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

Attention: Docketing and Service Branch.

Dear Sirs:

I am the Director of a Radiation Protection Service which includes processing of personnel monitoring dosimeters. I am interested in the proposed rule on certification of personnel dosimetry processors by a standardized type of laboratory.

First, I will describe briefly the basis of my thoughts on personnel monitoring and problems associated with it. My first film badge monitoring of personnel was done in 1926. In the intervening fifty-four years I have served several medical institutions as Radiological Physicist and Radiation Safety Officer. I have retired from teaching and research, but have continued to direct a radiation protection service which was started in 1955.

I shall begin by directing comments on an apparent general agreement among Federal Agencies that a personnel dosimetry problem does exist. But the exact nature of the problem is not so apparent. The measure of radiation exposure by means of personnel dosimetry is acknowledged as an unprecise procedure. Nevertheless, it has served well to help maintain exposure doses within recommended "safe" levels. Also, it has served to help provide adequate protective equipment and has served as a gauge of how well personnel use their equipment.

It has been suggested that dosimetry data could be used as a basis of epidemiological studies of dose-effect relationship. I would question the value of such studies even if calibration errors of the processors are eliminated. Other errors in the recorded dosimetry data would foreclose use of it to develop a meaningful dose-time effect relationship. Other errors in the data are associated with certain inherent characteristics of man. They are therefore difficult to control. Mishandling of dosimeters occurs from careless and indifference of the workers. As a result, significant differences exists between actual dose received by the worker and the dose recorded in his records. Examples of common mishandling of dosimeters are:

a. Dosimeters left at home for a few days.
b. Dosimeters left for unknown time in unprotected area.
c. Intensional exposure of dosimeters by inquisitive worker. (Probably, to test the tester)

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d. Dosimeters worn behind lead apron to avoid unfavorable test report.
e. Dosimeters not worn by the "conscientious objectors".
f. Lost and damaged dosimeters.

Mishandling of dosimeters occur in a significant percent of the tests in each test period and they contribute inaccuracies in the time-dose data of personnel monitoring.

I question the practicality of certification of processors by a standards laboratory. Situations will exist in which the processor reports accurate exposure doses, but fail to pass the performance tests of the standard laboratory. This conflict can occur if the physical factors of dosimeter calibrations used by the processor and by the laboratory are different.

I don't like the term "processor". It implies only physical manipulation of equipment. Monitoring personnel has responsibilities of much wider scope. Radiation monitoring should include inspection of protection facilities and work habits of personnel. It should develop respect, not fear, for the potential danger of ionizing radiations. Such responsibilities belong to the Radiological and/or Health Physicist. But too many workers are left without protection help if those responsibilities are left entirely to physicists.

"Processor" certification is not a practical solution of radiation dosimetry problems. Errors in dose determination would not be reduced sufficiently to warrant use of monitoring data for studies of dose-time effect relationship.

Standardization Laboratory, either private or government, is not the solution. Such a laboratory could result in greator errors in personnel dose measurements and could cause conflicts between processors and laboratory.

At the present time, and until such time that the relationship of low dose-long time exposures to biological effects in man is well established, the personnel dosimetry problem might be helped most by periodic inspection of personnel monitoring establishments with concurrent inspection of facilities and personnel being monitored. This would require a large number of inspectors who are qualified in the mechanics of monitoring and knowledgeable of the work conditions and work habits of persons being monitored. Such a system of inspection might be combined with the present inspection system exercised by the State Radiological Health Services.

Respectfully Submitted,

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