

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )

PUBLIC SERVICE ELECTRIC & )  
GAS COMPANY )

(Salem Nuclear Generating )  
Station, Unit No. 1) )

Docket No. 50-272  
Proposed Issuance of Amendment  
to Facility Operating License  
No. DPR-70

NRC STAFF OBJECTIONS TO PROPOSED TESTIMONY  
OF TOWNSHIP OF LOWER ALLOWAYS CREEK

In an Amended Notice of Evidentiary Hearing dated March 21, 1980 (45 Fed. Reg. 20597), the Licensing Board set the hearing to begin on April 28, 1980, ordered that testimony should be filed on or before April 10, 1980 and ordered that objections to such testimony should be filed on or before April 21, 1980. The Staff objects to the testimony filed by the Township of Lower Alloways Creek. Part was written by Dr. Richard E. Webb and part by Dr. David B. Fankhauser.

I. OBJECTIONS TO TESTIMONY OF DR. RICHARD E. WEBB

The Staff objects to Dr. Webb's testimony in its entirety on the grounds that:

- 1) the original February 27, 1979 testimony, as well as parts I and II of the supplement to that testimony all consider a class 9 accident; and
- 2) the testimony is not responsive and, therefore, irrelevant to the Board's question.

The Staff further objects to portions of Dr. Webb's testimony on the grounds that:

- 1) portions of the testimony are irrelevant to the issue presently before the Board;

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- 2) portions of the testimony are beyond the scope of the matters encompassed by Dr. Webb's professional qualifications; and
- 3) portions of this testimony are speculative and without foundation.

A. The Staff Objects to Dr. Webb's Testimony in its Entirety Since it is Totally Concerned with a Class 9 Accident.

On April 18, 1979, this Board posed a question to which the Staff objected on the grounds that the question called for consideration of a Class 9 accident. The Board in its February 22, 1980 Order ruling on the Staff's objection clarified its question by restating it as follows:

In the event of a gross loss of water from the spent fuel storage pool at Salem 1, what would be the difference in consequences between those occasioned by the pool with the expanded storage proposed by the Licensee and those occasioned by the present pool?

The Licensee filed a Motion for Directed Certification and for a Stay with the Appeal Board, stating that this question was an impermissible attempt by the Licensing Board to consider a Class 9 accident. See Licensee's Motion For a Directed Certification and For a Stay, dated March 3, 1980 at 2. The Staff took the position in response to Licensee's Motion that certification was premature, since it was not clear from the Board's question that it was prepared to consider a Class 9 accident. NRC Staff Opposition to Licensee's Motion for a Directed Certification and for a Stay, dated March 13, 1980 at 1. The Appeal Board in Public Service Electric and Gas Company (Salem Nuclear Generating Station, Unit 1), ALAB-588, \_\_\_NRC\_\_\_ (April 1, 1980) essentially agreed with the Staff's position. In its decision the Appeal Board stated in footnote 7 at 6:

We are uncertain about precisely what "accident" the Licensing Board had in mind, whether it be the postulated "gross loss" of pool water, the underlying events (such as an explosion or meltdown) that might somehow lead to that loss of pool water, a sequence of events similar to that which occurred at TMI, a Class 9 accident, or some other accident. For this reason, we hesitate to preclude further inquiry into what may be a proper subject for the Board's consideration.

The Appeal Board further observed that "it is now settled that the Commission has reserved for itself the right to decide whether the consequences of Class 9 accidents at land-based reactors are to be considered in any given case."

ALAB-588, slip op. at 9.

This Appeal Board decision follows the Commission decision in the case of Public Service Company of Oklahoma (Black Fox Station, Units 1 and 2), CLI-80-8, 11 NRC \_\_\_\_ (March 21, 1980). In Black Fox, the Commission reversed a decision by the Appeal Board ordering the Staff to present to the Commission a determination as to whether Class 9 accidents needed to be considered in that case. Id. slip op. at 1-2. In that opinion the Commission reserved the issues surrounding consideration of Class 9 accidents to itself. Id. slip op. at 2. The Appeal Board followed the Commission's wishes in this matter in the remanded Black Fox proceeding. Salem presented a somewhat different situation to the Appeal Board since it was not clear in the Licensing Board Order that what was being considered was a Class 9 accident.

