

PUBLIC COMMENTS AND RESPONSES ON DRAFT REGULATORY GUIDE 8.4, “PERSONNEL MONITORING DEVICE—DIRECT-READING POCKET DOSIMETERS”

(Draft was Issued as DG-8036, dated April 2010)

SOURCE	NO.	COMMENT	DISPOSITION
Council on Radionuclides and Radio-pharmaceuticals, Inc.	1	Page 3, item 3: Remove “leakage that could” from the second sentence and insert between “excessive” and “affect” in the first sentence.	Staff of the U.S. Nuclear Regulatory Commission (NRC) has incorporated these comments in Section C.3, first paragraph (previous Section C.3) to clarify the guidance provided.
	2	Page 3, item 4: Replace “radiation free” by “low radiation background,” as in page 3, item 3. Consider adding “low radioactive contamination” to this sentence.	The NRC staff has incorporated these comments in Section C.3, second paragraph (previous Section C.4) to clarify the guidance provided.
	3	Page 4, item 5: Replace “processing within 24 hours” by “emergency processing by the end of the next business day.”	The NRC staff has not incorporated these comments in Section C.3(d) (previous Section C.5) so that the guidance will be consistent with the requirement in Title 10 of the <i>Code of Federal Regulations</i> (10 CFR) 34.47(d).
	4a	Page 4, item 6: Recommend replacing “20” by “25,” considering the differences due to energy response and the geometry of dosimeter placements and in non-uniform and mixed radiation fields.	The NRC staff has incorporated this comment in Section C.3(b) (previous Section C.6).
	4b	Also, when direct-reading personnel dosimeters are used to track and provide feedback to control dose, their response to the occupational radiation field compared with the NVLAP [National Voluntary Laboratory Accreditation Program]-accredited personnel dosimeter should be considered. For example, if an administrative control limit of 100 mrem [millirem] is applied to a dosimeter wear period and the direct-reading personnel dosimeter under responds by 20% the appropriate administrative control for the direct-reading personnel dosimeter should be 80 mrem for the duration of the same wear period.	The NRC staff revised Section C.3(b) to clarify the guidance provided.

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	4c	Consider providing guidance on positioning direct-reading dosimeters with respect to personnel dosimeters to ensure similar radiation exposure conditions.	The NRC staff has provided guidance in Section C.3(b) regarding comparison of dose readings, and location of the pocket dosimeter should be part of such valuation.
	5	Page 4, item 7: Add to the end of this sentence: “and the proper location of the pocket dosimeter during specific radiation exposure conditions.”	The NRC staff has incorporated this comment in Section C.3(a) (previous Section C.7) to clarify the guidance provided.
	6	Page 4, item 9: Consider additional guidance on mixed gamma/beta radiation fields. It would be useful to recommend the use of appropriate electronic personnel dosimeters instead of direct-reading pocket dosimeters when the shallow dose approaches or exceeds 10 times the deep dose.	The NRC staff has not incorporated this comment because pocket dosimeters are not sensitive to beta radiation.
SCE&G/ V.C. Summer Nuclear Station	1	Page 3, Section C.3: There are incomplete sentences and/or words missing from the text.	The NRC staff has revised the wording of Section C.3 (previous Section C.3) to clarify the guidance provided.
Dominion Resources Services Inc.	1	Recognizing that neutron-sensitive devices, including bubble dosimeters, are referenced in the 1 <sup>st</sup> paragraph of this section, it is also suggested that the limitation of these devices under hot and cold temperature conditions be added to the second paragraph discussion. Specifically, the second paragraph under Section B on page 2 discusses some limitations of direct-reading dosimeters. It is suggested that the second sentence be revised to include “temperature dependent in some applications” following “...in conditions of high humidity.”	The NRC staff has revised the wording of Section B to clarify the guidance provided.
	2	Regulatory Position C.1 discusses intervals for test and calibration of pocket dosimeters; however, there is no mention of any allowance for a retest, should a dosimeter fail its initial calibration. It is fairly common to have new units fail their initial calibration tests, and for those facilities still monitoring workers with SRDs [self-reading dosimeters], this could become expensive if the units fail after the initial test and are then rejected. Retesting would appear to be a reasonable	The NRC staff has revised the wording of Section C.1 (previous Section C.1) to clarify the guidance provided.

