

RULES AND DIRECTIVES
BRANCH

2016 AUG 23 PM 2:50

PUBLIC SUBMISSION

As of: 8/23/16 2:40 PM
Received: August 22, 2016
Status: Pending_Post
Tracking No. 1k0-8rh3-goa2
Comments Due: August 22, 2016
Submission Type: Web

RECEIVED

Docket: NRC-2011-0162
Remediation of Residual Radioactivity During Operations

Comment On: NRC-2011-0162-0017
Consideration of Rulemaking to Address Prompt Remediation of Residual Radioactivity During Operation;
Notice of Public Webinar and Request for Comment

Document: NRC-2011-0162-DRAFT-0017
Comment on FR Doc # 2016-15949

Submitter Information

Name: Wyoming Mining Association

7/6/2016
C1FR 43959

General Comment

See attached file(s)

4

Attachments

160822 WMA Comments on NRC Proposed Rulemakine Prompt Remediation of Residual Radioactivity
During Operation

SUNSI Review Complete

Template = ADM - 013

E-RIDS= ADM -03

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August 22, 2016

Ms. Cindy Bladey
Office of Administration
Mail Stop: OWFN-12-H08
U.S. Nuclear Regulatory Commission,
Washington, DC 20555-0001

Subject: Wyoming Mining Association (WMA) Comments on the Consideration of Rulemaking to Address Prompt Remediation of Residual Radioactivity During Operation– (Federal Register Volume 81, Number 129 Wednesday, July 6, 2016 /Notices)

Dear Ms. Bladey:

The Wyoming Mining Association (WMA) is an industry association representing mining companies, contractors, vendors, suppliers and consultants in the State of Wyoming. Among its mining industry members are uranium recovery licensees, including five (5) operating in-situ uranium recovery licensees, one conventional uranium recovery operator in standby, several companies planning new uranium recovery operations that are currently in the permitting process and several companies conducting final reclamation/restoration operations.

Total uranium concentrate production in the United States in 2015 was 3,700,000 pounds (U.S. Energy Information Administration - *2015 Domestic Uranium Production Report*). 2014 Wyoming uranium production was 3,300,000 pounds (Wyoming State Geological Survey). 2015 production data for Wyoming is not yet available from the Wyoming State Geological Survey. Wyoming contributes the largest share of any state to the total production of uranium in the United States. As such the issues raised in this Request for Comment are of special concern to the WMA and its uranium recovery industry members.

The following are the Association's comments on the ***Request for Comment - Consideration of Rulemaking to Address Prompt Remediation of Residual Radioactivity During Operation***:

Prior Comments

Comments dated September 7, 2011 were submitted regarding this rulemaking under consideration. They are included in Appendix 1 for reference. These comments reflect the WMA's current position on this rulemaking under consideration.

Specific Comments in Response to the Specific Questions in the July 6, 2016 Federal Register Notice

3. If the NRC does implement a rule that requires prompt remediation of radioactive spills and leaks, what concentration, dose limits, or other threshold limits should trigger prompt remediation? Should the thresholds differ for soil versus groundwater contamination?

Thresholds for residual radioactivity in both groundwater and soil should be based on the public dose limit in 10 CFR Part 20.1301 of 100 millirems per year Total Effective Dose Equivalent (TEDE) with the application of the ALARA principle as required by 10 CFR part 20.1101(b) for such contamination for which a pathway exists for exposure to the general public. As long as the dose from the residual radioactivity does not cause any member of the general public in areas accessible to the general public (uncontrolled and unrestricted areas) to receive a dose in excess of the public dose limit there should be no requirement to immediately remediate the contamination.

Thresholds for doses within controlled and/or restricted areas should be based upon the dose limits to radiation workers who have higher dose limits (five (5) rems/year Total Effective Dose Equivalent (TEDE) as per 10 CFR Part 20.1201(1)(i), than members of the general public. Doses within controlled and/or restricted areas from any residual activity would become part of their normal occupational doses.