The testimony presented by Dr. Webb all flows from the assumption that a severe reactor accident will occur causing large releases of radioactivity into the atmosphere surrounding the facility, thus causing abandonment of that facility. He further assumes that the spent fuel pool cooling systems will fail for want of maintenance, and that the water will all boil away. Testimony of R. E. Webb, February 27, 1979, at 20. See also Webb Supplement Part I at 5 (March 19, 1980). He presents no mechanism whereby all of these events would occur. He makes no reference to the likelihood of occurrence

of this series of hypothesized events. The Staff in its testimony states that it can determine no credible mechanism which would cause a loss of water from the pool which would result in any substantial off-site dose consequences. Staff testimony at 1. Evidently, since he makes no mention of a mechanism for such a loss relating to the spent fuel pool in and of itself, neither can Dr. Webb.

If the Board adopts the Staff's view that the accident being discussed at this evidentiary hearing is a Class 9 accident, then further consideration of that accident by the Board must be in accordance with the guidance set forth in the Appeal Board's decision in ALAB-588. Therefore, testimony addressing a Class 9 accident may not be allowed into the record of this proceeding absent a specific direction from the Commission that this accident should be considered. See ALAB-588 at 9. Since Dr. Webb's testimony in its entirety addresses such a Class 9 accident, it is objectionable and should not be admitted in the record of this proceeding.

B. The Staff Objects to Dr. Webb's Testimony in its  
Entirety as Nonresponsive to the Board's Question.

The Board in its Order of February 22, 1980, asked the parties to provide information as to the difference in consequences of a gross loss of water accident in the existing and expanded pool. Board Order at 18. Dr. Webb's testimony speaks only of what would happen following a gross loss of water in an expanded pool. He is unsure whether the same things would follow from a loss of water in the existing pool. Webb's Testimony at 48. Since he is unable to say whether the loss of water would initiate the same series of events leading to a fission product release or not, his testimony does not provide

the information in which the Board is interested. Therefore, this testimony is objectionable and should not be admitted into the record of this proceeding.

- C. The Staff Further Objects to that Portion of Dr. Webb's 1980 Supplemental Testimony, page 5, lines 15-20; page 6 lines 1-2; pages 36-47, and the Calculations and Appendices Referenced Therein on the Grounds that the Subjects of Dose Calculation and Health Effects are Beyond Dr. Webb's Stated Expertise.

Dr. Webb states in his professional qualifications attached to the February 27, 1979 testimony that his area of expertise is physics, nuclear reaction, and engineering. The contents of the above-mentioned pages of Dr. Webb's testimony are necessarily based on assumptions concerning meteorological transport mechanisms. Dr. Webb's professional qualifications do not indicate any expertise in meteorology. He freely admits that the statements made in his testimony with regard to the relationship between leukemia and bone cancer are "just non-scientific, un-expert, layman thoughts." Webb's testimony at 38. This portion of his testimony is objectionable and should not, therefore, be admitted in the record of this proceeding.

- D. The Staff Further Objects to that Portion of Dr. Webb's Testimony Entitled "Site Radiation Levels Following a Reactor Accident", pages 5-8, and the Calculations and Appendices Referenced Therein on the Grounds that They are not Relevant to the Issues Before this Board.
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The section of Dr. Webb's testimony, entitled "Site Radiation Levels Following a Reactor Accident," talks vaguely about a severe reactor accident and the contamination which would result from such an accident. This section contains a discussion of how much of the core inventory could be expected to be released as a result of such a severe accident, and a discussion of the possibility of a severe reactor accident in the second reactor in the Salem station due to economic pressure to operate that reactor. None of this discussion is relevant to the question of the difference in consequences of a loss of water in the spent fuel pool between the existing and expanded pool. In addition, this Section is an impermissible discussion of a Class 9 accident. See Section I.A., supra.

