



# WYOMING MINING ASSOCIATION

December 7, 1999

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DOCKET NUMBER  
PROPOSED RULE PR 20  
(64FR35090)

Gentlemen:

**Subject: Release of Solid Materials at Licensed Facilities: Issues Paper, Scoping Process for Environmental Issues, and Notice of Public Meetings - Federal Register June 30, 1999, Volume 64 pages 35090 - 35100  
Comments of the Wyoming Mining Association (WMA)**

The Wyoming Mining Association is an industry association of mining companies including uranium recovery licensees and mining industry associates including suppliers, vendors and contractors. Because the public scoping meetings related to the above described issue are not being held near Wyoming, the WMA is submitting these written comments. The following are the Wyoming Mining Association's comments on this issues paper:

1. **Lack of Regulatory Requirements Regarding the Release of Solid Materials.**  
The Supplementary Information section in the sub-section entitled Background states:

**"Unlike for air and liquid releases, the Commission currently has no specific regulatory requirements regarding release of solid materials. Even though the NRC does not have requirements in this area, it still receives requests from licensees for release of solid materials which it must evaluate on a case-by case basis using existing guidance or case-specific criteria. Solid materials include metals, concrete, soils, equipment, furniture, etc.,..."**

The WMA disagrees with this statement. Very specific guidance and regulation exists for the uranium recovery industry regarding the release of equipment, soil and other items from NRC jurisdiction.

1.1 The applicable guidance includes:  
**Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source or Special Nuclear Material. - November 1976 and July 1982**

These documents are included by reference. The use of NRC release

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guidance such as the above referenced documents is mandated in the uranium recovery licensee's NRC source material license. Thus, clear release requirements for solid materials exist in the uranium recovery industry.

1.2 The applicable regulations include:

**1.2.1 40 CFR Part 192.12**

This regulation provides very specific standards for soil cleanup and release of inactive uranium processing sites and states:

**Sec. 192.12 Standards.**

**Remedial actions shall be conducted so as to provide reasonable assurance that, as a result of residual radioactive materials from any designated processing site:**

**(a) The concentration of radium-226 in land averaged over any area of 100 square meters shall not exceed the background level by more than--**

**(1) 5 pCi/g, averaged over the first 15 cm of soil below the surface, and**

**(2) 15 pCi/g, averaged over 15 cm thick layers of soil more than 15 cm below the surface.**

**(b) In any occupied or habitable building--**

**(1) The objective of remedial action shall be, and reasonable effort shall be made to achieve, an annual average (or equivalent) radon decay product concentration (including background) not to exceed 0.02 WL. In any case, the radon decay product concentration (including background) shall not exceed 0.03 WL, and**

**(2) The level of gamma radiation shall not exceed the background level by more than 20 microroentgens per hour.**

40 CFR Part 192 clearly addresses radium-226 in soils for inactive uranium processing sites as well as release standards for occupied and habitable buildings.

**1.2.2 CFR Part 40, Appendix A, Criterion 6(6)**

This regulation addresses uranium and thorium cleanup standards for soils and states:

**Byproduct material containing concentrations of radionuclides**

**other than radium in soil, and surface activity on remaining structures, must not result in a total effective dose equivalent (TEDE) exceeding the dose from cleanup of radium contaminated soil to the above standard (benchmark dose), and must be at levels which are as low as is reasonably achievable. If more than one residual radionuclide is present in the same 100-square-meter area, the sum of the ratios for each radionuclide of concentration present to the concentration limit will not exceed "1" (unity). A calculation of the potential peak annual TEDE within 1000 years to the average member of the critical group that would result from applying the radium standard (not including radon) on the site must be submitted for approval. The use of decommissioning plans with benchmark doses which exceed 100 mrem/yr, before application of ALARA, requires the approval of the Commission after consideration of the recommendation of the NRC staff. This requirement for dose criteria does not apply to sites that have decommissioning plans for soil and structures approved before June 11, 1999.**

Clearly the above listed regulatory citations address the release of soils and structures within restricted areas at uranium recovery sites and address release of contaminated objects which are contaminated by radium-226, natural uranium, thorium-230 and other radionuclides.

