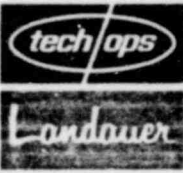


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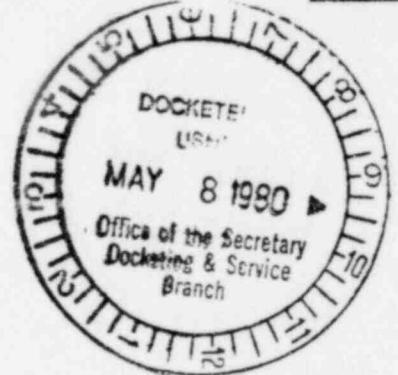
DOCKET NUMBER  
PROPOSED RULE PR-Misc. Reg. Guide



Robert V. Wheeler  
Assistant General Manager  
May 5, 1980

Secretary of the Commission  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Attention; Docketing and Service Branch



Gentlemen:

As a result of our review of the proposed Revision 2 to Regulatory Guide 8.14 "Personnel Neutron Dosimeters" we wish to submit the following comments for consideration in the final document.

While we concur, that in many instances the use of NTA film at nuclear power stations may lead to personnel exposure data that does not represent the actual exposures received by operating personnel, we wish to add caution that the review of this document by personnel not concerned with the immediate problem of power reactors may interpret this document as implying that NTA film is not a cost beneficial choice at other installations where higher energy neutrons are dominant.

Most of the options proposed in the guide for estimate of the neutron exposures are viable ones. Since specific mention of albedo dosimeters is included throughout, it should also be noted, and we recommend its inclusion, that certain solid state track detectors have also been found to be sensitive to energies much less than the 0.7 MeV threshold of NTA film. Specifically, the plastic cast from the monomer allyl diglycol carbonate, trade name CR-39 and marketed by us under trademark NEUTRAK 144, has been found to be a proton recoil sensitive device measuring protons from neutrons with energies as low as 144 KeV. Technical data describing this dosimeter has been presented at a few scientific meetings and a report summarizing the technical specifications has been submitted to the Health Physics Journal, entitled "Proton Recoil Neutron Dosimeter For Personnel Monitoring" by Benton, Oswald, Frank, and Wheeler.

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While this report is still to be published the dosimeter was included as part of the 1979 "Personnel Monitoring Dosimeter Study Incomparision Study" conducted annually at Oak Ridge National Laboratory. The results of this inter-comparision are a part of report ORNL/TM-7155 "Fifth Personnel Intercomparision Study", C. S. Sims, February, 1980. As a result, we believe that the generic dosimeter identification (CR-39) should be included as a viable option for monitoring personnel neutron exposures at nuclear power stations.

Along with this recommendation, and in particular in the employment of albedo dosimetry, it is necessary to underline the need for identification of the neutron spectrum at the facilities of concern prior to the selection of any dosimetry system and for calibration and dose evaluation consistent with that information.

Aside from the general comments above we recommend certain specific clarification to the guide:

Page 2, 1st paragraph states that some neutron dosimeters, with the exception of albedo dosimeters, are less sensitive than most gamma dosimeters. This statement is clearly in error since it ignores the extremely high energy dependence of albedo dosimeters and as the energy of the neutron radiation increases the response of albedo dosimeters decreases very rapidly to the point of being nearly insensitive to higher energy neutrons and much less sensitive than gamma dosimeters.

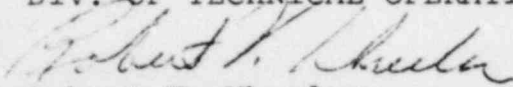
Page 3, 1st paragraph; the constraint that NTA film may be used as dosimeters for other activities involving neutrons if "(3) tracks are counted on a large area of film" is misleading since the normal counting area rarely is larger than one to two square millimeters. The implication in the guide is that large pieces of NTA film are necessary in order to perform neutron dosimetry aside from the other variables. This is not a constraint.

Page 5, 2nd paragraph; we recommend considering for inclusion reference to the proposed ANSI standard N13.11 to clarify testing standards of neutron personnel dosimetry systems.

Page 12 (back cover); the notation "i.e. albedo dosimeters" should be revised to e.g. albedo dosimeters to imply an example rather than a specific recommendation. Since other alternatives are also available, possibly the reference to the albedo concept should be eliminated.

Sincerely,

R. S. LANDAUER, JR. & CO.  
DIV. OF TECHNICAL OPERATIONS, INC.

  
Robert V. Wheeler  
Assistant General Manager