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VIA EMAIL

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Dear Mr. Torrie:

Cameco Corporation's Comments on REGDOC 2.1.2, *Safety Culture*

Cameco Corporation (Cameco) has reviewed and prepared the following comments on the draft REGDOC 2.1.2, *Safety Culture* (the REGDOC). The REGDOC sets out the Canadian Nuclear Safety Commission's (CNSC's) requirements and guidance for fostering a healthy safety culture, conducting safety culture assessments and reporting the results of assessments.

Introduction

Cameco is the licensee for a number of nuclear facilities in Canada, including uranium mines in Saskatchewan and uranium processing facilities in Ontario. Cameco strives to be a leading performer in the areas of safety culture, environmental leadership and operational excellence. Safety is of the utmost importance to our organization and we are committed to promoting a strong safety culture.

At the outset, we wanted to emphasize that we were encouraged to see that many of Cameco's comments submitted on CNSC Discussion Paper DIS-12-07, *Safety Culture for Nuclear Licensees* (Mooney to Dallaire, January 10, 2013) have been incorporated into the REGDOC. We are, however, concerned to see 'security culture' and the use of a maturity model included in the REGDOC when these concepts were not included in the discussion paper. In addition to this breakdown of process, we will elaborate on our concerns with these fundamental changes below.

The following comments are intended to further improve the safety culture requirements and guidance outlined in the draft REGDOC.

Administrative Burdens of Increased Regulatory Requirements

As indicated in our previous submissions on discussion papers DIS-14-02, *Modernizing the CNSC's Regulations* and DIS-16-01, *How the CNSC Considers Information on Costs and Benefits: Opportunities to Improve Guidance and Clarity*, Cameco encourages the CNSC to take cost-benefit information into account when deciding to make changes to its regulatory framework. When CNSC uses REGDOCs instead of regulations to make regulatory changes, the CNSC should still meet the intent of the *Red Tape Reduction Act* and the One-for-One rule and ensure that for each administrative burden created, another burden is removed. For example, in Section 5, Potential Impacts, CNSC staff merely note, "The requirement to provide a summary report of safety culture assessments may result in a modest administrative burden on nuclear power licensees" without identifying a corresponding offset to the new administrative burden.

Guidance and Requirements

The preface of the REGDOC, like many other REGDOCs, includes the statement, "*Licensees are expected to review and consider guidance; should they choose not to follow it, they should explain how their chosen alternate approach meets regulatory requirements*". As we have commented in past submissions, this undermines the principle of guidance by equating it with regulatory requirements. If the licensee is required to meet guidance criteria, then it is a requirement. This is particularly important in the context of this document where the Scope section states that sections 3 and 4 of the REGDOC are intended for nuclear power plants and that the requirements and guidance in the document "may be used by other licensees..." and Table A1 designates sections 3 and 4 as guidance for some facilities and requirements for other facilities.

If the intention is to require Cameco to meet guidance criteria (even by other means), then these requirements would significantly increase the impact of this REGDOC on Cameco. If the intent is to differentiate substantively between requirements and guidance by licence and activity type, then it would provide clarity to both CNSC project officers and licensees during practical implementation of the REGDOC if the above quoted statement is revised to read as follows: "*Licensees are expected to review and consider guidance.*"

Definition of Safety Culture

The neutral definition of safety culture proposed in the REGDOC is inconsistent with the definitions used by the IAEA and the United States Nuclear Regulatory Commission (NRC), which both include two essential elements of nuclear safety culture: 1) safety takes priority over competing goals of an organization; and, 2) safety is a shared responsibility. Instead, the REGDOC incorporates these two elements as requirements of a healthy safety culture while adopting the IAEA safety culture framework based on the IAEA definition of safety culture.

In our view, the neutral definition offers no advantage over the IAEA and NRC definitions and creates unnecessary confusion. For example, the REGDOC requires licensees to "document their commitment to fostering safety culture..." when, in fact, the intention is to foster a positive safety culture or a safety culture as defined by the IAEA and the NRC.

Another deficiency in the proposed definition is that it restricts the meaning of safety culture to what workers perceive and not to what individuals actually do. This omission of behaviours in the definition is contrary to many of the characteristics of a healthy safety culture listed in Section 2 of the REGDOC and is contrary to the definition of security culture proposed in the REGDOC. For this reason, we believe that the NRC definition (and the WANO definition)¹ better reflects the meaning of safety culture as used throughout the REGDOC and should be adopted, being:

Safety culture is the core values and behaviours that resulting from a collective commitment by leaders and individuals to emphasize safety over competing goals to ensure protection of people and the environment.”

Principle of Constant Change

Related to the definition of safety culture are the principles upon which the REGDOC is based as set out in its introduction. Workers’ perception of the importance the licensee places on safety may remain relatively constant and stable over long periods of time. We therefore disagree that “safety culture is complex and constantly changing” as a principle upon which this REGDOC should be based.

In contrast, IAEA-TECDOC-1707, *Regulatory Oversight of Safety Culture in Nuclear Installations*, states that defining and implementing regulatory oversight of safety culture requires an understanding of concepts used in organizational culture and relies on a concept of culture that recognizes that culture is deep, broad and *stable*.