**2. Need for Case-by-Case Approval of Release.**

The document in the section **A. Background/A.1 Current NRC Policies/A.1.1 Inconsistency of NRC regulations covering releases from licensed facilities** states:

**"Therefore, if a licensee requests approval of release of solid material, the NRC must consider the request on a case-by-case basis using existing regulatory guidance, license conditions, NRC Branch Technical Positions, etc."**

The WMA disagrees with this statement. Requests for release of equipment from NRC licensed uranium recovery facilities are not handled on a case-by-case basis. The facility Radiation Safety Officer (RSO) is responsible for release of equipment and materials from the restricted area and must do so in accordance with applicable license conditions and applicable regulatory guidance such as the above referenced documents. All releases must be documented and the release documentation is inspected by the NRC at routine NRC inspections of the facility.

**3. Proposed Alternatives**

**3.1 Alternative 1 (Section A.2.2(1) and other areas of the document) Use of**

### **Dose based Standards**

The document discusses Regulatory Guide 1.86 in Section A.1.3(a). It states:

**“The surface contamination levels were not based on potential dose to an individual that may result from coming in contact with the released materials although such exposure is estimated to be low. Regulatory Guide 1.86 does not contain dose criteria.”**

The document also states in Section A.2.2(1):

**“Permit release of solid materials for unrestricted use if the potential doses to the public from unrestricted use of the material were less than as specified level determined during the rulemaking process.”**

The Wyoming Mining Association opposes the use of dose based standards for the release of solid materials from licensed facilities. The WMA believes that only activity based standards should be used for the following reasons:

#### **3.1.1 Pathway Specific Nature of Dose**

Activity is simple to measure. The object in question is checked with the appropriate instrumentation to determine its activity and the measured activity is compared to the activity based release criteria.

Potential dose from a released object is not simple to calculate, because dose is based in part on the exposure pathways. The dose an individual receives from a released object depends in part upon how the object is used. If a tank is released from a uranium recovery facility and used as a storage tank in a remote oilfield, then any potential dose to an individual from the tank would be low because there is little chance that any one individual would be in contact with the tank for an extended period of time. By using dose as a release criteria, the NRC is forcing licensees to consider and evaluate potential uses for the released object, which once released is out of the licensees' control. For example, the storage tank originally purchased from a licensee for the oil field may be resold and used in a high dose situation beyond the control the licensee. For this reason, the current activity based release standard makes the most sense for uranium recovery licensees.

#### **3.1.2 Inherent Conservatism of Dose Calculation**

Some methods of calculating dose are inherently unrealistically conservative. The use of dose based standards would inhibit the ability of licensees to release materials from their sites. This would force the licensees to dispose of more materials as radioactive

waste even though they pose no real hazard. This would create even greater amounts of radioactive wastes which would compete for increasingly limited disposal capacity.

### **3.1.3 Inherent Low Activity of Contamination and Contaminated Items in the Uranium Recovery Industry**

Items contaminated in the uranium recovery industry are by definition 11(e).2 byproduct material. In addition, they are inherently and by definition of low specific activity. They are by definition Low Specific Activity (LSA) materials under existing transportation regulations (49 CFR 173.403) which state:

**Low Specific Activity (LSA) material means Class 7 (radioactive) material with limited specific activity which satisfies the descriptions and limits set forth below. Shielding materials surrounding the LSA material may not be considered in determining the estimated average specific activity of the package contents. LSA material must be in one of three groups:**

