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Cindy Bladey
Chief, Rules, Announcements, and Directives Branch (RADB)
Office of Administration,
Mail Stop: 3WFN-06-44M
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Comments on *FSME INTERIM STAFF GUIDANCE FSME-ISG-01 EVALUATIONS OF URANIUM RECOVERY FACILITY SURVEYS OF RADON AND RADON PROGENY IN AIR AND DEMONSTRATIONS OF COMPLIANCE WITH 10 CFR 20.1301 Revised Draft Report for Comment*– (Federal Register Volume 79, Number 59 (Thursday, March 27, 2014) - Notices - Pages 17194-17195

Dear Ms. Bladey:

Cameco Resources Inc. appreciates the opportunity to provide comments on this draft guidance. Overall, we feel this guidance provides sufficient direction as well as providing reasonable options to ensure regulatory compliance to public dose requirements. We have provided some specific technical comments below. Of specific note, we would like to acknowledge the flexibility allowed in section 4.2 regarding alternate survey approaches for radon-222.

As alluded to in Section 4.2.4 and 4.2.5, the measurement of radon at the concentrations required in order to comply with the public dose limits using the effluent values in 10CRF20 Appendix B is extremely difficult and carries an uncertainty that is often several times the value that needs to be measured. There are two key issues: (1) background radon concentrations (0.27 pCi/L on average according to UNSCEAR 2006) are often greater than the incremental radon concentrations licensees are attempting to measure and (2) the variability of environmental radon (0.027 – 2.7 pCi/L range according to UNSCEAR 2006) due to long-term and seasonal weather patterns, geological variations, etc. can be an order of magnitude greater than incremental concentrations. Section 4.3 also notes that in a study by Shearer and Sill, it was determined that at distance of one mile from a tailings pile radon concentrations were indistinguishable from background. Though this distance may be different for each site, at some distance, likely relatively close to the site, it is no longer possible to measure incremental radon even excluding the uncertainty issue.

This means that without permissible alternatives, the licensee would be required to try to measure an incremental value that can be significantly smaller than the uncertainties associated with the measurement or simply indistinguishable from background. The options to either measure the operational parameters or radon in the stacks and other effluent points (4.2.2 and 4.2.3) gives the licensee the ability to meet the regulations in a feasible way that produces reasonable, accurate results and promotes regulatory confidence by reducing the potential for erroneous results, i.e. false positives and negatives, due to measurement uncertainty.

Additional comments related to specific sections of the guidance are as follows:

Sections 4.2.2 and 4.2.3:

In the statement in each section indicating that measurements be used to verify predicted concentrations are not exceeded, we recommend that a comment be included to indicate that a statistical approach to evaluating or comparing measured to modelled concentrations be considered an acceptable method for performing this verification.

Section 4.2.4:

In this section it states that "background measurements should typically be made during the same period as the measurements around the facility". At low concentrations some of the variability in background concentrations year-to-year may simply be due to uncertainty. We recommend that, if the licensee can demonstrate statistically that background measurements from multiple consecutive years can be used to better characterize the background, this option should be considered by the NRC.

Section 4.8.1:

In this section it states that "if occupancy factors (i.e. other than 1) are used by licensees, this potential relationship of occupancy times and radon concentrations should be considered and addressed appropriately" in relation to radon concentrations. Given the uncertainties associated with measuring radon-222 already discussed and the fact that it is not realistic to only measure radon-222 during night time conditions with track etch detectors, it is recommended that this discussion within section 4.8.1 be removed. Further, because the dose conversion factors assume a specific breathing rate that is associated with daytime behavior, it is not appropriate to use the conversion factors based on 10CFR20 Appendix B. Though nighttime radon can be higher, the breathing rate while sleeping is significantly lower, largely offsetting the two factors. This section also implies a level of accuracy associated with these measurements that is not realistic. As mentioned, we feel it is most appropriate to remove this portion of section 4.8.4 from the document.

In summary, we feel that this guidance provides a path forward and includes sufficient reasonable options for performing either measurements or calculations of radon-222 and in turn public dose calculations. We feel it is critical that all of these options for compliance remain part of the document. Without them, it would be extremely difficult for licensees to accurately determine radon concentrations and public dose when incremental radon-222 concentrations are low. We thank you for this opportunity to provide feedback on this draft guidance document.

Sincerely,
Cameco Resources

Josh P. Schmidt for JOSH LEFTWICH

Josh Leftwich
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