The American Society for Nondestructive Testing, Inc
International Service Center
1711 Arlingate Lane, Columbus, Ohio 43228-0518
(614) 274-6003 | (800) 222-2768
fax (614) 274-6899 | www.asnt.org

PRM-34-7

Docketed
Office of the Secretary
US NRC
August 12, 2016

July 14, 2016

Annette L. Vietti-Cook, Secretary
U.S Nuclear Regulatory Commission
Washington, DC 20555-0001
Attn: Rulemakings and Adjudications Staff

Dear Ms. Vietti-Cook,

On behalf of the Nondestructive Testing Management Association (NDTMA) and the American Society for Nondestructive Testing (ASNT), and pursuant to 10 CFR 2.802, the enclosed petition is submitted to the U.S Nuclear Regulatory Commission (NRC) to amend 10 CFR Part 34. The purpose of this petition is to authorize use of improved individual monitoring devices for industrial radiographic personnel; specifically, electronic personnel monitoring dosimeters, and dual-function alarming rate meters/electronic dosimeters.

As joint petitioners, the NDTMA and ASNT represent the stakeholders impacted by Part 34 requirements; we request that the Commission work closely with our organizations to achieve a prompt resolution to the items that are the subject of this petition.

Thanks you for your consideration. If there are any questions regarding this petition, please feel free contact me.

Sincerely,

Dr A Bereson
Executive Director
American Society for Nondestructive Testing
P.O. Box 28518
Columbus, OH 43228-0518
(800) 222-2768
abereson@asnt.org

Walt Cofer, Chair
Government and Industry Affairs Committee (GAIC)
Nondestructive Testing Management Association
4044 Deer Lane Drive
Tallahassee, FL 32312
(850) 519-5351
radcontrol@embarqmail.com

cc: George Moran, Executive Director, NDTMA
Arny Bereson, Ph.D., Executive Director, ASNT

PETITION FOR RULEMAKING
TO AMEND 10 CFR PARTS 20 AND 34
AND TO REVISE GUIDANCE IN NUREG-1556, VOL. 2

I. Issue

On behalf of its members, the Nondestructive Testing Management Association (NDTMA) and the American Society for Nondestructive Testing (ASNT) request that the U.S. Nuclear Regulatory Commission (NRC) amend sections of 10 CFR Parts 20 and 34 and to change the guidance in NUREG-1556, Vol. 2 to reflect the changes in the proposed amendments.

Technological advances in personnel dosimetry and radiation monitoring equipment have outpaced the regulations applicable to industrial radiographers. Specifically, dual-function electronic dosimeters/alarm ratemeters, as well as digital personnel dosimeters (in place of film badges, TLDs or OSLDs), are now available. However, the Commission has been denying industrial radiography licensees the option of using such equipment.

Section 10 CFR 34.47 requires radiographic personnel to wear a direct-reading dosimeter (DRD) or electronic dosimeter (ED), an alarm ratemeter (ARM), and a personnel dosimeter, with the last device being "processed and evaluated" by an accredited National Voluntary Laboratory Accreditation Program (NVLAP) processor. Subsection (a), paragraph (3) from the same section states that film badges must be replaced at periods not to exceed one month and other personnel dosimeters must be replaced at periods not to exceed 3 months.

Paragraph 10 CFR 20.1501(d)(1) requires personnel dosimeters that require processing to be "processed and evaluated" by a dosimetry processor holding current personnel dosimetry accreditation from the NVLAP.

Section 10 CFR 20.1003 defines a dosimetry processor as an individual or organization that "processes and evaluates" individual monitoring equipment in order to determine the radiation dose delivered to the equipment.

The Commission has been notifying industrial radiography licensees that the current language in Part 34 prevents their use of a dual-function ED/ARM in place of a DRD/ED and ARM to address the requirement for radiographers to track their cumulative exposures and alert them to the presence of a 500 mrem/hr radiation field during radiographic operations. In addition, the Commission has been notifying industrial radiography licensees that an exemption request is required to allow their use of digital personnel dosimeters, due to the Commission's interpretation of the above referenced rules, in which they argue that digital personnel dosimeters are being processed and evaluated by the licensee rather than being returned to the supplier for processsing. Barring a revised NRC interpretation of the above referenced rules, amendments to the rule language are necessary to allow use of the aforementioned devices by industrial radiography licensees.

II. Statement of Petitioners' Interest

Industrial radiographers and their employers rely on the NDTMA and ASNT to represent their interests with regard to regulatory issues.

The Nondestructive Testing Management Association (NDTMA) is a U.S. non-profit organization dedicated to nondestructive testing (NDT) management, technology and regulation. It is comprised of delegates from member companies involved in the use, practice, and promotion of NDT (including radiographic testing/industrial radiography).

