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VIA EMAIL

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Dear Mr. Torrie:

Cameco Corporation's Comments on draft REGDOC-2.7.1, *Radiation Protection*

Cameco Corporation (Cameco) has reviewed and prepared the following comments on the draft REGDOC-2.7.1, *Radiation Protection* (the REGDOC) for the Canadian Nuclear Safety Commission (CNSC).

In general, Cameco sees the REGDOC as part of two negative trends in REGDOC drafting. The first is that REGDOCs are increasingly adding requirements to legislated requirements when REGDOCs should be used to provide guidance on how licensees may meet the legislated requirements. This two-tier regulatory scheme creates uncertainty and inconsistency with respect to compliance expectations and enforcement without the necessary checks and balances. Further, REGDOCs blur the line between guidance and requirements, such that it is unclear whether an enforceable requirement is identified as a "must" only and does not include a closely associated "should" or "may". Compliance is best achieved when licensees and CNSC inspectors have a common understanding of what is a requirement and what is an option and REGDOC would be improved by removing examples and guidance that may suggest confuse the two while focusing on guidance.

The REGDOC Preface and Scope sections state that the REGDOC relates to "the protection of workers and members of the public" and the Scope section qualifies its application to members of the public by excluding applicable guidance provided in REGDOC-2.9.1. Cameco believes the scope of the REGDOC would be clearer if it were revised to read as follows: "to ensure the protection of workers, contractors and visitors to licensed facilities" and expressly excludes the information applicable to members of the public located in REGDOC-2.9.1.

There are several instances of this REGDOC duplicating information provided in another REGDOC and this redundancy makes documents unnecessarily complex and/or can create inconsistent compliance requirements. For example,

- Section 4.6 suggests that a radiation protection program includes monitoring of the release of nuclear substances from a facility when, in fact, this is a function of an environmental protection program. This same paragraph goes on to imply that the decision to use direct measurement is based on ‘usefulness’ contrary to the guidance in REGDOC-2.9.1.
- In the last paragraph in 4.6, a specific reference to the guidance on effluent and emissions monitoring in REGDOC-2.9.1 when the reference is in the Scope section is adequate.
- The information in 4.3 information is covered in REGDOC-2.2.2, but provides examples that introduce confusion.
- The last bullet in the ventilation section of 4.4.1 refers to emissions in the environmental monitoring program available in REGDOC-2.9.1.
- Action levels for environmental protections are described in REGDOC-2.9.1.

Cameco recommends that all the information provided in another REGDOC should be deleted and only the references to the other REGDOC should be retained.

The following are specific comments provided relative to the applicable REGDOC section number in bold.

Dose constraints (4.1.5)

CNSC decided it was unnecessary to include dose constraints in the *Radiation Protection Regulations* (RPR) because the regulatory expectations for radiation protection programs and the licensee progress in adopting the optimization principle were sufficient. Cameco is concerned that including dose constraints in the REGDOC could lead to an expectation by CNSC that it should be used to manage work and be treated as a *de facto* regulatory limit. This would introduce an additional administrative burden.

Cameco recommends that numbered paragraph 5 be deleted.

Respiratory protection (4.4.4)

The last paragraph in this section includes some inaccuracies. For example, clogged filters do not result in a leak through a filter and a pressure differential testing is not necessarily required for re-useable cartridges. In addition, following the testing and cleaning recommendations in this paragraph could be inconsistent with manufacturer recommendations and create a safety risk and/or an administrative burden for licensees. Cameco recommends deleting this paragraph and revising the last sentence in the second paragraph to read “Licensees should align their respiratory protection programs and practices with CSA standard Z94.4-18, *Selection, use and care of respirators...*”

Action Levels (6)

The guidance in this section creates ambiguity. An Action Level is defined as a potential loss of control and the sentence that discusses changing the Action Level due to changing circumstance could be interpreted to imply that periodic changes to Action Levels may be appropriate to reflect changes based on small ongoing continual improvements.

