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The Honorable Kenneth M. Carr
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Chairman Carr:

SUBJECT: MODIFIED ENFORCEMENT POLICY FOR HOT PARTICLE EXPOSURES
INCORPORATING THE RECOMMENDATIONS OF NCRP REPORT NO. 106

During the 362nd meeting of the Advisory Committee on Reactor Safeguards, June 7-9, 1990, we discussed with the NRC staff its currently proposed enforcement policy (contained in SECY-90-169, Modified Enforcement Policy for Hot Particle Exposures - Revision to Incorporate Recommendations made in NCRP Report No. 106). This proposed policy addresses the use of enforcement discretion in cases involving occupational dose to the skin of radiation workers from exposure to radiation from hot particles. We also had the benefit of the referenced document.

The Committee previously commented on this matter in its report dated May 9, 1989 that presented the results of our review of the staff's originally proposed generic letter and draft interim standard on occupational dose resulting from hot particle exposure. In this report the Committee recommended against the issuance of that generic letter and interim standard on the basis that the letter and standard did not reflect the recommendations of a then-pending National Council on Radiation Protection and Measurements (NCRP) report on this subject. This report had been requested by the staff because of concerns that radiation workers in nuclear power plants were receiving unnecessary whole-body exposure as a result of the measures being used to protect workers against exceeding the existing limits for skin exposure. These limits, which are based on the exposure of large areas of the skin, were recognized to be extremely conservative when applied to hot particle exposure.

The Committee recommended that staff senior management "... take an active role in effecting a timely resolution of remaining outstanding issues with NCRP so that its report may be published." The Committee further recommended that the staff "... then develop on an expedited basis an interim standard based on the NCRP recommendations." or "To the extent the standard differs from the NCRP recommendations, the staff's reasons for such modifications should be clearly and completely documented." In addition, the Committee recommended that "... the staff concurrently move ahead with its planned revision of 10 CFR Part 20 on this subject."

On December 11, 1989, the staff proposed a second modified enforcement policy for hot particle exposures (SECY-89-370, Modified Enforcement Policy for Hot Particle Exposures) because the NCRP report had not been published in final form. In the Commission's March 8, 1990 Staff Requirements Memorandum (SECY-89-370),

the staff was asked to revise this proposed policy to use the recommendation of NCRP as a basis for the policy or provide an alternative approach.

On December 31, 1989, NCRP published its Report No. 106, Limit for Exposure to "Hot Particles" on the Skin, in final form. The report had been subjected to several rounds of comments by the staff, NUMARC, and others before its publication.

We have reviewed the staff's latest modified interim enforcement policy for hot particle exposure based on the recommendations of the NCRP report (Enclosure 2 to SECY-90-169). We find this interim enforcement policy to be an acceptable approach until a new limit can be established by revision of 10 CFR Part 20. We believe that this rulemaking on the hot particle issue should be given high priority by the staff. We continue to be impressed by NCRP's expertise in dealing with complex technical issues such as this and with their expertise in radiation protection matters in general.

During our meeting on June 7-9, 1990, we also discussed a number of the "technical issues" raised in Eric S. Beckjord's letter to Thomas E. Murley (Enclosure 3 to SECY-90-169) with the meeting participants. Based on the comments that were presented during our June meeting, we believe that Mr. Beckjord's letter presented an incomplete view of the current hot particle situation. Some examples are as follows:

1. Mr. Beckjord's letter does not mention the EPRI-sponsored "pig studies" recently completed by Pacific Northwest Laboratory. These studies indicate that the position taken by NCRP is a conservative one with respect to fission product hot particles and an extremely conservative one with respect to cobalt-60 hot particles. These are the two prevalent types of hot particles found in operating nuclear power plants.
2. The NCRP endpoint of "deep ulceration" as a basis for its limit should have been placed in perspective in Mr. Beckjord's letter. We understand that this limit implies, at most, a tiny ulcer that would quickly heal. Such an ulcer, while clinically detectable, would probably not be noticed by the radiation worker.
3. Mr. Beckjord's letter expresses the staff's interpretation of the views of two of five members of the International Commission on Radiation Protection and Measurements (ICRP) Task Group on Skin (Drs. Monty Charles and John Hopewell, two British researchers). The other three members are from the U.S. and were members of the NCRP Scientific Committee that prepared NCRP Report No. 106.
4. Dr. John Hopewell (see 3 above) participated in the EPRI-sponsored meeting on hot particles held in Richland, Washington, last June. Representatives from ACRS and RES also attended this meeting. During the meeting, Dr. Hopewell was asked about the tradeoff he would make between additional whole-body exposure to prevent a given hot particle exposure. His view was that the mission of the ICRP Task Group was to

recommend a limit that would conservatively prevent non-stochastic effects without regard to the whole-body exposure that might be incurred to prevent hot particle exposure. He stated that this kind of tradeoff (which NCRP had made in its recommendations) would be considered by the full ICRP.

5. We were very surprised by the number of "technical issues" contained in Mr. Beckjord's letter, given the extensive dialogue that has occurred between the staff and the NCRP over the past several years on this matter.

The above comments on Mr. Beckjord's letter tend to reinforce the Committee's view stated in its report dated May 9, 1989 that "... staff senior management take an active role in effecting a timely resolution of remaining outstanding issues with NCRP" We believe that it is important that a good working relationship be established and maintained between the staff and the NCRP.

Sincerely,

Carlyle Michelson
Chairman

Reference:

SECY-90-169, Memorandum dated May 11, 1990 for the Commissioners from James M. Taylor, Executive Director for Operations, Subject: Modified Enforcement Policy for Hot Particle Exposures - Revision to Incorporate Recommendations Made in NCRP Report No. 106, with Enclosures (Predecisional)