

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 RESPONSE TO  
INTERVENORS COLEMANS' SUPPLEMENTAL ARGUMENT IN  
SUPPORT OF MOTION FOR RECONSIDERATION OF  
DISMISSAL OF COLEMANS' CONTENTION NUMBER THIRTEEN

The Staff of the Nuclear Regulatory Commission (Staff) hereby responds to the supplemental argument of Intervenor Coleman in support of their motion for reconsideration of dismissal of Colemans' Contention No. 13. For the reasons set forth below, this supplemental argument should be rejected by the Atomic Safety and Licensing Board (Board) on the grounds that: 1) it is inapplicable to the contention it purports to address; 2) it is untimely; and 3) it is wholly without merit.

BACKGROUND

On August 2, 1979, Intervenor Coleman filed a Motion For Reconsideration of Dismissal of Colemans' Contention No. Thirteen. This contention was dismissed by the Board in its Order ruling on Licensee's Motion for Summary Disposition dated April 30, 1979. Responses to this Motion for Reconsideration were filed on August 22, 1979 by the Staff and on August 31, 1979 by the Licensee.

In its response to Intervenor's Motion for Reconsideration, the Staff argued that the Intervenor's arguments in support of their motion were inapplicable to Contention No. 13, that the Board's denial of Intervenor Coleman's argument that 10 C.F.R. Part 20 of the Commission's regulations imposes an obligation on the Staff to choose the alternative which results in least exposure to workers was entirely proper; and that Intervenor presented no new information requiring reconsideration of the Board's Order dismissing Contention No. 13. This supplemental argument raises no new questions which would in any way cause the Staff to change the position it took in its response to the original motion for reconsideration, and therefore the Staff will not reiterate in detail the arguments made at that time.

#### ARGUMENT

##### A. Intervenor Coleman's Supplemental Argument Has Nothing Whatsoever To Do With Contention No. 13.

Coleman's Contention No. 13 states as follows:

The licensee has failed to give adequate consideration to the cumulative impacts of expanding spent fuel storage at Salem Nuclear Generating Station Unit 1 in association with the recently filed proposed amendment to the application for an operating license at the sister unit, Salem Unit 2. (See Amendment No. 42, Docket No. 50-311, filed April 12, 1978 which proposes modifications of spent fuel storage which the intervenor believes are similar in scope to the Salem Unit 1 application.) For example, the license assumes an increase in releases of Kr-85 by a factor of 4.5--due to the factor of 4.5 increase in spent fuel (licensee's application, at 10). A similar increase, absent exceptional controls, can be expected at Salem No. 2, resulting in a cumulative increase in Kr-85 emissions by a factor of 9--almost a full order of magnitude increase. (If similar spent fuel increases are postulated for the companion units, Hope Creek 1 and 2, now under construction, the cumulative increase could rise by a factor of 18, or almost two full orders of magnitude.)

The substance of Intervenor's argument, insofar as it can be discerned from the October 30, 1979 pleading, seems to be that a conclusion which they claim the Staff reached in March of 1979 concerning the unacceptability of transshipment of spent fuel between Salem Unit 1 and Salem Unit 2 as an alternative should be re-examined. Intervenor's make no attempt to show how this argument, clearly mentioning alternatives, in any way relates to a contention regarding the cumulative impact of the proposed action. As stated above this argument has been made previously by the Staff and will not be reiterated at great length here.

B. Intervenor's Coleman's Supplemental Argument Is Untimely.

Intervenor's are now challenging what they claim is a Staff conclusion reached in March of 1979. In fact any statements made in the NRC Staff's Response To Licensee's Memorandum in Support of its Motion for Summary Disposition (NRC Staff Response) are found in the first instance in the Environmental Impact Appraisal issued for this proposed license amendment dated January 15, 1979. The information Intervenor's now bring forward in order to urge that this "Staff conclusion" be re-examined is information which was presented by the Licensee at the hearings which took place on July 10-11, 1979--namely, the "greatly reduced fuel burnup" at Salem Unit 1. All parties were given an opportunity to cross-examine Staff's and Licensee's witnesses concerning the ramifications of such information. Since this information was available to Intervenor's at the time they made their original Motion for Reconsideration, it should have been raised at that time and not some two to three months later.