#### **(1) LSA-I.**

- (i) Ores containing only naturally occurring radionuclides (e.g., uranium, thorium) and uranium or thorium concentrates of such ores; or**
- (ii) Solid unirradiated natural uranium or depleted uranium or natural thorium or their solid or liquid compounds or mixtures; or**
- (iii) Class 7 (radioactive) material, other than fissile material, for which the A2 value is unlimited; or**
- (iv) Mill tailings, contaminated earth, concrete, rubble, other debris, and activated material in which the Class 7 (radioactive) material is essentially uniformly distributed and the average specific activity does not exceed 10 ...**

The above definition includes both the uranium thorium concentrates (which often contaminate materials in the source material processing industry) and contaminated items. Clearly, if contaminated items from the uranium recovery industry are defined in transportation regulations as being of low specific activity they cannot constitute a sufficient hazard to warrant release under dose based standards as opposed to the currently employed activity based standards.

### 3.2 Alternative 3 (Section A.2.2(3))

This alternative states:

**“Do not permit either unrestricted or restricted release of solid material that has been in an area where radioactive material has been used or stored, instead require all such materials to go to a licensed low-level waste (LLW) disposal facility.”**

The Wyoming Mining Association believes that this alternative is untenable for the following reasons:

#### 3.2.1 Creation of Large Amounts of Waste in an Environment of Limited Disposal capacity

This alternative would result in the creation of large amounts of waste which could be placed in a very limited number of facilities with limited capacity. The implementation of this alternative would severely inhibit decommissioning work since there would be so much material requiring disposal in a limited number of waste disposal sites. In order to facilitate decommissioning of licensed facilities, licensees must have alternatives for the waste materials. Forcing licensees to place these all of these materials in low level waste (LLW) sites places a severe burden on licensees and inhibits the decommissioning process.

#### 3.2.2 Use of Low Level Waste site for Disposal of Materials from Uranium Recovery Facilities

The document ignores the fact that materials contaminated in the course of processing materials primarily for their source material content (which is what uranium recovery facilities do) are 11e.(2) byproduct material and are defined as follows:

**Byproduct Material means the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content, including discrete surface wastes resulting from uranium solution extraction processes. Underground ore bodies depleted by such solution extraction operations do not constitute “byproduct material” within this definition. (10 CFR 40.4)**

11e.(2) byproduct material can only be placed for disposal in impoundments specifically licensed to accept such material (ie.: uranium mill tailings impoundments). Low level waste (LLW) facilities are not licensed to accept 11e.(2) byproduct materials from uranium recovery facilities.

- 3.3 Alternative 2 (Section A.2.2(2)) - Release to Certain Authorized Users** The Wyoming Mining Association considers this alternative better than forbidding release entirely however, the WMA sees the following flaw in this alternative:

**3.3.1 Creation of a New Class of Licensee**

This alternative would essentially create a new class of licensee, the **Authorized User**, thus this alternative would not really be a release at all but rather some sort of transfer to a specific types of industrial users (**Authorized Users**). Presumably, the materials could only be possessed by NRC licensees or **Authorized Users** and transferred and used by these classes of organizations. This would further complicate the existing regulatory environment and extend the NRC regulation and jurisdiction into other classes for businesses. This issue is addressed to some extent in the document where it states:

**“Because of uncertainties related to controlling potential uses of the material after it leaves a licensee’s facility, it may be necessary to require that processing of the material for the first use be done under a specific license issued by the NRC.”**

**4. Surficial Nature of Contamination in the Uranium Recovery Industry**

The dominant experience with contamination in the uranium recovery industry is one of surficial contamination. Very few items or objects in the uranium recovery industry are contaminated throughout their volume. Exceptions to the dominance of surficial contamination in the uranium recovery industry are concrete slabs beneath processing buildings and filter media materials such as filter bags and cartridges. Concrete slabs can become contaminated throughout their volume over time by penetration by uranium bearing fluids. Most contaminated materials in the uranium recovery industry however, are only contaminated on their surfaces through contact with uranium bearing fluids (lixiviants, eluates, tailings fluids or other fluids), by being covered with particles bearing uranium or its daughter products such as yellowcake particles, tailings particles or particles derived from precipitates, or by direct growth of precipitates on their surfaces which contain natural uranium and/or radium-226 such as contamination by pipe scale. These contaminated items include piping, tanks, liner materials, and building components. No contaminated items generated by the uranium recovery industry are activated, such as items from nuclear reactors which may become activated by neutron radiation over the operational life of the reactor.

