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Secretary of the Commission  
Attn: Rulemaking and Adjudications Staff  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

VIA E-MAIL

Gentlemen:

**Subject: Comments on the Rulemaking on Controlling the Disposition of Solid Materials:  
Scoping Process for Environmental Issues and Notice of Workshop**

Kennecott Uranium Company is a uranium recovery licensee and the operator and manager of the Sweetwater Uranium Project located in Sweetwater County, Wyoming and is the only remaining licensed conventional uranium mill in the state. Kennecott Uranium Company has reviewed the above referenced document and has the following comments regarding it:

#### **Solid Materials Being Considered**

This document considers "...materials can include furniture and ventilation ducts in buildings; metal equipment and pipes; wood, paper, and glass; laboratory materials (gloves, beakers, etc); routine trash; site fences; concrete; soil; or other similar materials." These types of contaminated materials are present at the Sweetwater Uranium Project. Materials from the restricted area at the site are currently subject to release procedures including scanning to determine that such materials have levels of activity below levels specified in applicable regulatory guidance as described in Section 3 - *The NRC's Current Approach for Controlling the Disposition of Solid Materials* of the document.

#### **Alternative 1**

Kennecott Uranium Company supports Alternative 1 – Continuation of the Current Approach for the following reasons:

##### **1. Protective of Public Health, Safety and the Environment**

Kennecott Uranium Company believes that the current fixed release limits for materials from source material processing sites are very protective of public health, safety and the environment. In addition, the limits are not applied by themselves but in conjunction with the As Low As Reasonably Achievable (ALARA) principle, which provides an additional measure of protection. The Nuclear Regulatory Commission (NRC) has determined that the current approach is protective of public health, safety and the environment. The National Academy of Sciences concurred, finding that the current approach "is workable and is sufficiently protective of the public health." See *The Disposition Dilemma: Controlling the Release of Solid Materials from Nuclear Regulatory Commission Licensed Facilities*, National Academy Press, 2002, pg. 10 ("the standards range from about 1 mrem/yr (USNRC's Regulatory Guidance 1.86, as estimated in USNRC, 1998b). In addition, the July 2002 draft of the CRCPD Implementation Guidance for Part N of the Suggested State Regulations for Control of Radiation – ADAMS #ML022040232 ("The radiation dose assessments performed for ANSI 13-12 (AN5199) indicate that the potential doses associated with the criteria of Appendix A [which are taken from Regulatory Guide 1.86] are about 10 microsievert per year (1 mrem per year), or under some circumstances may be conservatively as much as 50 microsievert per year (5 mrem per year)").

Current release standards include an average surface contamination level of 5,000-dpm/100 cm<sup>2</sup> and a removable surface contamination level of 1,000-dpm/100 cm<sup>2</sup>. These release limits are provided in Table 2 of REGULATORY GUIDE 8.30 - HEALTH PHYSICS SURVEYS IN URANIUM RECOVERY FACILITIES and are as follows:

**TABLE 2**  
**Surface Contamination Levels for Uranium and Daughters on Equipment To Be Released for Unrestricted Use, on Clothing, and on Nonoperating Areas of UR Facilities**

Average*	5,000 dpm alpha per 100 cm <sup>2</sup>	Average over no more than 1m <sup>2</sup>
Maximum**	15,000 dpm alpha per 100 cm <sup>2</sup>	Applies to an area of not more than 100 cm <sup>2</sup>
Removable	1,000 dpm alpha per 100 cm <sup>2</sup> ***	Determined by smearing with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the smear

\*These values are taken from Regulatory Guide 1.86, "Termination of Operating Licenses for Nuclear Reactors" (Ref. 23), and from "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct Source or Special Nuclear Material," Division of Fuel Cycle and Material Safety, USNRC, Washington, DC 20555, August 1987 (Ref. 24). (Available in NRC Public Document Room for inspection and copying for a fee.)

\*\* The value includes both fixed and removable contamination.

\*\*\*The contamination levels in Table 2 are given in units of dpm/100 cm<sup>2</sup> because this is the minimum area typically surveyed. When performing a smear or wipe test, the area should roughly approximate 100 cm<sup>2</sup>. However, there is no need to be precise about the area to be smeared.

When an object is decontaminated prior to monitoring prior to release for unrestricted use, it is cleaned by an appropriate means which could include pressure washing, cleaning with acid based cleaners, washing in a washing machine draining in to a contaminated liquids tank (in the case of clothing) or other means and then the article is monitored. When an article is decontaminated it is thoroughly cleaned in order to remove all contamination and then monitored. Since monitoring occurs after cleaning every attempt is made to clean the object as thoroughly as possible prior to monitoring so that the object does not have to be recleaned and remonitored if it fails to clear monitoring on the first attempt. As a result, items are cleaned to a level that is As Low As Reasonably Achievable (ALARA) that is usually well below (often by an order of magnitude or more) existing release limits for surface contamination. Thus under the current standards items are not leaving facilities that are "just below the limit" but rather "well below the limit" meaning that the current standards are protective of public health and safety.