In our view, this is a fundamental flaw in the REGDOC that might erroneously be interpreted to support a ‘constant monitoring’ approach with a corresponding increase in administrative burden to licensees with no appreciable benefit to safety culture. It is also inconsistent with the statement that safety culture can change over time in section 3.4.1 of the REGDOC. This flaw may also be the foundation for the prescribed safety culture assessment cycle of at least three years discussed below.

We strongly recommend that this foundation principle should be revised to be “Safety culture is complex and changes over time” with a corresponding change to the requirements and guidance based on the principle of constant change.

Integration of Safety Culture and Security Culture

Section 1.4 of the REGDOC recognizes that IAEA document SF-1, *Fundamental Safety Principles* underscores the importance of integrating safety and security. We note, however, that the scope of SF-1 emphasizes the integration of safety and security *measures* and not safety and security culture. None of the three principles in SF-1 relied on to support integration of safety and security culture refer to safety and security culture and Principle 3 specifically refers to security as “another requirement”, in addition to safety, of a management system.

¹ <http://www.wano.info/Documents/PL%202013-01%20Traits%20of%20a%20Healthy%20Safety%20Culture.pdf>

While there is some overlap at a very high level between nuclear safety culture and nuclear security culture, the two have important differences that justify using separate regulatory documents for each.

The first fundamental difference is the regulatory stage of development each has reached. The REGDOC cites a number of IAEA documents related to nuclear security. However, the IAEA has not yet published any guidance on nuclear security culture, including frameworks and assessment methodologies, although collaborative international efforts are underway to develop these. In contrast, the industry has had several decades to develop a common language for, and a common understanding of, safety culture and these have been used to develop the mature frameworks and assessment methodologies currently used by industry. Similar concepts for security culture are in their infancy and, while licensees are actively exploring ways to assess aspects of nuclear security culture using draft IAEA documents and industry expertise, it is simply premature to integrate security culture into this REGDOC. Doing so could stifle the ongoing evolution of the development of security culture through industry collaboration.

The second fundamental difference is the basis and origins of each culture. As the IAEA Nuclear Security Culture Implementing Guide (2012) states, “...*both nuclear safety and nuclear security consider the risk of inadvertent human error, nuclear security places additional emphasis on deliberate acts that are intended to cause harm. Because security deals with deliberate acts, security culture requires different attitudes and behaviour, such as confidentiality of information and efforts to deter malicious acts, as compared with safety culture.*” This difference means that individuals will not necessarily perceive common characteristics of safety culture and security culture in the same way. It also means that a particular facility could have a safety culture that is quite distinct from its security culture. In practice, this would make a combined safety and security culture assessment problematic; it would require significantly more effort (i.e. close to doubling the required assessment resources) because most questions would have to be probed from both a safety and security point of view.

In addition, the REGDOC does not clearly demonstrate how a graded-approach for security culture would apply when security culture is treated as a component of safety culture. This is particularly important for a licensee such as Cameco whose licensed facilities security requirements differ considerably from the nuclear power plants and even between different Cameco operations. This is another aspect of security culture that needs further examination before mandating a specific approach.

Since the REGDOC lists indicators that only apply to security culture and contemplates separate safety and security assessments (section 3.4.1) without identifying any advantages for treating security culture as a component of safety culture, Cameco strongly encourages the CNSC to remove references to nuclear security culture from this draft until industry-wide efforts in this area are further developed.

Safety Culture Documentation

The proposed indicators and characteristics listed in the safety culture reference framework are overly rigid and prescriptive. The REGDOC implies an expectation that licensees must, if not actually adopt the framework, at least explicitly address the details in the CNSC list. This interpretation is supported later in this draft by the final line of page 9, which says, “*The licensee*

should be able to demonstrate that each characteristic in the CNSC's safety culture reference framework is clearly and effectively addressed." Cameco recommends that the REGDOC be revised to make it very clear the CNSC framework is simply an example one that could be used to help licensees develop their own framework. Further, the document should state that licensees should have a detailed framework, but not require them to cover all the detailed points listed by the CNSC.

Conduct of Assessments

The proposed requirement that "*Licensees shall conduct comprehensive safety culture assessments that are empirical, valid, practical and functional*", when combined with the recommended guidance in this section, could potentially undermine the health of nuclear safety culture. As currently written, it will mandate an exercise that is concerned primarily with the gathering and analysis of data rather than fostering a process of self-discovery and reflection, supported by innovation in methodology, sharing experience and engaging leaders in the creative act of fostering a healthy nuclear safety culture over the entire lifecycle of an organization. While Cameco understands the need for rigorous assessments, the CNSC requirements seem to imply an overemphasis on quantitative and highly deterministic types of analysis.