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		solution.	
	3	Regulatory Position C.3 on the recharge reset of pocket dosimeters, as currently written, is grammatically incomplete and does not reflect current industry practices for evaluating drift dosimeter readings in the field. It is recommended that this position be revised as follows: “Licensees should charge dosimeters periodically, place them in an area of low radiation background, and examine them periodically, e.g., 1–2 days, for excessive drift. In order to maintain a reasonable level of sensitivity for monitoring radiation leaks and to ensure full scale reading capability, pocket dosimeters should be recharged or reset at the start of each shift.”	The NRC staff has revised the wording of Section C.3 (previous Section C.3) to clarify the guidance provided.
	4	Regulatory Position C.6 discusses the comparison of dose readings. The draft proposes investigation of differences between SRDs and TLDS [thermoluminescent dosimeters] that exceed 20%. The industry standard is 25% and, unless there is a compelling reason to modify standard practice, 25% should remain. Furthermore, the recommendation does not distinguish between the type of radiation being monitored and the associated measurement accuracy. It is recommended that investigations be conducted for differences that are greater than 25% for gamma dose measurements and 50% for neutron dose measurements, as neutron measurements are less accurate than gamma measurements. While the industry standard is 25% for gamma dose measurement differences, it is reasonable to apply a 50% threshold with current technologies for these types of measurements.	The NRC staff has revised the wording of Section C.3(b) (previous Section C.6) to clarify the guidance provided.
	5	The discussion for Regulatory Position C.9 on mixed radiation fields should be modified to clarify the intent to use gamma dosimeters for neutron dose measurements. It is suggested that the first paragraph of Regulatory Position C.9 be revised to state: “Direct reading pocket dosimeters normally used for gamma dose measurements may be used in a mixed neutron and gamma radiation field for neutron dose measurements in order to comply with personal monitoring....”	The NRC staff has revised the wording of Section C.3(c) (previous Section C.9) to clarify the guidance provided.
Nuclear Energy Institute	1	Page 1, Section A, second paragraph: The word “devises” should be “devices.”	The NRC staff has incorporated this change.

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	2	Page 2, Section B: Be consistent with the use of “x-ray”/“x ray” and “gamma-ray”/“gamma ray.”	The NRC staff has revised the text in Section B for consistency.
	3	Page 2, Section B, fourth paragraph: The word “detail” should be “detailed.”	The NRC staff has revised Section B to clarify the guidance provided.
	4	Page 3, Section 2: Suggest the following wording: “The licensee must reject the dosimeter if it fails to read $\pm 20$ percent of the calibrated exposure from a source traceable to the National Institute of Standards and Technology <b>on two consecutive tests.</b> ” (Suggested change emphasized.)	The NRC staff has revised the wording on Section C.2, first paragraph (previous Section C.3) to clarify the guidance provided.
	5	<p>Page 3, Section 3: Suggest the following wording: “Licensees should charge dosimeters periodically, place them in an area with a low radiation background, and examine them after two or three days for excessive drift due to charge leakage. To ensure full-scale reading capability, pocket dosimeters must be recharged or reset at the start of each shift so that the dosimeters will be capable of reading the dose accrued, accounting for the charge leakage that normally occurs (e.g., 40 percent of scale so that dosimeters will be capable of reading the leakage at full scale).”</p> <p>In addition, “periodically” should be in accordance with manufacturer’s recommendations. A 24-hour drift test will be sufficient because the next sentence has the dosimeter recharged at the start of each shift.</p>	The NRC staff has revised the wording of Section C.3, first paragraph (previous Section C.3) to clarify the guidance provided.
	6	Page 3, Section 4: Instead of “radiation free,” the second sentence should read “...low dose and cool room temperature....”	The NRC staff has revised the wording of Section C.3, 2 <sup>nd</sup> paragraph (previous Section C.4) to clarify the guidance provided.
	7	Page 4, Section 5: Suggest change in wording from “...dosimeter must be sent for processing...” to “...dosimeter should be sent for processing....”	The NRC staff has revised the wording of Section C.3(d) (previous Section C.5) to clarify the guidance provided.
	8	Page 4, Section 6: Suggest that the NRC incorporate the criteria established by the Institute of Nuclear Power Operations and revise the wording to read as such: “Licensees should compare...and investigate the reasons for differences that are greater than 25 percent	The NRC staff has revised the wording of Section C.3(b) (previous Section C.6) to clarify the guidance provided.

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		and when either device exceeds 100 mrem of accumulated exposure.”	
Strategic Teaming and Resource Sharing	1	Section C.6: The new “Comparison of dose readings” section requires investigations for a TLD/OSL to PIC comparisons >20% without definition of frequency or minimum dose. This is a tighter band than the current industry standard of 25% that applied when one or the other is > or = 100 mrem. This new guidance could result in investigations for very low dose values.	The NRC staff has revised the wording of Section C.3(b) (previous Section C.6) to clarify the guidance provided.
	2	Section C.1: PICs are not routinely “calibrated” in the context normally used in Technical Specifications or other standards. PICs are not adjustable if they do not meet the proper response values. They are response checked, sometimes called quality tested, to a pass or fail level. Calibration of PICs is beyond the capabilities of most users. 10 CFR 34.47(c) and NUREG-1556 appropriately refer to checking pocket dosimeters to response to radiation at least every 12 months. It should be clarified in Regulatory Position C.1 that the “examination” satisfies the calibration criteria.	The NRC staff has revised the wording of Section C.1 to clarify the guidance provided.