The evidence of actual problems resulting from releases pursuant to the current standards (Regulatory Guide 1.86 and associated guidance) is minimal. Steve Collins of the State of Illinois [Radiation Control Program] and the CRCPD stated at a 1999 NRC public meeting: "The actual evidence from the states responding to the monitor trips is that most all of those responses are not the result of releases under Reg. Guide 1.86 criteria." (Transcript of December 7, 1999 Release of Radioactive Material Workshop in Chicago, Illinois.)

## 2. Ease of Implementation

The current standards are easy to implement in the field using simple instruments (an alpha detector, beta detector, gamma detector and an instrument for counting wipes) and follow simple, easy to measure and determine limits that involve little calculation and/or interpretation. This is in sharp contrast to Alternative 2 that involves dose-based criterion for unrestricted use. The implementation of dose base criterion is not simple since dose depends on the pathways to exposure. All potential pathways will have to be examined for each item released and doses calculated. Potential pathways may change over time so release levels that are acceptable now may not be acceptable in the future.

#### Alternative 2

Kennecott Uranium Company does not support Alternative 2 because it involves dose-based criterion for unrestricted use. Dose depends upon the pathways to exposure. In order to perform a dose based release the licensee would have to know all of the potential pathways to exposure and in addition to measuring activity from the object, the licensee will have to perform a dose calculation based upon the measured activity, the nature and potential uses of the object in order to adequately assess future doses. This is burdensome and difficult at best.

#### Alternative 3

Conditional use embodies the concept that certain objects may be releasable if their use were restricted "*to only certain authorized uses with limited public exposures such as use in controlled or low exposure environments.*" Once a licensee releases an item to another party, the licensee effectively loses control over that object. In the case of release of an object to another party under specific restrictions as to use, the licensee must rely on that party to abide by those specific restrictions even though the party to which the object is released is not a materials licensee and not subject to continuing Nuclear Regulatory Commission (NRC) oversight. Conditional use may force a vast expansion of the Commission's mission, as it may have to then regulate materials released under various terms of conditional use. Ultimately the commission may have to issue "conditional use" licenses to track these items and the entities to which they were released in order to ascertain that they are being properly used. This could create costly, unnecessary bureaucratic problems.

In addition, Conditional Use poses liability concerns without comparable benefit. When an item is currently released for unrestricted use it can be used anywhere. Under Conditional use it can only be used for certain authorized uses. Who is ultimately liable to assure that the released materials are only used for their authorized use? Is the liable party the licensee, the receiving party or both? Kennecott Uranium Company sees this as an unworkable scenario.

#### Alternative 4

Alternative 4 includes disposal at an EPA-regulated landfill. This alternative creates a number of regulatory conundrums. This document includes "*...materials can include furniture and ventilation ducts in buildings; metal equipment and pipes; wood, paper, and glass; laboratory materials (gloves, beakers, etc); routine trash; site fences; concrete; soil; or other similar materials.*" These materials are present at licensed source material processing sites and are considered 11(e).2-byproduct material.

10 CFR Part 40m defines 11(e).2 byproduct material 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.*

11(e).2 byproduct material "*must be disposed of at existing large mill tailings disposal sites; unless, considering the nature of the wastes, such as their volume and specific activity, and the costs and environmental impacts of transporting the wastes to a large disposal site, such offsite disposal is demonstrated to be impracticable or the advantages of onsite burial clearly outweigh the benefits of reducing the perpetual surveillance obligations.*" according to 10 CFR Part 40 Appendix A.

Alternative 4 proposes allowing the above-described materials (that could include 11(e).2 byproduct material) to be placed in RCRA Subtitle C impoundments. RCRA Subtitle C impoundments lack the following features required of uranium mill tailings (11(e).2 byproduct material impoundments):


1. Reclamation life "*effective for 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years.*"

2. Payment of a minimum charge of \$250,000 (1978 dollars) to cover the costs of long-term surveillance must be paid by each mill operator to the general treasury of the United States or to an appropriate State agency prior to the termination of a uranium or thorium mill license.
3. Transference of *"title to the byproduct material licensed under this Part and land, including any interests therein (other than land owned by the United States or by a State) which is used for the disposal of any such byproduct material, or is essential to ensure the long term stability of such disposal site,"* to the United States or the State in which such land is located, at the option of such State.
4. Other stringent design and reclamation requirements as included in 10 CFR Part 40 Appendix A.

Alternative 4 conflicts with the requirements of 10 CFR Part 40 Appendix A and conceivably allows the placement of 11(e).2 byproduct material in RCRA landfills creating regulatory conundrums. For example, if Alternative 4 is selected, does that mean that byproduct material may be placed in RCRA landfills, or as an alternative that 11(e).2 byproduct material impoundments (tailings impoundments) need only be constructed and reclaimed to meet RCRA standards?

Kennecott Uranium Company appreciates the opportunity to comment on this rulemaking. If you have any questions please do not hesitate to contact me.

Sincerely yours,



Oscar Paulson  
Facility Supervisor

cc: Katie Sweeney  
Rich Atkinson