

## RulemakingComments Resource

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**From:** Tebo, David <David.Tebo@TeamInc.com>  
**Sent:** Monday, January 23, 2017 7:10 PM  
**To:** RulemakingComments Resource  
**Subject:** [External\_Sender] Docket No. PRM-34-7; NRC-2016-0182 - Comment

U.S. Nuclear Regulatory Commission:

In accordance with the Commission's request, the following email is respectfully submitted to provide comment on the Petition for Rulemaking, Docket Number PRM-34-7; NRC-2016-0182, Individual Monitoring Devices for Industrial Radiographic Personnel. The specific questions the NRC has requested comments on are reiterated below followed by the comments.

1. Please comment on how the use of a dual-function device could achieve the current safety purpose of using independent devices, or if that requirement should be changed. Please reference publicly-available technical, scientific, or other data or information to support your position.

Comment:

1) Pertaining to digital dosimeters (Instadose), these new badges meet the current regulations and achieve the same purpose as the current film, TLD or OSDL badges in that they are a) NVLAP approved dosimeters, b) assigned to and worn by a single user for the purpose of determining the extent of exposure to an individual, c) processed by a NVLAP accredited processor. Each user (wearer) logs into the system using a unique user name and password and reads the badge (downloads the data) thru the computer via installed software. Each read is transmitted to (exchanged with) the processor without alteration where it is evaluated by the NVLAP accredited processor and the recorded exposure added to the individual's account.

2) Pertaining to the multi-function devices referenced by the petitioners, these devices are more advanced and can provide enhanced protection from the current devices in use. Current devices required by the regulation, direct reading pocket dosimeters (DRPD) and alarming ratemeters (ARM), are limited in their use. Current DRPD's are only accurate within +/-20% of true exposure, are ion chambers that are unreliable and can provide a false indication of exposure if dropped or bumped. Current alarming ratemeters provide only an audible signal to alert radiographers of a high dose rate which are difficult to hear in high noise areas. These current devices, DRPD and ARM, are antiquated instruments that are bulky to wear, costly to replace, and are unreliable to today's radiographers. The new multi-function devices provide improved protection in that they are more reliable due to their increased durability, and more cost effective.

2. Please comment on whether changes similar to those proposed in the petition should be applied to other radiation protection regulatory requirements, such as 10 CFR Parts 36 and 39. Please explain your position.

Comment:

The changes requested by the petitioners should be applied to all similar regulations addressing personnel monitoring.

3. Please comment on what experiences or challenges users have encountered in the use of these dosimeters. Please reference publicly available technical, scientific, or other data or information

Comment:

1) Digital dosimeters, such as the Instadose monitoring badge, have the following advantages over current personal dosimeters:

a) The individual is able to view his current exposure each time he logs into the system and “reads” his badge. Unlike current personal dosimeters, where the individual must wait until the badge is processed and a report returned showing the recorded dose (sometimes up to 15 days after the badge has been exchanged), the new digital dosimeters show the individual user his accumulated dose since the last read immediately upon reading his badge. This allows the user to be immediately knowledgeable of his exposure and can provide assistance in maintaining exposures ALARA.

b) The new digital dosimeters allow for the user to read the badge as frequently as he chooses allowing for multiple reads during a monitoring period. The ability to view the read, and subsequently the acquired dose, each time a user logs in, allows users to take the appropriate measures to control their exposure to better maintain doses ALARA.

c) During incidents and emergency situations, current monitoring badges must be returned to the processor for emergency evaluation. This requires the individual be suspended from operations until the results of the processing are received resulting in potential lost wages. Projects may also be put on hold awaiting results, resulting in down time, lost revenue and additional cost and time to complete projects. With the new digital dosimeters, readings can be immediately downloaded (even at the jobsite), allowing the radiographer to potentially return to work and saving time and cost. Required reports to the appropriate Agency are also provided within a much quicker time frame (sometimes as soon as next day) allowing for the issue to be resolved in a much shorter time frame than with the current technology.

d) Since the new badges do not require a physical exchange of the hardware at the end of each monitoring period, less time is spent by RSO’s and management personnel to track down and exchange badges. Badges no longer would have to be sent by mail or overnighted to employees working out-of-town resulting in cost savings and reducing the potential for lost badges.

e) Using the current monitoring badges, reports are reviewed by administrators (RSO’s) only after the badges are returned to the processor, processing completed and the report received usually days after the end of the monitoring period. With the new digital dosimeters, reads and reports can be reviewed, not only by the individual, but the administrator as well, at any time allowing for action to be taken to maintain doses ALARA.

2) Multi-function devices have the following advantages over current monitoring instruments (DRPD and ARM):

a) Most of these new devices have the ability to establish multiple alarm set points, both for dose and dose rate, that can be locked out to prevent user changes to the set points, allowing for improved control of exposure. Setting dose alarms at 1/3 and 2/3 scale (50mrem and 150 mrem) for example provides each user with an immediate indication of his dose at preset check points. Setting dose rate alarms at 100 mrem/hr as well as 500 mrem/hr provides the user with alarms at two identified points to alert of time spent in high and very high radiation areas.

b) Alarms not only provide an audible signal at a higher decibel than the current dosimetry, they also provide a visible signal (LED) and vibration signal providing the user with the ability to receive the alert in high noise areas.

c) The new multi-function devices provide the ability using a computer interface to download a graphics of alarms. These graphics allow administrators to view trends in alarms to determine the type and length of alarms received by each user to more effectively evaluate exposures received. Use of the graphs can vastly improve ALARA investigations, including high exposures received during events.

d) The new multi-function devices provide a battery level indicator and low-battery alarm to alert the user of a low battery condition. Although the current units provide a battery check function, there is no indication of the actual battery level, thus allowing for the battery in these devices to fail during operations even though checked acceptably prior to shift.

e) Most radiographers today are between the ages of 21-35. These individuals were born and raised in the digital age. They are familiar with the operation and use of these types of devices, are more confident in their ability to detect radiation and alert them of abnormal situations, and therefore are more likely to properly utilize and wear these devices.

In conclusion, the petition for rulemaking is hereby supported since the advantages the new dosimetry devices offer over the current devices authorized provide enhanced safety features that reinforce the ALARA principles and make improved technology and information available to the users, with the ultimate goal of reducing employee exposures.

Sincerely,

*David P. Tebo*

Corporate Radiation Safety Officer  
TEAM Industrial Services, Inc.