For example, it is expected that analysis is "replicable". This implies the same conclusions would be reached with a different team. This is an unrealistic expectation for an interpretive exercise like a safety culture assessment. Further, it is impractical, if not impossible, for a licensee to demonstrate. The assessment is supposed to be based on "observable facts"; however, safety culture assessments are more often based on perceptions and observations, which may or not be "facts". Further, the REGDOC states that "the method allows for comparative analysis over time". Direct comparison from one period to the next, or one licensee to the next, is ill advised and can be misleading. For example, a reduction in results in the survey tool could be the result of a healthier, more self-critical organizational culture, rather than a decline in commitment to safety. In summary, the CNSC should revise some of the language in this section that makes it clearer that a rigorous, but flexible approach to assessments is allowed.

Section 3.3.3 has an extensive list of "should" statements that, in practice, will be virtually impossible to satisfy. For instance, the assessment team leader selection is too detailed and prescriptive, particularly for hybrid assessments. These responsibilities do not necessarily need to be completed by the team leader and often would not if they had an internal team lead. In addition, the combination skills and demographics for team members would be very difficult to meet. Cameco recommends that this section recognize that any team will be a compromise of number of potentially competing factors and skill sets among its members and revise the "should" factors to be considerations for choosing team members.

As discussed above, the REGDOC proposes a safety culture assessment at a frequency of at least every three years. We believe this frequency is not practical or achievable when the full cycle of planning, conducting, analyzing and reporting on the assessment is considered. It also ignores the business needs and other priorities of licensees. Such frequent assessment may also overwhelm staff as one round ends, the next begins leading to complacency and disengagement with the assessment process.

Cameco strongly recommends that the requirement should read “*Safety culture assessments should nominally be conducted every five years.*”

Maturity Model

Cameco believes the proposed nuclear safety culture maturity model (Appendix B) is misaligned with the nuclear safety culture characteristics and poorly integrated overall with the draft REGDOC. Its use could create an environment where a licensee’s culture is perceived as an absolute value that is simply pass or fail. Cameco is deeply concerned that indicator scores would be used to plot stage 1, 2 or 3 and that the CNSC would expect some sort of traceable analytical methodology to link the safety culture assessment to the maturity model indicators, which are not part a safety culture framework. Cameco strongly recommends the CNSC remove the entirety of Appendix B and any references to the Maturity Model.

Summary Reports

The CNSC’s current, non-intrusive approach to safety culture assessments has helped promote the assessment as an effective management tool, not a regulatory one. This has resulted in positive benefits like ongoing engagement from site management and open, honest internal discussions about nuclear safety culture. Should the perception of assessments be changed to simply “another regulatory report/requirement,” complacency and disengagement from the assessment process will likely follow.

A summary report will also compromise the validity and quality of the assessment because participant responses to surveys and interviews will be less candid, self-critical and forthcoming when a measure of confidentiality is perceived to be lost through any form of public scrutiny.

In our view, the value of the assessment could be protected if the REGDOC encouraged licensees to provide the CNSC with their approach to the assessment and to provide a confidential briefing on the key themes and planned actions to ensure continuous improvement in fostering a healthy nuclear safety culture. In the end, Cameco recommends that the requirement to submit a summary report be removed.

Public Disclosure of Assessments

Licensees should not be expected to share information from a safety culture assessment with the public for the same reasons as stated above for submitting summary reports. In addition, compelling public communication of assessment results could inadvertently pressure licensees to ensure positive assessments through the setting of lower expectations or create a potential to sanitize reporting and ultimately lower the overall benefit to nuclear safety.

Further, there is significant risk that the general public could misinterpret the results of an assessment expressed in language understood by licensees and workers in the context of their internal business practices and based on perceptions of workers who understand nuclear culture and are being extremely self-critical.

Any public disclosure of the results of assessments will compromise the integrity of the assessment and defeat the goal of continuous improvement. Cameco strongly urges the CNSC to remove any references or implied requirements to communicate nuclear security assessment

results with external stakeholders. How licensees opt to communicate their assessments should be a matter of choice in line with their existing communication strategies, which makes this guidance unnecessary.

Section 3 Guidance

For further clarity on the REGDOC, Cameco considers many of the additional demands in Section 3 to add little value to improving Cameco's safety culture, but would add significant cost and effort. As such, Cameco does not intend to adopt the guidance for the following aspects of Section 3:

- Conducting safety culture assessments every 3 years
- Impact analysis of improvement actions
- Communication plan to external stakeholders
- Use of a maturity model
- Summary report for submission to the CNSC

Editorial Clarification

IAEA document GS-R-3, *The Management System for Facilities and Activities* referred to in Section 1.4 was superseded in June 2016 by GSR Part 2.

Summary

In closing, Cameco considers safety culture an essential part of our management system and we are committed to ensuring continued safety at all our facilities. We do not see this draft REGDOC as a valuable tool in this regard. Cameco would welcome the opportunity to attend a workshop with other industry stakeholders to assist in developing more practical approaches for safety culture than set out in this draft REGDOC. This iterative consultation process improved REGDOC-2.9.1, *Environmental Protection: Environmental Principles, Assessments and Protection Measures* substantially and we believe this approach is warranted with this REGDOC.

If you have any questions with respect to the above, then please contact the undersigned at (306) 956-6685 or liam.mooney@cameco.com.

Sincerely,



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