

Regulatory Guide Periodic Review

Regulatory Guide Number: 8.30, Revision 1

Title: Health Physics Surveys in Uranium Recovery Facilities

Office/division/branch: NMSS/DUWP/URLB
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Staff Action Decided: Reviewed with issues identified for future consideration

1. What are the known technical or regulatory issues with the current version of the Regulatory Guide (RG)?

RG 8.30 Revision 1 was issued in 2002 to describe health physics surveys that are acceptable to the U.S. Nuclear Regulatory Commission (NRC) staff for protecting workers at uranium recovery facilities (e.g., uranium mills, in-situ recovery (ISR) facilities, ion exchange recovery facilities, heap leach facilities) from radiation and the chemical toxicity of uranium while on the job.

Revision 1 is not fully consistent with the regulatory requirements incorporated in the 1991 revision of 10 CFR Part 20, "Standards for Protection Against Radiation." For example, the discussion in Section C to RG 8.30, Regulatory Position C.2.2, "Surveys for Airborne Yellowcake," still refers to the terms "soluble" and "insoluble" instead of the inhalation classes D, W, and Y (the classification of a compound as Class D, W, or Y is discussed in Appendix B to 10 CFR Part 20, "Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage"). Also, Regulatory Position C.2.2 does not address yellowcake processed at uranium ISR facilities. Specifically, it does not address how to evaluate a uranium compound (uranyl peroxide) if it is not listed in Appendix B to 10 CFR Part 20.

Other deficiencies have been identified in Section C, Regulatory Positions C.2.5, "Surveys for Surface Contamination in Restricted Area," Regulatory Position C.2.6, "Surveys for Contamination of Skin and Personal Clothing," and Regulatory Position C.2.7, "Surveys of Equipment Prior to Release to Unrestricted Areas," which do not address beta-gamma-emitting radionuclides found in contamination at uranium recovery facilities.

For example, the recommendations in Section C, Regulatory Position C.2.5, are based on older dosimetry models (prior to the current 10 CFR Part 20 [i.e., ICRP-2]) and terminology that is not consistent with what is used by NRC licensees (e.g., "inactive area" and "active area" vs. "restricted area" and "unrestricted area"). These radionuclides have a separate limit from alpha-emitting radionuclides.

Section C, Regulatory Position C.3, "Intake and Exposure Calculations," although it includes technically correct guidance, should be expanded to discuss 10 CFR 20.1204(g), "Determination of internal exposures," to assist the uranium recovery industry on how to apply the regulatory requirement correctly at uranium ISRs facilities.

Regulatory Guide Periodic Review

Also, the guidance on how to assess the lower limit of detection contamination surveys (see Table 3 to RG 8.30, "Summary of Survey Frequencies") should be modified using the information provided in NUREG-1575, "Multi-Agency Survey and Site Investigation Manual," and other relevant guidance documents that include up-to-date information.

2. What is the impact on internal and external stakeholders of not updating the RG for the known issues, in terms of anticipated numbers of licensing and inspection activities over the next several years

There is no impact on licensing activities since the NRC staff does not anticipate any new or renewal applications in the next several years. However, there will be approximately 3 - 4 inspection activities per year over the next several years (and more in Agreement states). The NRC staff expects minimal impact on the inspection activities as the issues discussed in item 1 above have been addressed as appropriate with individual licenses (e.g., addressed in specific license conditions).

In addition, other available NRC guidance documents discuss these issues, such as RG 8.22, "Bioassay at Uranium Mills," discusses "unlisted uranium materials," NUREG-1736, "Consolidated Guidance: 10 CFR Part 20 - Standards for Radiation Protection Against Radiation," provides examples on how to comply with 10 CFR 20.1204(g), and consistent with "Supplemental Information on the Implementation of the Final Rule on Radiological Criteria for License Termination," (63 FR 64133), individual license conditions require licensees to monitor for beta-gamma-emitting radionuclides found in contamination at uranium recovery facilities.

3. What is an estimate of the level of effort needed to address identified issues in terms of full-time equivalent (FTE) and contractor resources?

An estimate of the effort needed to correct the identified issues is approximately 0.3 FTE. No contractor support is anticipated.

4. Based on the answers to the questions above, what is the NRC staff action for this guide (Reviewed with no issues identified, Reviewed with issues identified for future consideration, Revise, or Withdraw)?

Reviewed with issues identified for future consideration.

5. Provide a conceptual plan and timeframe to address the issues identified during the review.

The NRC staff will consider the identified issues as part of the next periodic review.

NOTE: This review was conducted in July 2019 and reflects the NRC staff plans as of that date. These plans are tentative and are subject to change.