- E. The Staff Objects to Sections 1(a-d) and 1(f) of Dr. Webb's 1979 Testimony as Irrelevant.
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Section 1 is a general statement of Dr. Webb's contentions with respect to the adequacy of the Licensee and Staff accident analyses. In Section 1(f), Dr. Webb questions the use of probabilistic analyses to compute the risk of occurrence of a severe nuclear accident. Section 1(a-d) and 1(f) have no relationship to the subject of this proceeding--a discussion of the difference in consequences of a loss-of-water accident in the present and expanded pool. Due to their lack of relevance, Section 1(a-d) and 1(f) should not be admitted into the record of this proceeding.

F. The Staff Objects to Section 3 of Dr. Webb's 1979 Testimony on the Ground that it is a Discussion of Matters Beyond his Stated Expertise.

Section 3 of Dr. Webb's February 27, 1979 testimony contains a discussion of possible Strontium-90 and Cesium-137 releases as a result of a spent fuel pool accident and their effects on the surrounding environment. As stated in Section I.C., supra, there is no indication in Dr. Webb's professional qualifications that he is trained in relevant areas. Therefore, Section 3 is beyond his expertise and should not be admitted into the record of this proceeding.

G. The Staff Further Objects to Sections 4, 5(c) and 5(d) of Dr. Webb's 1979 Testimony as Speculative and Without Foundation.

Sections 4, 5(c) and 5(d) of Dr. Webb's February 27, 1979 testimony contain a general discussion of possible types of accidents which could cause a loss of water in the spent fuel pool. He mentions acts of sabotage, war, negligence and abandonment due to a severe reactor accident. He gives no further clarification of the mechanisms which would cause such accidents. He never mentions any sequence of events resulting from such accidents. These Sections involve mere speculation on his part. In addition, it should be noted that consideration of sabotage in this proceeding was prohibited by the Board in its Memorandum and Order of April 26, 1978 at 4. Due to the speculative nature of these Sections, they should not be admitted into the record of this proceeding.

- H. Sections 5(b) and 6(a) and (b) are Objectionable on the Ground that they are Irrelevant to the Issue Before this Board, and the Staff Further Objects to Section 6(c) as Speculative.

Sections 5(b) and 6(a) and (b) refer to a specific type of accident and the inadequacy of the criticality analyses of the Licensee and Staff. The adequacy of these analyses was previously litigated. The Board has not directed any reconsideration of them. Therefore, these Sections are irrelevant and should not be admitted into the record in this proceeding. Section 6(c) is devoted to a brief, rather vague, discussion of what would happen to plutonium if the fuel were to melt. The author's point seems to be that such a thing is conceivable, though he provides no foundation for this conclusion. Due to the speculative nature of this Section, it is objectionable and should not be admitted into the record of this proceeding.

- I. The Staff Further Objects to Sections 7(c) and 7(f) and Section 8 of Dr. Webb's 1979 Testimony as Irrelevant to the Issue Before This Board.

Section 7(e) discusses what Dr. Webb considers to be the weaknesses of using a probabilistic analysis for risk assessment purposes, and sets forth his opinion of what an accident analysis should contain. Section 7(f) enumerates concerns relating to the inadequacy of the several NRC approaches to reactor design evaluation. None of the concerns expressed in this Section are relevant to the issue of the difference in consequences of a loss-of-water accident in the present and expanded pool. Section 8 discusses the creation of a permanent spent fuel storage repository at Salem. This has nothing to do with the narrow issues presently before the Board and, in fact, is beyond the scope of this entire proceeding. Due to the lack of relevance of these Sections, they should not be admitted into the record in this proceeding.

II. OBJECTIONS TO TESTIMONY OF DR. DAVID B. FANKHAUSER

- A. The Staff Objects to Dr. Fankhauser's Testimony in its Entirety Because it is Premised on the Testimony of Dr. Richard E. Webb.

Dr. Fankhauser's testimony is premised on the testimony of Dr. Richard E. Webb (Fankhauser, p. 1) which is objectionable for all the reasons set forth in Section I above.

- B. The Staff Further Objects to Dr. Fankhauser's Testimony in its Entirety Because it is Not Responsive to the Board's Question.