4. Should the NRC allow licensees to justify delaying remediation under certain conditions when the contaminant level exceeds the threshold limit? If yes, then what conditions should be used to justify a delayed remediation?

Licensees should be able to justify delaying remediation for a number of reasons including:

- Presence of residual radioactivity beneath buildings that are in use.
- Presence of residual radioactivity immediately adjacent to buildings that are in use, the excavation or removal of which presents a hazard to existing structures.
- Presence of residual radioactivity in areas where its excavation or removal would pose a physical hazard to site personnel.

In the above instances the residual radioactivity is most likely in areas of the facility where operations are ongoing and as such are at the very least *controlled areas* defined in 10 CFR Part 20.1003 as:

"...an area, outside of a restricted area but inside the site boundary, access to which can be limited by the licensee for any reason." or;

potentially restricted areas defined in 10 CFR Part 20.1003 as:

"...an area, access to which is limited by the licensee for the purpose of protecting individuals against undue risks from exposure to radiation and radioactive materials. Restricted area does not include areas used as residential quarters, but separate rooms in a residential building may be set apart as a restricted area."

In either case, access to these areas can be restricted by the licensee solely to radiation workers who have higher dose limits (five (5) rems/year Total Effective Dose Equivalent (TEDE) as per 10 CFR Part 20.1201(1)(i), than members of the general public thus their doses from any residual activity would become part of their normal occupational doses.

5. Should factors such as safety, operational impact, and cost be a basis for delaying remediation?

Staff should consider factors such as safety, operational impact and cost as a basis for delaying remediation. Safety is the prime consideration among the three listed ones. Remediation activities such as excavation of contaminated soils could create physical hazards due to the operation of heavy machinery and traffic hazards created by commuting remediation workers (equipment operators etc.) that vastly exceed the risks posed by the residual radioactivity. Remediation activities could also interfere with ongoing site operations. It also may well be more costly to perform remediation concurrently with operations since both activities could interfere with each other. In many cases it is unlikely that the contamination will spread and the dose resulting from leaving the contamination in place is insignificant. Natural uranium contains long half life radionuclides (Uranium-238 - 4.51 billion years, Uranium-235 - 703.8 million years and Uranium-234 - 245,500 years) which translates to low specific activity and low doses when compared to other radioisotopes present at other licensed facilities. Therefore, other factors should be considered when determining when the remediation should take place.

6. If the NRC implements a rule that allows licensees to analyze residual radioactivity to justify delaying remediation, then what should the licensee's analysis cover? For example, what kind of dose assessment, risk assessments, and/or cost-benefit analyses should be performed to justify delayed remediation? What other types of analyses are relevant to this process?

In the case of uranium recovery facilities, dose should be assessed using a model such as RESRAD. RESRAD is free and may be obtained at:

<https://web.evs.anl.gov/resrad/>

This code has been used successfully at uranium recovery sites and the outputs that it generates have been accepted by the Nuclear Regulatory Commission (NRC).

8. If the NRC implements a rule that allows licensees to analyze residual radioactivity to justify delaying remediation, what standards or criteria should a licensee use to demonstrate to the NRC that a sufficient justification to delay remediation has been met?

Licensee's should be able to justify delaying remediation based upon the following criteria:

- For areas accessible to the general public (uncontrolled areas on their property) the criteria should be that the Total Effective Dose Equivalent (TEDE) to a member of the general public does not exceed 100 millirems as defined in 10 CFR part 20.1101(b).

10. What other issues should the NRC staff consider in developing a technical basis for a potential rulemaking to address prompt remediation of residual radioactivity during site operation?