The American Society for Nondestructive Testing (ASNT) is a U.S. non-profit technical society for NDT professionals that provides a forum for exchange of NDT technical information, NDT educational materials and programs, and standards and services for the qualification and certification of NDT personnel. ASNT promotes NDT as a profession and facilitates NDT research and technology applications. As an independent certifying entity, the ASNT operates the only non-state-administered radiographer radiation safety certification program in the U.S.A.

III. Background

Section 10 CFR 34.47 requires radiographic personnel to wear a DRD or ED, an ARM and a personnel dosimeter, with the last device being supplied by an accredited National Voluntary Laboratory Accreditation Program (NVLAP) processor.

The Commission has interpreted the language in section 10 CFR 34.47 to mean that radiographic personnel are prohibited from using a dual-function ED/ARM. Such devices were unavailable when the rule requiring them became effective, but they are now, and there is no rational basis for denying their use. As noted in section 10 CFR 30.33, one of the criteria for the Commission's approval of an application for a specific license is that the applicant's proposed equipment is adequate to protect health and minimize the danger to workers and the public. Use of a dual-function ED/ARM clearly conforms to this criterion. In addition, such devices can provide additional features that enhance safety, such as improved visible alarms, exposure data logging and analysis, and vibrating alarms.

Digital personnel dosimeters now available from NVLAP-accredited vendors are as or more accurate than film badges, TLDs and OSLDs. They also provide significant advantages over their competing devices. Their ability to be read immediately without sending them off-site for remote processing means that that there is no delay in obtaining dose data in the event of a suspected or actual overexposure which enables the licensee and the affected worker to immediately confirm their status, so that if no overexposure occurred, they can resume their work, or if an overexposure has occurred, prompt actions can be taken based on the reported dose. The devices improve the efficiency and accuracy of a licensee's dosimetry program: they lower the time and costs associated with administering the program, improve the accuracy of dosimetry data by eliminating the risk of losing entire batches of badges in the mail system or by the vendor, and for accidental exposures to multiple badges.

The unlimited read capability allows wearers to view their accumulated dose repeatedly during each monitoring period, which improves their ability to track their exposures. One radiography licensee using digital dosimeters (under an exemption) has reported benefits in the form of lower worker exposures, fewer cases of administrative ALARA limits being exceeded, and improved awareness of worker's individual doses.

The Commission's concern that a licensee's ability to directly read their workers' digital dosimeter data seems to be misplaced, because the devices are processed and evaluated by accessing the dosimetry vendor's software via a computer linked to the vendor's website. Licensees do not have the ability to independently process such badges or to alter the badge data. It is unclear why the Commission believes

that current regulations prohibit use of digital dosimeters by industrial radiography licensees without a rule exemption, when medial licensees have been using the devices for years without restrictions.

IV. Proposed Actions

It is unclear what revisions to the rule are necessary to lift the restrictions; we are willing to leave the wordsmithing task to the Commission's staff.

With regard to section 10 CFR 34.47, we propose the revisions provided below. The revision to paragraph 10 CFR 34.47(a)(3), which replaces the reference to 'other personnel dosimeters' with TLDs and OSLDs, leaves open the option to use digital dosimeters without replacement. This option should be mentioned in NUREG-1556, Vol. 2.

(a) The licensee may not permit any individual to act as a radiographer or a radiographer's assistant unless, at all times during radiographic operations, each individual wears, on the trunk of the body, a combination of direct reading dosimeter, an operating alarm ratemeter, and a personnel dosimeter that is processed and evaluated by an accredited National Voluntary Laboratory Accreditation Program (NVLAP) processor. At permanent radiography installations where other appropriate alarming or warning devices are in routine use, the wearing of an alarming ratemeter is not required. *Use of dual-function electronic dosimeters/alarm ratemeters may be used in place of separate devices.*

(3) Film badges must be replaced at periods not to exceed one month ~~and other personnel~~. *Thermoluminescent dosimeters and optically stimulated luminescent dosimeters must be replaced at periods not to exceed 3 months.*

V. Justification

Section III of this petition describes the justifications for Commission action. To summarize:

- The proposed revisions conform to the requirements of section 10 CFR 30.33, in that the equipment in question (dual-function ED/ARM, digital dosimeter) is adequate to protect health and minimize the danger to workers and the public.
- The aforementioned equipment provides improved efficiencies, lower costs, and enhanced safety features.

C. Conclusion

The proposed actions remove unwarranted barriers to use of improved individual monitoring devices for industrial radiographic personnel. There is no rational basis for delay of promulgation of rulemaking and revised guidance in NUREG-1556, Vol. 2 to address this petition's requests.