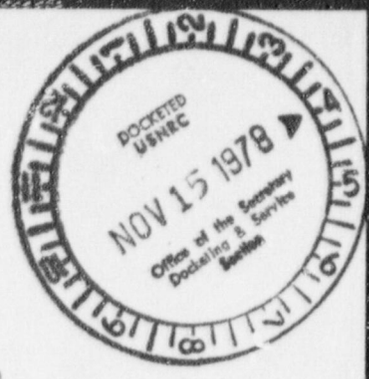

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of	)	
	)	Docket Nos. STN 50-488
DUKE POWER COMPANY	)	STN 50-489
	)	STN 50-490
(Perkins Nuclear Station, Units 1, 2 and 3)	)	

NRC STAFF BRIEF IN OPPOSITION TO INTERVENORS' "BRIEF IN SUPPORT OF EXCEPTIONS AND NOTICE OF APPEAL FROM PARTIAL INITIAL DECISION"

November 13, 1978

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NUCLEAR REGULATORY COMMISSION

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On July 14, 1978, the Atomic Safety and Licensing Board presiding in the captioned proceeding (the "Licensing Board" or the "Board") issued a Partial Initial Decision with respect to the Environmental Consequences of the Uranium Fuel Cycle (8 NRC 87). Intervenors filed exceptions to this Decision on August 3, 1978 and filed their brief in support of exceptions on October 2, 1978.

As set forth in their brief, Intervenors' exceptions are directed principally to four main issues:

1. The Licensing Board did not allow Intervenors a sufficient amount of time for the preparation of their case;

2. The Licensing Board erred by accepting Staff and Applicant evidence relating to the health effects of radon released by the uranium fuel cycle;

3. The Licensing Board erred in not permitting the introduction of certain exhibits and testimony of Intervenors into evidence in the record; and

4. The Licensing Board did not have a sufficient factual basis in the record for paragraph nos. 16, 17, 27, 28, 29, 30, 32, 33 and 36 of its Partial Initial Decision.

For the reasons set forth below the Staff believes that none of these exceptions are well founded and the Intervenors' exceptions should be denied.[1/]

1/ The Staff believes that an understanding of the background of the case is appropriate to establish the context for argument. However, we have reviewed the history set forth in Applicant's Brief in Opposition ...", etc., dated November 6, 1978 at pages 4-7 and find no need to burden Staff's brief with a very similar recitation of background facts.

I.

INTERVENORS WERE PROVIDED ADEQUATE OPPORTUNITY TO PREPARE FOR THIS PROCEEDING

Intervenors assert that Dr. Kepford had inadequate time to prepare testimony for the Perkins proceeding. But the facts are that Dr. Kepford's principal testimony was served (mailed from State College, Pennsylvania) on May 31, 1978. This is (a) some 28 days after Intervenors informed the Board that it had obtained Dr. Kepford's service as an expert witness; (b) some 21 days after the motion to postpone the hearing set for May 16, 1978 was denied; (c) some 44 days after the Staff testimony was served on Intervenors[2/], and some 20 days after Applicant's testimony was served on Intervenors; (e) some 20 days after Staff provided Intervenors (and the Board) with additional information prepared for the Pebble Springs case (which was used in cross-examination of the Staff but initially offered and accepted only in very limited part in the Perkins proceeding); and (f) some 14 days after Dr. Kepford had an opportunity, which he exercised, to cross-examine witnesses for Staff and Applicant at the hearing.

2/ Dr. Kepford, in connection with his participation in the Three Mile Island 2 proceeding (Docket No. 50-320), had received virtually identical documents in January 1978. Four of the affidavits were the same as those filed in Perkins and the fifth, Dr. Gotchy's, contained corrections of minor typographical errors and phrasing errors.

In light of Dr. Kepford's extended period of familiarity with the issues involved in radon release questions, starting with his participation in the Three Mile Island proceeding extending back into 1977, and in light of the Intervenors' assertions concerning the extensive nature of Dr. Kepford's familiarity and expertise in connection with the radon issue (Tr. p. 2251, 2267, 2675), the assertion that Dr. Kepford was deprived of adequate opportunity to prepare testimony is without substance.

