Radiation Protection Dosimetry: Ascertaining Occupational Dose
REGDOC-2.7.2, Volume I

Comments from Health Canada - Radiation Protection Bureau

Comment Number	Document Section	Document Text	Comment
1	2.2 and 2.3	2.2 states: "Dosimetry methods to ascertain occupational doses can be classified in three general categories: direct monitoring, indirect monitoring and dose modelling."	2.2.1 - direct monitoring, 2.2.2 - indirect monitoring and 2.3 - dose modeling. Section 2.3 should be renumbered subsection 2.2.3, as it is referred to under the heading 2.2. This is important because sect 2.4 states "If effective doses are not expected to exceed 5 mSv per one-year dosimetry period, licensees may choose to use licensed dosimetry services or to determine doses using other dosimetry methods outlined in section 2.2. As currently written, this would exclude dose modelling.
2	2.4	Section 8 of the RPR requires licensees to use licensed dosimetry services to measure and monitor doses received and committed by NEWs who have a reasonable probability of receiving an effective dose greater than 5 mSv per one-year dosimetry period.	The proposed amendments to the RPR, as well as the proposed revision to REGDOC 2.7.1 have added an additional criteria under which a licensed dosimetry service should be used, namely: - an equivalent dose to the skin, or to the skin of the hands and feet, that is greater than 50 mSv in a one-year dosimetry period. The text should be aligned with the finalised version of the RPR.
3	5	...If necessary, the dosimeter can be placed in carry-on baggage. The doses from carry-on baggage x-ray machines are not as significant.	Suggest adding "However, should a dosimeter in carry on baggage spend an extended period of time in the baggage scanner, this should be noted in case a spurious dose is reported."
4	5.1.1	When the detector’s atoms release some of their electrons.	It's somewhat inaccurate to say that atoms release their electrons; consider something like, " some of the electrons in the crystalline detector material are left in excited states."
5	5.1.2	The major difference being that luminescence is produced by a light beam rather than by heat.	This is unclear. To use terminology consistent with the last section, consider rewording as follows: "...light, rather than heat, provides the energy required to return the excited electrons to their ground state, producing luminescence proportional to the absorbed dose."
6	5.5, last para	If eye shielding is used, the dosimeter should be placed such that the shielding will be accounted for.	Unclear what "be accounted for" means here. May be clearer to say that the dosimeter should be placed between any material that might provide shielding and the eye, e.g., behind safety glasses, if worn?

7	7, equation 5	e_{in}	Recommend to change to e_{inh} for consistency
8	9.1.1	Routing monitoring programs should ensure that annual CEDs to workers of 1mSv…	Consider adding a bullet point or comment about the chemical toxicity of compounds such as U, as mentioned in a later section.
9	9.1.1	…workers handling the activities in table 6 should participate in a bioassay program.	Recommended change: …workers handling the activities in table 6 should participate in a routine bioassay program.
10	9.1.5	The MDA is defined as follows (when the sample or subject count time is different that the background count time).	Recommended change:...count time is different than the background count time)
11	13	There are exceptions in which intakes of certain nuclear substances (such as 35S, 125I, 131I and tritiated water)	Consider adding I-123 and I-124 to the list assuming that it is the chemical form that causes Infant to receive a high dose.
12	15	The following steps describe the general process for a licensee to request a change to a dose record filed with the NDR:	The steps following could be in bullet form for clarity.
13	15	If the CNSC approves the requested change, the dose information change request form is sent to the dosimetry service provider; a copy of the form is also sent to the worker, the licensee contact and the NDR; and the dosimetry service provider is responsible for notifying the NDR of the change.	Wouldn't sending the change request form from the CNSC to the NDR notify the NDR? Requiring the dosimetry service provider to also notify the NDR seems like a duplication in steps.
14	15	The licensee submits to the CNSC the investigation report and the dose information change request form, which includes details of the change(s) to be made.	The change request form is mentioned in this section. A reference to where this form can be obtained should be added.

15	Table A.1	Column - operational quantity to be used	Although not required, it may also appropriate (even optimal) to use $H_p(3)$ in some of these cases. The column heading (Operational quantity to be used) is prescriptive. (See Fig. 1 in Behrens, Monitoring the Eye Lens, IRPA 13, http://www.ptb.de/en/org/6/63/f_u_e/ts7e_3.pdf)
16	Table A.2	Column heading - Does eye shield absorb beta radiation?	This may not be a yes/no question, as even regular protective eyewear will reduce beta dose rates
17	E.3.3	Table E.3 summarizes the recommended specifications for detector uses to measure I-125 and I-131.	Add all other Iodine or reduce to "… uses to measure Iodine."
18	E.3.3	Table E.3: Summary of detector specifications	For the second column add ^{123}I to the list of Iodine isotopes that uses the thicker crystal. The thinner may work but would need to be investigated, since the energy fits the 20-200 energy range. I-125 on the bigger crystal might be a problem since it is below 40 keV
19	E.6.1	For all screening measurement results equal to or greater than 1 kBq,…	may not be reasonable for I-123 as the dose consequences are lower.
20	E.8.2	Ce-139 (for I-123)	Te-123m will be the isotope used in the National Calibration Reference Centre I-123 performance Test instead of Ce-139.
21	E.8.2	… and B-133 (for (I-131)	Should be 'Ba-133 (for I-131)'
22	Table F2 and F3	... peak kidney burden of 3 µg of uranium per gram of kidney tissue	Verification of the value of 3 microgram. A report by the National Radiological Protection Board of the United Kingdom (ref. 23) recommends a concentration of 0.3 µg per gram kidney should not be exceeded. Also, in page 2 of the CNSC, RSP-0165 report, it states, “Currently available information indicates that the threshold concentration is of the order of 0.3 to 3 µg of uranium per gram of kidney tissue”.