Staff should consider existing industry specific regulations and industry specific circumstances in any attempt to develop a technical basis for a potential rulemaking. No additional rulemaking should be enacted to require remediation of residual radioactivity during the operational phase at uranium recovery operations for the following reasons:

- In the case of uranium recovery operations licensed under 10 CFR Part 40 specific regulation exists, 10 CFR Part 40.36(f), which requires documentation of all contamination such as spills in a comprehensive file. This regulation states:

(f) Each person licensed under this part shall keep records of information important to the decommissioning of a facility in an identified location until the site is released for unrestricted use. Before licensed activities are transferred or assigned in accordance with § 40.41(b) licensees shall transfer all records described in this paragraph to the new licensee. In this case, the new licensee will be responsible for maintaining these records until the license is terminated. If records important to the decommissioning of a facility are kept for other purposes, reference to these records and their locations may be used. Information the Commission considers important to decommissioning consists of—

(1) Records of spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment, or site. These records may be limited to instances when contamination remains after any cleanup procedures or when there is reasonable likelihood that contaminants may have spread to inaccessible areas as in the case of possible seepage into porous materials such as concrete. These records must include any known information on identification of involved nuclides, quantities, forms, and concentrations.

(2) As-built drawings and modifications of structures and equipment in restricted areas where radioactive materials are used and/or stored, and of locations of possible inaccessible contamination such as buried pipes which may be subject to contamination. If required drawings are referenced, each relevant document need not be indexed

individually. If drawings are not available, the licensee shall substitute appropriate records of available information concerning these areas and locations.

(3) Except for areas containing depleted uranium used only for shielding or as penetrators in unused munitions, a list contained in a single document and updated every 2 years, of the following:

- (i) All areas designated and formerly designated as restricted areas as defined under 10 CFR 20.1003;*
- (ii) All areas outside of restricted areas that require documentation under §40.36(f)(1);*
- (iii) All areas outside of restricted areas where current and previous wastes have been buried as documented under 10 CFR 20.2108; and*
- (iv) All areas outside of restricted areas that contain material such that, if the license expired, the licensee would be required to either decontaminate the area to meet the criteria for decommissioning in 10 CFR part 20, subpart E, or apply for approval for disposal under 10 CFR 20.2002.*

This existing regulation clearly allows the source material licensee to document contamination for remediation at final decommissioning. This should not change.

- In addition, the uranium recovery industry is already closely regulated by the standards promulgated specifically for it in 10 CFR Part 40 Appendix A that are comprehensive in nature and include stringent surety requirements that insure that sufficient funds will be available in the event of the bankruptcy of the licensee to allow a third party contractor to complete reclamation.

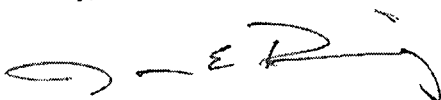
Specific Issues Related to the Uranium Recovery Industry

In-situ uranium recovery facilities extract the uranium via wells completed into uraniumiferous sands and sandstones within exempted portions of aquifers. Groundwater restoration of the wellfields at these sites is a lengthy process governed by 10 CFR Part 40 Appendix A Criterion 5B(6) and *NRC REGULATORY ISSUE SUMMARY 2009-05 URANIUM RECOVERY POLICY REGARDING: (1) THE PROCESS FOR SCHEDULING LICENSING REVIEWS OF APPLICATIONS FOR NEW URANIUM RECOVERY FACILITIES AND (2) THE RESTORATION OF GROUNDWATER AT LICENSED URANIUM IN SITU RECOVERY FACILITIES*. Further regulation is not required.

The reclamation and closure of tailings impoundments at conventional uranium recovery facilities is also a lengthy process and is governed by 10 CFR Part 40 Appendix A and by *NUREG-1620, Revision 1 - Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites Under Title II of the Uranium Mill Tailings Radiation Control Act of 1978*. Further regulation is not required.

The Wyoming Mining Association (WMA) appreciates the opportunity to comment on this notice. If you have any questions, please do not hesitate to contact me.

Sincerely,



Jonathan Downing
Executive Director