**5. Issues for Discussion**

**5.1 “Issue No. 1 - Should the NRC Address Inconsistency in its Release Standards by Considering Rulemaking on Release of Solid Materials?”**

The WMA believes that the current standards set in the above described

guidance is adequate to protect public health, safety and the environment. The WMA believes that any additional rulemaking on the subject of release will hinder the decommissioning process and generate large quantities of materials that must by regulation be placed for disposal in a very limited number of disposal sites further exacerbating the problem of radioactive waste disposal in this country.

## **5.2 Issues Regarding the Creation by Regulation and Disposal of Large Volumes of Waste materials**

The Wyoming Mining Association believes that factors other than dose to the general public should be considered before rulemaking in this area is attempted. Any new rules that create large volumes of additional waste will create the following concerns:

### **5.2.2 Safety Concerns**

Large volumes of waste materials will have to be transported and as such will create inherent transportation risks in the form of risks of injury and death from traffic accidents. Any perceived benefits from additional regulation must be weighed against additional risks in other non-radiologic areas created by these regulations.

### **5.2.3 Hindrance of Decommissioning Activities**

The impact of additional rulemaking must be weighed against its effect on the decommissioning process and whether it will unduly hinder that process.

### **5.2.4 Cost Benefit Analysis**

The costs of any new rulemaking and the rules issuing from it must be weighed against any potential benefits that might bring. Hindering the release of materials and equipment from licensed facilities may impose burdensome costs on licensees far in excess of any benefits derived from the rules. The As Low As Reasonably Achievable (ALARA) principle clearly allows inclusion of economic considerations.

## **5.3 Issue No. 4 - If NRC Decides to Develop a Proposed Rule, What Materials Should be Covered?**

The WMA believes that no additional rulemaking is required. However, if the NRC proceeds with a rulemaking on this issue, the WMA believes that the rulemaking should be narrow in scope and confine itself to selected materials. The WMA believes that because the uranium recovery industry is already adequately regulated and that the contaminated materials from uranium recovery operations are of low activity, the uranium recovery industry should not be included in any future rulemaking.

6. **Conclusions**

The following are the Wyoming Mining Association's conclusions regarding this issue:

6.1 **Adequacy of Existing Regulations**

The WMA believes that the existing regulations are adequate to cover the release of items source material processing facilities. The WMA does not believe that any new regulations regarding release should be promulgated.

6.2 **Surficial Nature and Low Activity of Contamination in the Uranium Recovery Industry**

Most contaminated items generated in the uranium recovery industry are surficially contaminated and are by definition (49 CFR 173.403) of low activity. The uranium recovery industry does not generate items which are internally contaminated through activation. Thus contaminated items generated by the uranium recovery industry do not pose a sufficient hazard to warrant release under dose based standards

6.3 **Inherent Problems with Dose Based Release Standards**

The WMA believes that given the fact that dose based standards are inherently path way specific, their use would complicate release, create a new class of licensee, the **Authorized User**, and essentially end release for unrestricted use. In addition, dose based standards would result in the generation of large amounts of waste which would compete for the limited disposal capacity in the United States and unduly increase decommissioning costs and impede the decommissioning process.

6.4 **Exemption for the Source Material Recovery Industry**

Should dose based release standards be promulgated, the source material recovery industry should be exempted given the low risk posed by contaminated materials from this industry.

The Wyoming Mining Association appreciates the opportunity to comment on these issues. If you have any questions please do not hesitate to contact me.

Sincerely yours,



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