With respect to preparation of counsel, the Staff recognizes the importance not only of an adequate opportunity for witnesses to prepare for participation in a proceeding but also for adequate opportunity for counsel to prepare. The time frame discussed above clearly demonstrates that counsel for Intervenors had some 30 days to review Staff testimony before the hearing at which the Staff testified and some six days to review the testimony of Applicant's witness before the hearing at which Applicant's and Staff's witnesses testified. Although complaining of inadequate opportunity and time pressures, Intervenors' counsel made no specific indication demonstrating specifically why the opportunity available to them to review testimony and prepare their case was inadequate. Indeed, Dr. Kepford, who has been deeply involved with the radon issue for many months, performed all cross-examination of Staff and Applicant witnesses. Even now, counsel does not assert that Dr. Kepford's cross-examination was in any specific manner inadequate or defective.

Intervenors also assert that there was insufficient time to prepare detailed findings of fact for presentation to the Licensing Board in the time allowed. The Board's Order of May 18, 1978 stated that the parties need not file proposed findings of fact, but that if they did, they were to be filed by June 16, 1978, a month after the hearing at which Applicant and Staff witnesses testified and a week after Dr. Kepford's disposition. 10 CFR §2.754(a) permits the presiding officer to establish the time period for filing proposed findings. The Staff believes that the Board's Order of May 18, 1978 provided a sufficient amount of time for preparation of proposed findings. Intervenors' brief on exceptions contains no explanation of why the available time for preparation of proposed findings was not sufficient for Intervenors. It is simply contained as part of the general assertion that there was insufficient time allotted for the preparation of the case.

In the Staff's view, Intervenors' allegation of inadequate opportunity to prepare is without merit.

II.

THE LICENSING BOARD PROPERLY ADMITTED STAFF AND APPLICANT EVIDENCE RELATING TO HEALTH EFFECTS OF RADON

Intervenors allege error in the admission "of the applicant's and staff evidence which failed to consider the total effect of the releases from Radon-222 for the full period of time now known that such releases will occur." Brief, p. 4. The phrasing of Intervenors' argument - that the evidence in this proceeding should "consider the total effect of releases from Radon-222 for the full period of time now known that such releases will occur" - is indicative of Intervenors' fundamental misconception of the matter at issue in this proceeding. This case does not involve a contest - as suggested by Intervenors' phrasing - over whether known effects beyond a fixed period of time should not be considered. The Staff agrees that, to the extent that effects are known, they should be considered. The difficult issue in this case involves, recognizing that the effects into far distant futures are speculative, how should they, nevertheless, be considered? The evidence of the three parties in the case represents three different approaches toward evaluating the significance of speculative future effects.

Dr. Kepford, although agreeing that "these problems [famines, plagues, nuclear wars, major technological advances, the collapse of technologies, ice ages, and a myrid of other unknowns] make any attempt at an accurate prediction of what our society will resemble 20, 50. or 100 years from now sheer fantasy" (Kepford Testimony, p. 2), proceeded to

compute effects many millions of years into the future assuming that present conditions continue. (Kepford testimony, p. 1, Table 4).

Dr. Gotchy, Staff witness, testifying as to the reasons which make prediction of health effects into the future speculative (Gotchy testimony, pp. 11-13, ff, Tr. 2369, Gotchy Supp. testimony, IV-1-IV-20, ff. Tr. 2425), calculated health effects out to 1000 years (Gotchy testimony, pp. 3-5) and for the period thereafter (out to 10,000 years) compared releases of radon to those from natural background radon releases and concluded they are not significant. (Gotchy testimony, pp. 15-18). In this connection Dr. Gotchy testified that "the potential health effects in any population living now or in the distant and uncertain future as a result of radon-222 emissions from the uranium fuel cycle will always represent an immeasurably small increase in those health effects occurring as a result of background radiation and other naturally occurring and man-made environmental pollutants." (Gotchy, p. 12).

Dr. Hamilton, Applicant's witness, gave testimony as to health effects from radon without regard to time frame. He compared Radon-222 incrementally released from the uranium fuel cycle with natural background Radon-222 and found negligible effects. (Hamilton testimony, Tr. 2275-2277, Hamilton, pp. 1-2, ff. Tr. 2266).