Dr. Fankhauser's testimony is not responsive to the Board's question. The Board question set out in the February 22, 1980 Order required that the parties address the difference in consequences for the postulated accident in the existing pool and in the expanded pool. Dr. Fankhauser's testimony discusses the health effects of "a zirconium fire in the Salem spent fuel pool following a gross loss of cooling water" (Fankhauser, p. 1). At no time does Dr. Fankhauser even attempt to respond to the Board's question concerning the difference in consequences between the two postulated accidents.

- C. The Staff Further Objects to that Portion of Dr. Fankhauser's Testimony Entitled "III. Biological Significance of Strontium, Iodine and Cesium" (pp. 2-4).

This portion of Dr. Fankhauser's testimony appears to be a scholastic discourse on the named isotopes which has no relevance to, nor probative value with respect to, the Board's question. The point of that portion of Dr. Fankhauser's testimony seems to be that there may be some differences in the way those isotopes effect a human.

D. The Staff Further Objects to that Portion of Dr. Fankhauser's Testimony Entitled "IV. Radiological Scope of Salem Spent Fuel Accident" (pp. 4-5).

The Staff objects to the statement concerning the number of curies released at Hiroshima and the comparison of that number to Dr. Webb's conclusions with respect to Salem as having no relevance to this proceeding. The Staff objects to the statement in the second through the eighth line at the top of page five. The testimony purports to show the path of the Chinese weapons test fallout in October 1976 and states that Salem releases "could easily" strike major population centers if those releases were dispersed in a manner similar to the path of the Chinese weapons test fallout. There is no evidence offered that, if there were "Salem releases," they would follow the path which is alleged to be the path of the Chinese weapons test fallout.

E. The Staff Further Objects to that Portion of Dr. Fankhauser's Testimony Entitled "Dose Attendant to Spent Fuel Fire" (pp. 5-6) and to Table 5.

Dr. Fankhauser first presents some dose calculations from Dr. Webb's testimony and then states that he made some independent calculations and the results of the calculations are summarized in Table 5. Table 5 is entitled "Dose and Carcinogenic Effects of Cesium 137 Released from Salem Spent Fuel Accident in Selected Metropolitan Areas" (including such information as total cancers induced in 30 years) with no explanation as to steps necessary to arrive at his conclusions based on the scant information he sets forth in his testimony.

- F. The Staff Further Objects to that Portion of Dr. Fankhauser's Testimony Entitled "VI. Spectrum of Dose Related Health Effects" (pp. 6-11).

This is another scholastic discourse totally unrelated to the Salem proceeding and unrelated to the Board's question.

- G. The Staff Further Objects to that Portion of Dr. Fankhauser's Testimony Entitled "VII. Projected Population Dose-Effects" (pp. 12-13).

Dr. Fankhauser's conclusions here are premised by Dr. Webb's proposed testimony and on testimony filed by Dr. Fankhauser to which the Staff objected.

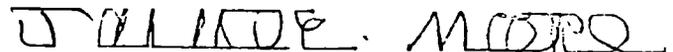
- H. The Staff Further Objects to Tables 1, 2, 3, and 4.

Tables 1, 2, 3, and 4 purport to present general information about health effects which have no apparent relevance to the Board question.

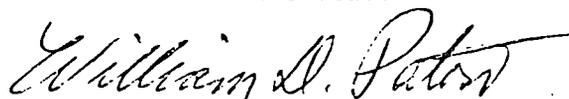
CONCLUSION

For the reasons stated above, the Staff concludes that the entire testimony of Dr. Webb and the entire testimony of Dr. Fankhauser are objectionable and, therefore, should not be admitted into the record of this proceeding.

Respectfully submitted,



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Dated at Bethesda, Maryland  
this 21st day of April, 1980.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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PUBLIC SERVICE ELECTRIC &	)	Proposed Issuance of Amendment
GAS COMPANY	)	to Facility Operating License
(Salem Nuclear Generating	)	No. DPR-70
Station, Unit No. 1)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of NRC STAFF OBJECTIONS TO PROPOSED TESTIMONY OF TOWNSHIP OF LOWER ALLOWAYS CREEK, 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 21st day of April, 1980.

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