Optimization or physical modifications to an operation can improve performance and not change the upper limit of normal operational ranges and are not related to setting an appropriate Action Level. Further, minor deviations from continual improvement efforts should not be considered a potential loss of control and should never be used to lower an action level.

We suggest the following language: “For this reason, action levels are facility/activity-specific and could change with significant developments or fundamental changes in operational and radiological conditions.”

Written Acknowledgements of Nuclear Energy Workers (7)

Cameco recommends that the last paragraph in 7 expressly provide that nuclear energy workers (NEWs) may provide required written acknowledgements in either an electronic or paper format. Electronic documents are more practical and reduce administration burden.

Accrued Dose Limits (13)

The third paragraph states that licensees should obtain an individual’s previously assigned dose from activities not regulated by CNSC, information for doses received prior to commencement of work at the subject licensee’s facility, and dose information for concurrent work at another facility. This information may not exist or be readily available for some foreign workers due to differences in regulatory requirements in other jurisdictions.

Cameco recommends revising the third sentence to read “...the licensee must also consider practicably available dose information that the NEW had received prior to the commencement of the work for the licensee...”

Labelling Containers (20)

Cameco believes that the appropriate labelling for containers and devices containing nuclear substances depends on who has access to the containers and devices and where the containers or devices are situated. For containers or sources shipped out of a licensed facility, this would include listing the all information necessary (e.g. radionuclide(s)) to indicate the risk associated with the container or device). However, when containers are intended to be used within a licensed facility where NEWs are trained to recognize hazard levels and understand the risks when reading posted radiation fields, affixing detailed labels creates an administrative burden that has no corresponding safety benefit. For waste containers, a safety risk is actually created through the additional handling required to sample, analyze, and affix labels.

Cameco supports the scheduling of an industry-CNSC workshop to ensure the labelling requirements are clearly understood and key terms defined as well as to discuss an exemption for

labelling requirements for containers or devices located in an area subject to the boundary and point of access signs set out in s. 21 of the RPR.

Visitors and Radiological Risk (Appendix A.6)

This section could be interpreted to require licensees to provide risk information to visitors at a licensed facility out of portion to the risk of an accidental exposure, which could lead to confusion and unnecessary anxiety for visitors. Cameco recommends that the second sentence be revised to read “[t]hey should, however, be informed of the radiological hazards in the facility.”

Contaminated Control Limits (Appendix B.1.1)

The recommendations in this section do not align with the *Nuclear Safety and Control Act* (NSCA) regulations. For example, conditional clearance levels are defined based on activity concentration in the *Nuclear Substances and Radiation Devices Regulations* (NSRDR) whereas this section refers to surface contamination limits based on conditional clearance levels. Following *Packaging and Transportation of Nuclear Substance Regulations* (PTNSR) and the NSRDR, surface contamination levels for release should be based on surface contamination (Bq/cm^2). In addition, the reference to ANSI/HPS N13.12 and its standard for surface contamination of $10 \mu\text{Sv}/\text{y}$ is inconsistent with the PTNSR.

Cameco also recommends revising this section to align with the PTNSR and NSRDR, and clarifying when activity concentration and surface contamination criteria apply.

Monitoring Records (Appendix C.6)

Listing all the information in the list in this section would create redundant information and create an administrative burden if all this information were to be recorded on each monitoring record. In addition, some of the information is not always applicable.

Cameco recommends revising this section to state that listed information should be included in monitoring records or be available, as appropriate.

Indirect Measurement of Contamination (Appendix C.8)

This section is a procedure and uses wipe areas inconsistent with the PTNSR. Cameco recommends that this section be replaced with principles and outcomes that must be met.

Reporting Results with Uncertainty (Appendix C.12)

This section could be interpreted to require uncertainty to be reported with each measurement and not to require measurements with a defined level of accuracy. This may be necessary in laboratory applications, but is not useful or practical in an industrial setting.

Cameco recommends that this section should be deleted or it should be described as an example.