Basically, all parties used the Staff's release rate estimates. (Tr. 2277, Kepford testimony, pp. 2-5, Tr. 2788-2789). The principal difference in testimony as to long-term health effects is that:

- Dr. Hamilton compared the radon released from the fuel cycle with that from natural background and concluded it to be a negligible increase in radon.

- Dr. Kepford summed up the absolute value of computed effects based essentially on present conditions for millions of years into the future, without regard for health effects from naturally occurring radon, and concluded that this absolute value is significant.

- Dr. Gotchy considered an absolute sum of the health effects based on essentially present conditions for a period of 1000 years into the future and thereafter (out to 10,000 years into the future) and compared such releases to natural radon background. Dr. Gotchy concluded that on these bases the effects are not significant.

It is from these three different approaches that the Board made its choice that:

> "Based on the record available to this Board, we find that the best mechanism available to characterize the significance of the radon releases associated with the mining and milling of the nuclear fuel for the Perkins facility is to compare such releases with those associated with natural background. The increase in background associated with Perkins is so small compared with background and so small in comparison with the fluctuations in background, as to be completely undetectable. Under such a circumstance, the impact cannot be significant."

(8 NRC 87 at 100). As noted above, the preponderance of the evidence supports this conclusion.

From an evidentiary standpoint, to which this exception is directed, even if the Staff evidence were considered as limited and bearing upon only a portion of the effects which must be considered, it appears to be

clearly "relevant" in that it tends to prove both (1) the absolute value of the health effects for 1000 years - a fact of consequence in determining the effects for periods which include the first 1000 years; and (2) the long-term population doses out to 10,000 years - a fact of consequence in determining the health effects for periods which include the first 10,000 years. Similarly, Dr. Hamilton's testimony, relating to the health significance of exposures which are extremely small fractions of natural background radiation provides facts of consequence in attempting to assess health effects resulting from such exposure.

Such evidence is relevant; see, for example, as a reasonable articulation of "relevant evidence," Rule 401 of the Federal Rules of Evidence:

> "'Relevant evidence' means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence."

Admission of such evidence is not error. (cf. 10 CFR 2.743(c)). Intervenors' allegation of error is without merit.

III.

THE LICENSING BOARD DID NOT ERR
IN REFUSING TO ADMIT CERTAIN EXHIBITS
AND TESTIMONY OFFERED BY INTERVENORS

Intervenors assert that the Licensing Board improperly refused to admit into evidence five exhibits (A, D, E, F and G).[3/] The exhibits were refused on the grounds that no foundation had been laid for their admission. (Order dated June 29, 1978).

The record is clear that Dr. Kepford's background (Tr. 2674-2710) was not sufficient in fields of health physics, biological effects of radiation or in medicine to sponsor or "vouch for" the truth and accuracy of the information contained in these documents. Intervenors offer no other person qualified to sponsor these documents. In fact, exhibit E was brought up initially during cross-examination of qualified Staff and Applicant witnesses and was not accepted as an authoritative work of probative value. Dr. Hamilton, Applicant's witness, whose qualifications in these fields are unquestioned, was pointed in his rejection of Mancuso, et al. (exhibit E). See Tr. 2273. Dr. Gotchy, the Staff witness, indicated only familiarity with the work and did not suggest that he accepted it as reliable probative evidence (see Tr. 2460, 2462-2463).

3/ A - Geological Survey Circular 779
D - Reprint from Origins of Human Cancer, entitled "Estimates of the Cancer Risk Due to Nuclear Electric Power Generation."
E - "Radiation Exposures of Hanford Workers Dying from Cancer and Other Causes"
F - Rebuttal Statement of John W. Gofman, May 26, 1978
G - Introduction, "Study of the Lifetime Health and Mortality Experience of Employees of ERDA Contractors," Final Report #13, July 31, 1977

With respect to the excluded testimony, the Board excluded certain portions of Dr. Kepford's testimony as improper "redirect." (Board Order of June 27, 1978, p. 6). This is supported by a search of the record which shows that Dr. Kepford's direct examination terminates on page 2739 of the Transcript of June 8, 1978; and for most of the material following page 2792, one searches in vain for a predicate in any of the cross-examination. Moreover, much of the deleted information would not have been admissible direct examination; e.g., pages 2805-2807 is a reading from the first few pages of a document not admitted into evidence.

