NOTE TO: Document Control
Room 016

FROM: Nancy Lemmas - x 3-5470
Occupational Hlth. Stats Branch

Please place the attached document in the PDR using the following file and file points:

PDR File (Select One)		Related Documents (Enter if appropriate)	
Proposed Rule (PR)	✓	ACRS Minutes No.	
Reg. Guide		Proposed Rule (PR)	
Draft Reg. Guide		Draft Reg. Guide	
Petition (PRM)		Reg. Guide	
Effective Rule (RM)		Petition (PRM)	
		Effective Rule (RM)	
		Federal Register Notice	
		SD Task No.	OH-506-1
		NUREG Report	
		Contract No.	

Subject: Ltr. from F. S. Cauldwell, of Yankee Atomic Electric Co., to P Plato

8007020695

PDR

Telephone 617 366-9011
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YANKEE ATOMIC ELECTRIC COMPANY

20 Turnpike Road Westborough, Massachusetts 01581

April 18, 1980
RDS 34/80

20 45FR18023

Dr. Phillip Plato
University of Michigan
School of Public Health
Ann Arbor, Michigan 48109

Dear Phil:

We appreciate the opportunity to participate in helping prepare the value/impact statement for implementation of the personnel dosimetry testing program. Eric Darois and myself will attend the meeting in Ann Arbor on April 23, 1980. I have included some written comments about the program with this letter in hope that our points are well taken. I am sure, however, that there will be many more comments as a result of the meeting.

Sincerely,

F. S. Cauldwell, Jr.

Frederic S. Cauldwell, Jr.
Supervisor
Radiation Dosimetry Systems

FSC/dmp

Attachments

cc: D. E. McCurdy
R.D.Systems Files

Comments

Criteria for Testing Personnel Dosimetry Performance

Paragraph - 2.4, 2.11, 3.1.1:

YNSD supplies personnel dosimetry that uses an absorber approximately equal to 280mg-cm^2. This absorber thickness was chosen based on the requirements of Instructions for Preparation of NRC Form-5, Item 5. Item 5 stipulates that, unless eye protection is provided for monitored personnel, whole body dose will be that dose delivered through an absorber of 300 mg-cm^{-2}. This requirement makes compliance with the testing program very difficult.

When using our dosimetry configuration for mixed exposures of gamma and Y-90 Beta we have observed significant penetration of the whole body dosimetry by the Y-90 Beta. This penetration is equal to approximately 25% of the delivered Beta dose and has necessitated developing an empirical equation for subtracting this component from the whole body dose. As can be seen, this manipulation of data will add additional error to any reported dose results.

YNSD has no set opinion on what can be done to remedy this situation, but the following are a few suggested directions:

1. Include in the testing program a method that will include the imparted Beta dose (under 300 mg) as part of the whole body exposure,
2. Change the Beta source to one of an energy that will not penetrate to 300 mg,
3. Not require processors to participate in mixed gamma/beta testing but allow them to respond to gamma and beta separately even though they may provide mixed field dosimetry,

Note: The beta spectrum for our users is significantly less than the Y-90 beta energy of 2.2 Mev.

4. Recommend that the Nuclear Regulatory Commission remove this item from their Form-5 instructions.

   Note: This would be in agreement with 1969 amendments to ICRP 9.

5. Allow processors to submit dosimetry configurations for testing that are not those normally supplied to their users.

Paragraph 3.1.13:

This paragrpah is unclear in its wording with regard to who determines which dosimeters will be used for which category. It is common practice for processors to supply dosimetry specifically designed only for neutron monitoring to their customers. This practice necessitates that a processor be allowed to stipulate which dosimetry is to be used for a particular category.

Paragraph 3.3.2 and 3.4:

It would appear to YNSD that the standardization of the neutron source would be highly dependent on the configuration of the neutron facility. We recommend that the neutron source be standardized at the testing facility to eliminate as many problems as possible with dose determination.

Paragraph 3.6.4 (Refer to Appendix C. Paragraph C.2):

YNSD believes that including "it is suggested that the photon contribution ....." in a testing standard is indicative that the actual component is not well known. In order to be properly tested, this photon component should be well defined.

Paragraph 3.7:

YNSD would welcome the opportunity to determine the angularity response of its dosimetry. However, we believe that including such a study into a testing standard is not appropriate. We believe that the testing facility should be available for performing any of the uncertainty tests noted in Appendix D.

General Comments:

1. Administration of Testing Program - YNSD notes that there is no mention of how the testing program will be administered with regard to implementation of the program and certification of processors. It is our opinion that with the number of changes that are taking place, from the original to the new testing program, that a third test be underwritten by the NRC. There should be a well defined appeal/retest section of the test program for helping processors who fail in the test program.

2. Purpose - YNSD has noted from the comments of many people in the industry that they feel the testing program will require them to change their calculation models used for reporting doses. We strongly believe that the testing program should be used as a basis for establishing a standardized testing format but should also specifically state that dosimetry processors need not use the calculational models developed, for responding to the testing program, in supplying results to their users. This is particularly applicable to Beta exposures.