Instrument Sensitivity (Appendix C.13)

Placing the minimum detectable activity at half the contamination limit for all situations may place undue strain on licensees. Risks associated with measurements must be considered and licensees should be establish appropriate levels of rigor based on those risks.

Cameco recommends describing this section as an example and not a requirement.

Calibration (Appendix D)

This section should be replaced with using the manufacturer's calibration procedures and as appropriate for the situation or application.

Clarifications and additional editorial recommendations

- **4.1.4**, second paragraph: It would be reasonable to interpret this statement to mean that licensees must receive and consider the views of the public in all instances when the process described above is silent on public consultation. The use of qualified absolutes leads to misunderstandings by the public and we recommend that “all” be replaced by “some” in this sentence.
- **4.1.5**, second paragraph: The recommendation in the last sentence should recognize the graded approach by revising the sentence to read “In a manner that is commensurate with the specific radiological risks, licensees should keep themselves informed...”
- **4.4.1**, classification of areas and access control: The sentence beginning “Access to areas of high dose rates...” recommends the use of “lockable doors” which is a very specific control for a risk described in general and vague terms. Cameco recommends replacing “lockable door” with a general term like “robust barrier” to recognize a range of suitable controls.
- **4.4.3**, personal protective equipment: The paragraph related to training should be revised to make it clear that training is only required for equipment and workers that require training. As drafted, the first two sentences could be interpreted to require broader training and result in an unintended administrative burden. We recommend that the first sentence be revised to “Workers should receive training necessary for the PPE that a worker may be required to use prior to its use.”
- **5**, third bullet: It is unclear whether this bullet refers to certain internal dose estimates and relates to 5.2 or includes total licensed dosimetry within the control of a dosimetry service. Cameco recommends adding “as applicable” to the bullet.
- **7**, first bullet on page 25: This should be revised to read, “. . . of the female NEW’s rights after she declares that she is pregnant or breastfeeding” to reinforce the triggering event for the licensees’ obligations.
- **15**, sixth paragraph, page 33: Related to the above point, until a worker has declared that she is pregnant or is breastfeeding, a licensee cannot accommodate that worker and

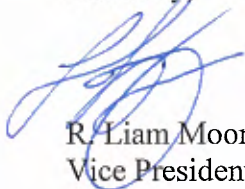
provide work assignments that meet the dose limit requirements. For additional clarity, Cameco recommends revising the first sentence to read “In accordance with section 15 of the Regulations, licensees must not ask women who have declared pregnancy or breastfeeding to participate in the direct control of an emergency.”

- **25.2**, second paragraph: The second sentence is overly prescriptive and should be revised to “Measurements must therefore be made using an efficiency-checked instrument with an appropriate detection efficiency...”
- **25.2**, fourth paragraph: It is not practical to check large area detectors using uniformly contaminated planar sources. The second sentence should be revised to “These tests should be conducted Similar to the dimension of the detector, where practical.”
- Appendix
 - C: A statement should be added to the beginning of this section that recognizes that licensee must ensure appropriate calculations are used and the equations provided may not apply in all situations and specific limitations of each equation are not included.
 - C.11: This second sentence should be revised to “...the MDA should be calculated for the most restrictive scenario...” Further, at the top of page 53, the first full sentence should be revised to “ ...instrument should stay stationary...”
 - D.7: The first sentence should be revised to recognize that some licensees append the future calibration date by replacing “the date of calibration” with “the future calibration date or date of calibration.”
 - D.8: Replace the sentence “In order to meet regulatory requirements, licensees must make available a document for each radiation survey meter that includes the following information” with “In order to meet regulatory requirements, licensees must make available a document for each radiation survey meter that includes the following information, as applicable”.

We trust that these comments and suggested revisions will be incorporated in the subsequent version of this REGDOC.

If you have any questions with respect to the above, then please contact John Takala at (306) 956-6486 or john_takala@cameco.com

Sincerely,



R. Liam Mooney
Vice President
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Cameco Corporation