STATE OF COLORADO

John W. Hickenlooper, Governor
Larry Wolk, MD, MSPH
Executive Director and Chief Medical Officer

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S.
Denver, Colorado 80246-1530
Phone (303) 692-2000
Located in Glendale, Colorado

Laboratory Services Division
8100 Lowry Blvd.
Denver, Colorado 80230-6928
(303) 692-3090

www.colorado.gov/cdphe

Colorado Department
of Public Health
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May 12, 2014

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 concerning Docket ID NRC-2011-0266
State of Colorado Comments on the FSME Interim Staff Guidance FSME-ISG-01

Dear Ms. Bladey:

May 12, 2014

Here follow comments from the Colorado Department of Public Health and Environment concerning the Revised Draft Report for Comment published March 2014 entitled:

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 Published March 2014.

Specific comments are referred to by section.

§4.2 Survey Approaches for Radon in Air

We concur that modeling results alone, unsupported by physical measurements, are insufficient for demonstrating compliance with 10 CFR 20.1301 and 1302.

§4.3 Background Radon Concentrations and Preoperational Monitoring

This document consistently speaks of measuring background values of radon. Baseline may be a more accurate term since it will account for un-licensed sources of radon not on the facility. Seasonality should also be considered in evaluating background variability on a quarterly basis.

SUNSI Review Complete
Template = ADM-013
E-RIDS = ADM-03
Add = D. Schmidt (dws2)

§4.5 Uncertainty and Minimum Detectable Concentration

Paragraph 3 of this section needs clarification or a re-write. The statement:

> *"NRC staff also considers inappropriate to represent background concentration by the average plus some multiple of the standard deviation. "*

is not an appropriate method for treating measured background values of radon. The description of background is a statistical description. (Emphasis added)

For real sites background is not a single value. One up-gradient point cannot provide a reliable background. Background is a population of measurements for which a mean and standard deviation are calculated. Comparing a background mean evaluation to the bright-line standard comparison talked about in HPPOS-223 is invalid. If you implement this method as stated you will have a comparison system with a 50% Type 1 error rate.

A more valid comparison to HPPOS-223 is to say that when a measured value is compared to background, the uncertainty of the measured value is not considered in the comparison.

§4.9.1 Conservative Value

An equilibrium factor of 0.5 is a more realistic value for calculations.

§4.9.1 Paragraph 5

Using multiple detectors at the sample location and same exposure interval is the technique to determine experimental precision. This should be done at a set number of sampling locations during each sampling event as a part of quality control. Using this technique to reduce Poisson counting error may be useful if the counting error is the major experimental error. Can the extra cost be justified if there is no increase in measurement reliability?

Seasonality is not really touched on in this section. It should be considered when comparing measurements from multiple locations.

§4.9.1 Paragraph 6

Please make it clearer that the comparison between sample points being discussed is the apparent difference between background measurement points. Background spatial variation and seasonality may need more than one year's data for a good characterization. The comparison between background and compliance points is not being compared between one year's measurement and the next year.

If you have any questions concerning this letter, please contact me at (303) 692-3438 or edgar.ethington@state.co.us .

Sincerely,

Edgar Ethington, P. G.
Radioactive Materials Unit
Hazardous Materials and Waste Management Division
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

CC Jennifer Opila, CDPHE