

As of: 1/24/17 1:47 PM Received: January 23, 2017 Status: Pending_Post Tracking No. 1k1-8ubs-ma7p Comments Due: January 23, 2017 Submission Type: Web
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PUBLIC SUBMISSION

Docket: NRC-2016-0182

Individual Monitoring Devices for Industrial Radiographic Personnel

Comment On: NRC-2016-0182-0002

Individual Monitoring Devices for Industrial Radiographic Personnel; Notice of Docketing and Request for Comment

Document: NRC-2016-0182-DRAFT-0010

Comment on FR Doc # N/A

Submitter Information

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General Comment

The petition to amend 10CFR parts 20 and 34 should be approved as technological advances have outpaced the regulations. Electronic direct reading dosimeters, such as the DMC-2000 and 3000, are more robust and have a larger scale than traditional pencil dosimeters. In addition, electronic dosimeters have multiple alarm types including vibratory, flashing lights as well as audible. These devices also have the capability to include pre-alarm thresholds for both dose-rate and dose, giving radiographers advance warning before reaching a 500 mr/hr field or a certain working dose limit.

The traditional pencil dosimeter coupled with a RA-500 alarming ratemeter is adequate but inferior to these newer technologies in almost every way. The pencil dosimeter is very susceptible to shock and often goes off scale when dropped. Many radiographers feel they must carry two of these (as shown in the NRC's own training videos) because the pencil dosimeters are so unreliable. They also require a separate "charger" that requires excessive time to re-zero the instrument. The RA-500 type alarming ratemeters only offer an audible alarm (although some have incorporated a light) and do not vibrate, which is a valuable feature in a high-noise environment. They are also bulky and lack an effective low battery warning that is present in all newer devices.

The Radeye G combination instrument incorporates all of these features into a single device. We have found the Radeye to be more accurate with greater repeatability than many traditional instruments. One of the advantages of technology that directly leads to better accuracy is miniaturization. Traditional survey meters, such as the ND-2000 and Ludlum Model 6, are large and thus the sensor elements (tube) are farther from the exterior surface. Smaller devices have the sensor closer to the exterior surface and thus provide more accurate readings when conducting on-contact surveys. The Ludlums, with their metal bodies and front metal latch will

consistently give lower readings due to distance and shielding when compared to a Radeye. Another feature many radiographers like is the backlight feature available on the Radeye (and other digital devices) allowing them to better read the display in low-light conditions.

In summary, the new technologies have produced more accurate, reliable, and ultimately safer devices that should be allowed for use in radiographic operations.

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