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Howard J. Larson
Vice President

September 15, 1980

Mr. G. D. Calkins
Decommissioning Program Manager
Office of Standards Development
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Decommissioning Reevaluation

Dear Mr. Calkins:

As indicated in our letter of February 22, 1980 concerning the subject reevaluation, the AIF Subcommittee on Decommissioning has continued its review of several pertinent NUREG documents. This letter provides general comments on the draft NUREG-0613, "Residual Radioactivity Limits for Decommissioning."

As indicated in the draft NUREG, residual contamination may be in or on structures, equipment, components, and soils. An acceptable residual level for any form of contamination will not be a simply set, predetermined value. Even if such an acceptable value could be established, it is not known if it would provide for a de minimus dose. At the same time, the goal of returning a site to the public for unrestricted use after the cessation of operations is not a simply set, definable goal. In many cases the utility which operates a power reactor may have plans for the reactor site which would not require extremely low residual activity levels in order to be acceptable. The NUREG also clearly points out that whatever limits are finally established must be effectively monitored to demonstrate compliance. With these general goals and ideas in mind, the subcommittee has attempted to comment on the NUREG as it now exists.

The title of the draft NUREG is somewhat misleading. Limits on the amount of reactor-originating radioactivity are not given in the NUREG. An exposure standard must be established before the residual radioactivity limits can be established, and the 5 mrem/year suggested in the NUREG may not be practicable.

The draft NUREG specifically addresses power reactors. The reason is stated on page 2 where it indicates that each type of facility may require separate consideration. Indeed, we believe that each reactor site may require separate consideration so that a utility's planned use of the site can be incorporated into the regulatory review.

The NUREG lacks an authoritative definition of a de minimus dose but does not acknowledge that it may be premature to establish residual activity limits for decommissioning. The two are inseparable and any attempt to improve on Regulatory Guide 1.86 without defining de minimus is futile and possibly counterproductive.

The draft suggests that 5 mrem/year to an individual can be considered as the exposure standard for unrestricted use. We believe that this exposure standard is inappropriate since it cannot be measured for enforcement purposes and does not differentiate among sites at various locations around the United States. We recommend that consideration be given to the approach for an exposure standard used by Adler and Weinberg*. Their one standard deviation from natural background provides a realistic base for an exposure standard and one that is measurable. Another important paper in the area of contamination limits for the release of material from decommissioning activities for reuse is "Criteria for Admissible Residual Activity" by Madame Anne Marie Chapuis presented at the November 1978 IAEA Symposium in Vienna. The paper develops a cost-benefit rationale for such limits that should be of value in developing more realistic and appropriate dose bases for contamination limits.

The draft indicates that realistic pathway conditions must be considered. If realistic pathways are indeed to be considered, then site-to-site differences will occur and restrictive standards are impractical. While we agree with the use of a realistic pathway, we suggest that a specification of direct radiation limits above background is the most realistic way to establish residual radioactivity limits which can be monitored and controlled.

*Adler, Howard I. and Weinberg, Alvin M., "An Approach to Setting Radiation Standards", Health Physics, Vol. 34, pp. 719-720, Pergamon Press Ltd., Great Britain, June 1978.

The draft indicates that residual activity levels would be established for a plant site at a fixed, given exposure limit. It would be most difficult to establish whether or not a decommissioned site is meeting exposure limits unless detailed background radioactivity levels were established prior to the start of construction of a given plant. We believe that this is an important consideration that should be addressed in revised drafts of the NUREG.

Regulatory Guide 1.86 is acknowledged in the draft. However, no indication is given as to any particular deficiencies in the existing Regulatory Guide. Since the external radiation pathway is indicated to be the primary pathway, we believe that Regulatory Guide 1.86 is applicable and provides acceptable criteria for surface contamination levels at decommissioned sites.

The draft NUREG indicates that Oak Ridge National Laboratory is developing monitoring programs for decommissioned sites. We hope that this program will take into account the practical considerations associated with detection limits, exposure pathways, and ultimate use of the utility's property. We would appreciate the opportunity to comment on the program being developed at Oak Ridge.

There are important criteria which need to be developed by NRC that could have a significant impact on the decommissioning of a nuclear facility in addition to limits for unrestricted use of materials. Among the most critical is the subject of a radioactive waste classification system which is important to all phases of the nuclear fuel cycle.

The draft NUREG raises many questions concerning the residual radioactivity limits for the decommissioning of light water reactors. We recognize that history is limited, and therefore experience is limited, with decommissioning. We do believe, however, that the Subcommittee will have detailed comments which can be offered in support of the NRC's reevaluation, and suggest that there be an opportunity for an exchange of ideas in the near future.

Sincerely,

Howard J. Larson

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