C. Intervenors Colemans' Supplemental Argument Is Wholly Without Merit.

The most important point to be noted concerning this "supplemental argument" is that the factual basis for it is inaccurate. Intervenors claim that the Staff concluded in March of 1979 that transshipment between Salem Unit 1 and Salem Unit 2 was an unacceptable alternative. Supplemental Argument at 3. They refer the Board and parties to pp. 4 and 5 of a response filed by the Staff on March 30, 1979, to Licensee's Memorandum in Support of Its Motion for Summary Disposition. However, when one reads what the memorandum actually says, one finds that the Staff never reached the conclusion the Intervenors have attributed to it. In fact the conclusion reached by the Staff both in this memorandum, and in the Environmental Impact Appraisal relating to the modification of the spent fuel pools is that the transshipment of spent fuel from Unit 1 to the enlarged pool at Unit 2 would be an acceptable alternative, although it would have greater impacts than those associated with the proposed license amendment. NRC Staff Response at 4, Environmental Impact Appraisal at 17. The statements found in these two documents directly contradict the characterization of the Staff's conclusion made by Intervenors in their "supplemental argument".

This is but one of the many factual errors with which this supplemental argument is riddled. Intervenors seem to point to an alleged disparity between the estimates of occupational doses to be received from reracking at the Oconee spent fuel pool and the dose estimates for the reracking at Salem, as a basis for their argument that the issue of transshipment should

be re-examined. They fail to make any showing, however, of the relevance of the reracking of a spent fuel pool which serves two units and contains 140 spent fuel assemblies to the reracking of a pool which serves only one unit and contains only 44 spent fuel assemblies. What they fail to point out is that the estimate given on page 53 of the Environmental Impact Appraisal Related to Spent Fuel Storage of Oconee Spent Fuel at McGuire Nuclear Station Unit 1 Spent Fuel Pool, which is attached to their pleading as Exhibit 1, was the licensee's estimate made at some very early stage of Duke Power's application. They also fail to inform the Board that by the time the Oconee-McGuire transshipment case went to hearing in August of 1979, licensee's estimate had been reduced to 76 manrems, and that the Staff testified that this was a conservative estimate. Staff Testimony of Dr. John V. Nehemias at 2. See Attachment A.

The Staff made its own estimates of the doses which could reasonably be expected as a result of the Oconee spent fuel reracking. This estimate is found in a part of Intervenor's Exhibit 2 which Intervenor's counsel neglected to attach to the supplemental argument. The entire document in question is attached to this response. See Attachment B. Paragraph 4 of this document states: "...It seems reasonable to assume that the likely occupational radiation exposure from the reracking operation at Oconee would be in the range of 20-30 man-rems." It should also be noted that in question 2 found in that same document, the author refers to the experience with other one-time spent fuel pool modifications when he states: "...such re-racking operations have caused an average of about 5 man-rems to the workers involved...." This document can, therefore, in no way be said to support the existence of a disparity of estimates which would cast doubt upon the information in the record of the Salem proceeding. Intervenor's use

Dr. Nehemias' memorandum to support the proposition that the transshipment from Ocone to McGuire would constitute compliance with ALARA, while reracking of the Ocone spent fuel pool would not. The page of this memorandum which Intervenor's counsel attached to his pleading makes no such statement. The only reference made by Dr. Nehemias to ALARA is in question 11 which states: "We conclude that the exposures likely to result from the transshipment of Ocone spent fuel to McGuire, as described by the application, would be ALARA." Memorandum at 3. This statement cannot be read by any stretch of the imagination to support the proposition for which it has been incorporated into Intervenor's pleading. The existence of such gross factual inaccuracies must lead to the conclusion that the basis with which Intervenor attempts to bolster their supplemental argument is totally invalid.