The Board did offer Dr. Kepford the opportunity to respond to certain statements made by Staff counsel Scinto. Staff counsel Scinto, during the course of the presentation of Staff testimony, made certain comments in response to a concern voiced by a member of the Licensing Board as to whether there had been a Staff coverup of the discovery of an error in WASH-1248 (Tr. 2513). Mr. Scinto's comments were directed toward the assertion that there had been no deliberate attempt to hide information He conceded that there was perhaps inadequate emphasis given to areas in which there are gaps in available information and inconsistencies in the treatment of various values, some of which were quantified and some not quantified. (Tr. 2513-2517). Mr. Scinto also indicated that once the Staff as a whole was really aware that an error existed in the values in Table S-3, the Staff worked to correct it, and did not go forward with further licensing proceedings until the error was assessed and we could

inform the presiding boards. (Tr. 2524). Dr. Kepford asked for an opportunity to respond to these assertions by Staff counsel and was offered such opportunity either by statements in the nature of comments or by testimony. Dr. Kepford, at his July 8, 1978 deposition, offered certain exhibits (H, I, and J) he asserted were in rebuttal to allegations made by Mr. Scinto. (Tr. 2721). These were accepted for this purpose by the Licensing Board (Order dated June 29, 1978). But in his proffered testimony, Dr. Kepford went far beyond a response to Staff counsel's assertion that there had been no Staff coverup or attempt to hide errors from the Licensing Boards or the Commission. Dr. Kepford launched into a polemic which was directed in the main at attacking the Commission. It accused the Commission of refusing to accept new scientific information, of instituting dogma, of reinstituting the policies of Lysenko, of ignoring information and automatically refuting those who suggest that radiation effects are more severe than those of the preconceived notions of the Commission. These statements go far beyond the response to Staff counsel; they go far beyond redirect; and they have no relevance to the issues before the Board - the health effects of radon released from the uranium fuel cycle.

The excluded documents were not offered simply as evidence that differing views exist, but were offered as proof of the facts asserted (see Tr. 2792-2812). While the Licensing Board could have admitted the documents in question as authentic and accord them no probative weight - on the

the basis of the absence of any witness with adequate qualification to vouch for the truth of the information contained therein or of its application to the captioned proceeding - it is not error to exclude evidence offered without foundation. Intervenors' assertion of error is without merit.

The exhibits proffered are set forth in the transcript of the Deposition of Chauncey Kepford dated June 8, 1978, in accordance with 10 CFR §2.743(e). They may thus be assessed by the Appeal Board to determine their intrinsic probative value and, if any, the significance of such information on the overall conclusions of the Licensing Board with respect to significance of the impacts associated with the release of Radon-222 from the uranium fuel cycle.

IV.

FINDINGS 16, 17, 27, 28, 29, 30, 32, 33 and 36
ARE ADEQUATELY SUPPORTED BY THE EVIDENCE

With respect to finding 16 and findings 27, 28 and 29, these findings on their face recite the evidence upon which they are based. Intervenors' brief does not appear to challenge the accuracy of these references to the record, nor to point to opposing evidence of record nor to areas of cross-examination detracting from the evidence as recited by the Licensing Board. Review of the record will demonstrate there is none.

The brief appears principally to assert that such evidence should not be accorded significant weight, since it deals with or assumes "legal programs which have not yet been put into effect."

Although more direct information concerning reclamation requirements (finding 16) could have come through memoranda of law, two witnesses with familiarity with the uranium mining industry gave evidence concerning their knowledge of requirements affecting such industry. However, even if there were memoranda of law concerning reclamation requirements, these could only state the present requirements. As the Board notes in finding 17, some speculation is required in forecasting the nature of requirements to be imposed on mining activities over a future period during which mining for Perkins fuel takes place and thereafter.

