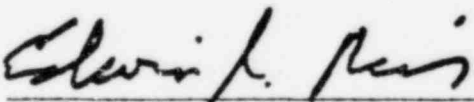
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