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RECORD #233

TITLE: Applicability of Regulatory Position 1.3 of Regulatory  
Guide 8.32 to Nuclear Reactor Facilities

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D. C. 20555

February 6, 1991

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FROM: LeMoine J. Cunningham, Chief  
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Division of Radiation Protection  
and Emergency Preparedness  
Office of Nuclear Reactor Regulation

SUBJECT: APPLICABILITY OF REGULATORY POSITION  
1.3 OF REGULATORY GUIDE 8.32 TO NUCLEAR  
REACTOR FACILITIES

The purpose of this memorandum is to respond to a question as to whether or not Regulatory Position 1.3 of Regulatory Guide 8.32, "Criteria for Establishing a Tritium Bioassay Program," applies to nuclear reactor facilities. As discussed below, Regulatory Position 1.3 does apply to nuclear reactor facilities (and other facilities); however, there are a relatively small number of workers, if any, at nuclear reactor facilities who meet the criteria of Regulatory Position 1.3 and, therefore, a relatively small number of workers, if any, at nuclear reactor facilities for which bioassay is recommended as a result of Regulatory Position 1.3.

Table 1 of Regulatory Guide 8.32 has two columns listing quantities of tritium and a third (right-hand) column listing concentrations of tritium in water. Regulatory Position 1.1 refers to the first two (tritium quantity) columns of Table 1 and does not apply to nuclear reactor facilities. Regulatory Position 1.2 refers to the third (tritium concentration) column of Table 1, and, as stated in the position, applies to nuclear reactor facilities; however, nothing in Position 1.2 or elsewhere in the guide indicates that Position 1.2 is the only position that applies to nuclear reactor facilities. Regulatory Positions 1.1 and 1.2 are based on considerations of intakes of tritium, as a gas or vapor, from the air. Regulatory Position 1.3 supplements Positions 1.1 and 1.2 and is based on considerations of intakes of tritium in the form of tritiated liquids that pass through the skin. Regulatory Position 1.3 is applicable to all licensed facilities, including nuclear reactor facilities, for the situation described in that position.

Regulatory Position 1.3 is as follows:

"1.3. Bioassays should also be performed when an employee can come into skin contact with, ingest, or absorb into the body through cuts, abrasions, or accidental (hypodermic) injection, water or any other substance with concentrations of tritium greater than or equal to 0.01 mCi/kg (0.01  $\mu$ Ci/cc) such as may be common in laboratory applications."

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The stipulation "...when an employee can..." should be interpreted reasonably. We understand the intended meaning of this statement to be much nearer to "...when an employee can reasonably be expected to..." than it is to "...when there is even a remote possibility that an employee can...". Thus, there are relatively few workers at nuclear reactor facilities that meet the criteria of Position 1.3 and those that do meet the criteria must be identified by radiation protection professionals, based on considerations of the circumstances of the particular duties of the workers in a particular plant.

Examples of workers who may meet the criteria of Position 1.3 include, but are not necessarily limited to, (1) divers in pools of water with tritium concentrations greater than or equal to 0.01 µCi/cc, and (2) workers who routinely sample, and may be sprayed with, or otherwise come into contact with, water with tritium concentrations greater than or equal to 0.01 µCi/cc.

This position has been coordinated with RES and NMSS.

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