DEPARTMENT OF THE ARMY
HEADQUARTERS US ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND
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US Nuclear Regulatory Commission
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Washington, DC 20555

DOCKET NUMBER
PROPOSED RULE PR 20 (45 FR ~~20493~~ 20493) (47)

Gentlemen:

Reference is made to your advance notice of rule making on certification of personnel dosimetry processors as published in the Federal Register, Vol. 45, No. 62, dated 28 March 1980.

Attached as inclosure are the Army's comments concerning the proposed testing program.

Sincerely,

DARWIN N. TARAS
Chief, Health Physics
DARCOM Safety Office

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as

CF:
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Acknowledged by card: 7-7-80 mwh

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Comments/Suggestions in Response to "Advance Notice of Rulemaking on Certification of Personnel Dosimetry Processors" as published in The Federal Register, Vol 45, No. 62, dated 28 March 1980.

1. While the intended results of the testing program are very honorable, the potential results may be very different. Once a test procedure is formalized, the main objective of processors will be to design a dosimeter and system to pass the test, not to provide a dosimeter which will best measure personnel exposure to ionizing radiation. Once a processor achieves certification status the major incentive to develop better personnel devices and techniques will be gone because he will have the full, unqualified blessing of the NRC on his status quo. In fact, he will be placing himself in extra jeopardy if he attempts to modify his dosimeters.

2. The Standard measures only the performance of a dosimetry device and does not provide any meaningful determination of the accuracy of personnel dose assessment made by the processor. Our experience leads us to believe that the dosimeter which yields the best "score" on the proposed test does not yield the best determination of the personnel dose. While the proposed standard specifies all irradiations will be made perpendicular to the front surface of the badge, our experience over the past 25 years indicates that dosimeters worn by personnel are rarely exposed in such a manner. Invariably, when one of our customers receives a reported dose different than what he anticipates, he requests additional information such as angle of the incidence of radiation, an estimate of the number of different exposure geometries, the quality of the radiation, and a determination of the uniformity of the exposure. Our customers have, on numerous occasions, indicated that such information was invaluable in making the true dose assessments. Our dosimeters could be re-designed to produce better results in the testing program but at the sacrifice of the vital supplementary information. In short, the testing program must evaluate a processor in the "intangible" areas as well as in the limited "laboratory conditions" accuracy area.

3. The accuracy requirements of the proposed accident range appear to be overly restrictive in comparison to the protection range. Also, the irradiation range seems too broad. Based on our extensive experience, we feel we can reasonably assume that no monitored individual will receive a dose in excess of 100 rem (we have received dosimetry devices which have been exposed to doses in excess of 100 rem. However, it has always been prove that the individual did not receive the exposure). In the event an individual did receive a dose in excess of 100 rem, we feel sure that supplementary dose assessment means would be used in addition to the primary dosimetry device. Since regulations do not presently identify the situations which require accident monitoring, we believe undue emphasis is being placed on high range dosimetry, possible at the expense of the protection range dosimetry. We recommend that the accident range be changed to a more realistic interval of 10 to 200 rad with the same accuracy requirements as the protection range. Or, alternately, the protection range should be extended to 100 rem and the accident changed to 100 to 500 rad with 10 CFR Part 20 changed to specify which workers require accident range dosimetry. Such a change would permit dosimeters to be designed to more properly evaluate the vast majority of

exposure (protection range) and an additional separate accident dosimeter issued to those few individuals who require the high range monitoring.

4. The requirement that extremity dosimeters pass the same test as required for the whole body dosimeters is inconsistent with the permissible dose limits as specified by 10 CFR Part 20. Namely, 10 CFR does not require differentiation between deep and shallow dose equivalents. We recommend a separate test be established for extremity dosimeters. The test should be designed to determine the abilit of dosimeters to monitor the sum of the deep and shallow dose delivered. This change will permit design of extremity dosimeters which can be worn without loss of finger dexerity caused by a cumbersome dosimeter.

5. Every processor, no matter how competent, will eventually fail one or more of the categories. There have been no proposed provisions made to consider the over-all proficiency of such processors who make a single error or who receive an invalid test exposure from the testing laboratory and consequently is put out of business, at least temporarily. The customers of such a processor will have to temporarily shift their business to a currently certified processor. This will cause large gyrations in the industry which will result in increased costs.