CONCLUSION

For the reasons set forth above, Intervenor's Supplemental Argument in Support of Their Motion For Reconsideration of Dismissal of Coleman's Contention Number Thirteen should be rejected as inapplicable to the contention which it purports to address, untimely, and wholly without merit.

Respectfully submitted,



Barry H. Smith  
Counsel for NRC Staff



Janice E. Moore  
Counsel for NRC Staff

Dated at Bethesda, Maryland  
this 19th day of November, 1979.

1. I am a Senior Health Physicist in the Division of Site Safety and Environmental Analysis, U.S. Nuclear Regulatory Commission (NRC).
2. I have prepared a statement of professional qualifications which is attached to this affidavit.
3. This affidavit addresses in part, Natural Resources Defence Council Contention 4(a).

Contention 4(a): ALARA can be achieved by on-site expansion of spent fuel pool storage capacity at Oconee, including building another spent fuel pool.

This contention addresses the fact that the proposed transshipment of Oconee spent nuclear fuel to McGuire Nuclear Station for storage will involve some radiation exposure to the public and to workers involved in the transshipment. Intervenor's point is that these radiation exposures could be entirely eliminated by simply expanding the spent fuel storage capacity at Oconee, either by re-racking the present spent fuel pool to permit storage of a larger number of fuel elements, or by building another spent fuel pool at Oconee.

We understand that re-racking the present spent fuel pool at Oconee would provide only enough additional fuel storage capacity to accommodate about two years' supply of spent fuel. At or before that time, additional spent fuel storage capacity would be required, either by building another spent fuel pool at Oconee, or by transshipping the spent fuel, utilizing available space at McGuire.

(a) Re-racking the present Oconee spent fuel pool

Two prior fuel pool modifications have occurred involving underwater use of divers. Total occupational radiation exposures were 18 man-rem at GINNA and less than 3 man-rem at Zion.



Duke Power has estimated, we believe conservatively, that occupational doses during modification of the spent fuel pool at Oconee would be 76 man-rem. Based on experience with similar modifications at other plants, we would expect that actual doses may be somewhat lower. In addition, subsequent operation of the pool would involve about 18.6 man-rem per year. Estimated doses would be about the same for re-racking the Oconee pool with poison racks.

The Applicant has taken appropriate actions to assure that occupational radiation exposures will be as low as is reasonably achievable, including:

- . using the spent fuel pool cooling system filters and demineralizers to clean up pool water at their available capacity;
- . transferring identified leaking spent fuel assemblies to the Unit 3 spent fuel pool;
- . removing extraneous tools, components, and testing equipment from the pool or providing shielding;
- . vacuuming the pool floor and other underwater surfaces likely to be contaminated with radioactive materials before work begins;

- . using low exposure areas for waiting and travel paths to the extent feasible.

The Staff concludes that occupational radiation exposures resulting from the proposed spent fuel pool re-racking at Oconee will be ALARA.

(b) Transshipment of Oconee spent fuel to McGuire

The radiation doses to public resulting from the transshipment to McGuire are estimated in the Environmental Impact Appraisal to be 0.1 man-rem. This relatively minor portion of the total dose could be eliminated by construction of a new spent fuel pool at Oconee.

The principal radiation dose resulting from this transshipment, however, would be delivered to workers. Duke Power has estimated that drivers would receive about 16.6 man-rem during 300 shipments. Occupational doses resulting from activities related to transfer of the spent fuel into a shipping cask, movement of the cask from the spent fuel pool to the new location, and transfer from the shipping cask to the new storage facility are estimated to be about 30 man-rem. Except for possible differences in the distances to be shipped, estimated doses would be about the

same for shipment to other undetermined sites. In addition, subsequent operation of the pool would involve about 9.3 man-rem per year.

The applicant has taken appropriate actions to assure that occupational radiation exposures will be as low as is reasonably achievable, including:

- . retention at Oconee of any fuel element known to be leaking;
- . storage of fuel for a minimum of 270 days at Oconee prior to shipment;
- . routine treatment of pool water at Oconee by operation of fuel pool purification equipment, to reduce concentrations of radioactive materials in the water being transshipped.