Finding 17 represents a reasonable, in fact conservative, assessment of the evidence described in finding 16 that there are reclamation requirements. It does not accord such evidence full weight - i.e., the Board

does not conclude that all mines will be reclaimed immediately upon cessation of operations. However, it accords it limited weight based on the Board's assessment in light of its own experience. This we believe is a proper weighing of evidence. Moreover, the Board goes on to consider whether an error in its assessment would result in a serious health effects impact, and concludes that it does not. This is exactly the point at issue in the reopened proceeding - the impacts from radon released from mining and milling. Thus, finding 17, even if read in a light most favorable to Intervenors - that the limit described in the first five sentences may be incorrect - still concludes that there is no serious health effects burden on future generations.

Finding 27 is based upon evidence by an NRC licensing official that the NRC has begun imposing mill stabilization requirements as part of the NRC license conditions (commitments in applications for licenses). Finding 28 deals with the NRC's efforts to obtain agreement requirements similar to those described in finding 27. Finding 29 discusses the evidence indicating that there have in fact been problems with mills abandoned in the past. Finding 30 derives directly from the evidence recited in 27, 28 and 29. Findings 31, 32 and 33 deal with the assumptions of the Staff witness Gotchy that soil cover will erode over time and with the assertion by Intervenors that soil cover should not be assumed (reflected in findings 22, 26 and 41).

Again, however, for its ultimate conclusion as to the significance of the point at issue -stabilization or loss of soil cover - the Board assesses the impact in terms of a range of assumptions (findings 48-51). This range includes Dr. Kepford's base which includes 100 ci/yr/AFR from open pit mining and 100 ci/yr/AFR for releases from mill tailings piles without stabilizing soil cover from the very outset (finding 41), and concludes (finding 49) that Dr. Kepford's projection of 500 deaths per 1000 years (about three times higher than Dr. Gotchy's estimate, see finding 41) to be a minimal impact. The Board concludes that the stabilization program (described in challenged findings 27, 28 and 29) and reclamation of open pit mines (discussed in challenged findings 16 and 17) would make impacts 100 times less.

Thus, even though the challenged findings are in fact supported by the record evidence - on this point of whether this evidence warrants estimates of radon release based upon reclamation of open pit mines and on long-term stability of soil cover - the Board decision demonstrates that it does not affect its ultimate conclusion concerning significance of the impacts. The Board assessed the overall health effects impact from a number of standpoints, including that of Intervenors' witnesses (assuming no reclamation of open pit mines and assuming no soil cover stabilization) and concluded that the overall health effects impacts of this basis were minimal (finding 49).

With respect to finding 36, Intervenors' brief asserts that it "is not supported by the record and is contradicted by the evidence offered by Dr. Kepford that the linear hypothesis may be a conservative hypothesis."[4/] Finding 36 in the main recites the evidence of Applicant's witnesses. Thus, the exception is without substance.

The Board conclusions are contained in finding 37. If the exception is intended to apply to finding 37, it is also without merit. Finding 37 is supported by testimony of Lewis and Hamilton (Lewis, p. 4, ff. Tr. 2266, 2271, 2287-2299, 2323-2324, 2327, 2332-2333). Finding 37 does not give weight to the materials asserted by Dr. Kepford to demonstrate a contrary conclusion. This too is consistent with the evidence of record, in which the information is used in cross-examination and not accepted as works of reliable probative value by Staff witness (Tr. 2460-2464, 2468-2474) and are rejected by Applicant's witness (Tr. 2272-2273, 2641-2661). In view of Dr. Kepford's limited qualifications in the areas covered by these materials (see discussion above, p. 10), the weight of evidence concerning whether the linear hypothesis is conservative and is consistent with the Board's finding.

4/ This appears to be a typographical or editorial error. Staff counsel believes that Dr. Kepford's material was intended to demonstrate that the linear hypothesis was not conservative.

CONCLUSION

For the reasons set forth above, the Staff believes that Intervenors' exceptions are without foundation and should be denied.

Respectfully submitted,

Charles A. Barth
Counsel for NRC Staff

Joseph F. Scinto
Deputy Director, Hearing Division

Dated at Bethesda, Maryland
this 13th day of November 1978

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NUCLEAR REGULATORY COMMISSION

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CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF BRIEF IN OPPOSITION TO INTERVENORS' 'BRIEF IN SUPPORT OF EXCEPTIONS AND NOTICE OF APPEAL FROM PARTIAL INITIAL DECISION'" 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 13th day of November, 1978:

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