The Staff concludes that occupational radiation exposures resulting from the proposed transshipment of Oconee spent fuel to McGuire will be ALARA.

(c) Construction of a new spent fuel pool at Oconee

The actual activities involved in construction of a new spent fuel pool at Oconee would not involve any radiation exposure to the public, or to the personnel involved. However, when the new spent fuel pool has been constructed, as in the case of transshipment to McGuire, fuel transfer

would still be required. The spent fuel would have to be transferred, one fuel assembly at a time, from the existing spent fuel pool into a shipping cask, moved in the cask from the spent fuel pool to the new location, and transferred from the shipping cask to the new storage facility. These activities will involve radiation exposures to the personnel taking part in the transfers. Duke Power has estimated the doses resulting from these activities to be about 30 man-rem per year. In addition, subsequent operation of the pool would involve about 9.3 man-rem per year.

The total man-rem doses projected to result from the three actions being considered would be in the same general dose range over a period of years. Therefore, because of the inexact nature of the estimating process, there would be no basis for concluding that any of the three is clearly to be preferred from the point of view of radiation risk, nor that any significant dose saving would be expected to result from the selection of any one of the three. See attached table.

We conclude that the exposures likely to result from the transshipment of Oconee spent fuel to McGuire or from re-racking the pool at Oconee, as described by the applicant, would be ALARA. Each aspect of the proposed actions have been considered from the point of view of keeping radiation exposures ALARA, eliminating unnecessary exposures, and taking all reasonable precautions to reduce exposures. Similarly,

if the applicant proposes in the future to construct a new spent fuel storage facility at Oconee, we will review any such application with regard to ALARA considerations.

While the NRC has not issued specific guidance related to ALARA considerations involved with fuel storage or transfer, we have issued Regulatory Guides 8.8, "Information Relevant to Ensuring That Occupational Radiation Exposures at Nuclear Power Stations Will Be As Low As is Reasonably Achievable," and 8.10, "Operating Philosophy for Maintaining Occupational Radiation Exposures As Low As Is Reasonably Achievable." These guides spell out our ALARA philosophy and describe the ALARA approach to reduction of exposures. These considerations have been applied in our review of the applicant's proposals regarding spent fuel transfer and storage at Oconee and McGuire.

I hereby certify that the above statements are true and correct to the best of my knowledge and belief.

\_\_\_\_\_  
John V. Nehemias

Subscribed and sworn to  
before me this      day of  
May, 1979.

\_\_\_\_\_  
Notary Public  
My commission expires \_\_\_\_\_.

In the Matter of  
Duke Power Company  
(Amendment to Materials  
License SNM-1173 for Oconee  
Nuclear Station Spent Fuel  
Transportation and Storage  
at McGuire Nuclear Station)

TRANSCRIPT CORRECTIONS TO  
TESTIMONY OF DR. JOHN V. NEHEMIAS

The following changes were made to this testimony at the time of the Oconee hearing on June 28, 1979 and can be found on Tr. 2471-2475:

1. Title has been changed from "Affidavit of Dr. John V. Nehemias" to "Testimony of Dr. John V. Nehemias".
2. The first unnumbered page was deleted. \*/
3. The first two paragraphs under contention 4(a) were deleted. \*/
4. The first sentence under (b) on page 3 was changed to read as follows:

"The radiation doses to the 42,000 members of the public within one-half mile of the transshipment route, resulting from the transshipment to McGuire are estimated in the Environmental Impact Appraisal to be 0.1 man-rem."

5. In the second sentence of the second paragraph under (b) on page 3, the number "16.6" was changed to "15.6".
6. In the first full paragraph on page 6, a typographical error was changed to read "regarding" instead of "ragarding".
7. The certificate of affiant on page 6 has been deleted.

\*/ These deletions were made for reasons not relevant to the Salem proceeding.