



# WYOMING MINING ASSOCIATION

August 30, 2005

Mr. Richard Weller  
Office of Nuclear Material Safety and Safeguards  
Division of Fuel Cycle Safety and Safeguards  
Nuclear Regulatory Commission  
11545 Rockville Pike  
Rockville, Maryland 20852-2738

Dear Mr. Weller:

**Subject:           Comments of the Wyoming Mining Association (WMA) on *SECY-05-0123 - Status of the Development of Memoranda of Understanding with Nebraska and Wyoming, Regarding the Regulation of Groundwater Protection at Their In Situ Leach Uranium Recovery Facilities***

The Wyoming Mining Association (WMA) is an industry association of mining companies, contractors, suppliers, vendors, and consultants that serves the mining industry in Wyoming. The Association includes among its mining company members the operator of the only producing in-situ uranium recovery operation in Wyoming, an in-situ uranium recovery operation now in restoration, several conventional uranium processing sites in the final stages of reclamation and the only remaining conventional uranium mill in Wyoming and one (1) of the four (4) remaining operable conventional uranium mills in the United States.

The following are the Association's comments on *SECY-05-0123 - Status of the Development of Memoranda of Understanding with Nebraska and Wyoming, Regarding the Regulation of Groundwater Protection at their In-Situ Leach Uranium Recovery Facilities*:

## **1.       Primary Concern of the Document**

The primary concern of the document is succinctly stated in the section entitled *Discussion*, which states:

*The variance in Nebraska and Wyoming restoration standards would impact the NRC's ability to allow these States to take lead responsibility for active regulation of groundwater protection through a transparent MOU process.*

The document's primary concern is that, according to the Commission staff, the States of Wyoming and Nebraska are unable to enter into a Memorandum of Understanding (MOU) for active regulation of groundwater protection with the Nuclear Regulatory Commission (NRC) because their regulations do not require restoration to baseline conditions but rather to a "quality of use equal to or better than, and consistent with the uses for which the water was suitable prior to the operation by employing the best practicable technology." (Wyoming) or "to a quality of use consistent with the uses for which the resource was suitable prior to the activity." (Nebraska). The document bases its requirement to restore to baseline conditions on the Uranium Mill Tailings Radiation Control Act (UMTRCA).

## **2.       Use of UMTRCA as a Regulatory Basis/Definition of 11e.(2) Byproduct Material**

In the section entitled *Discussion* the paper states, "...the NRC's groundwater protection program is grounded in the requirements of UMTRCA".

The stated purpose and intent of UMTRCA is the regulation of 11e.(2) byproduct material specifically the tailings generated by conventional milling. In fact in UMTRCA, Congress created a new type of Atomic Energy Act (AEA) material.

In section 201 of UMTRCA, the definition of byproduct material was modified by inclusion of a new subsection (Section 11e.(2)) to include 11e.(2) byproduct material which was defined in part as "...the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content..." Once active uranium extraction has ceased from a given wellfield that portion of the underground orebody is not 11e.(2) byproduct material.

In addition, 10 CFR 40.4 states:

*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.*

A depleted in-situ orebody is not byproduct material and thus in and of itself it does not fall under UMTRCA.

UMTRCA was never intended to regulate the in-situ mining of uranium. Section 2 of UMTRCA states that one of the act's purposes is to establish:

*...a program to regulate mill tailings during uranium or thorium ore processing at active mill operations and after termination of such operations in order to stabilize and control such tailings in a safe and environmentally sound manner and to minimize or eliminate radiation health hazards to the public.*

An examination of the legislative history of the Act reveals that its creation was driven by the fact that the Nuclear Regulatory Commission (NRC) did not have the authority to regulate mill tailings unless they were part of active processing. Prior to the enactment of UMTRCA, uranium ore processing was regulated under the Federal Government's authority to regulate source material. There was no Federal regulation of mill tailings, since they were not licensable because the underlying source material had been removed.

In a report, the House Interior and Insular Affairs Committee stated:

*"Without the authorities included in H.R. 13650 (the proposed UMTRCA legislation), the conditions addressed by the remedial program would be left without remedy, and the authority of the Commission to establish uniform rational standards for waste disposal from uranium mills would not be clear.*

Before the House of Representatives, Chairman Hendrie stated:

*"Safety and environmental issues...have to date been resolved in the source Material licensing process. However, tailings themselves are not source material or any other material licensable by the Commission. Thus, once the underlying source material license for the uranium mill is terminated, there is no longer a clear legal basis for further Commission regulatory control of the mill tailings...."*

*Uranium Mill Tailings Radiation Control Act of 1978: Hearings on the H.R. 11698, H.R. 12229, H.R. 12938, H.R. 12535, H.R. 13049. Before the Subcomm. on Energy and Power of the Comm. On Interstate and Foreign Commerce, 95 Cong. 95-175 at 341-342 (1978).*

In both of the above citations, the intent of UMTRCA is clear. It was drafted to regulate the tailings from conventional milling operations and not depleted wellfields mined by the in-situ mining process or groundwater restoration. The Nuclear Regulatory Commission (NRC) had no authority to regulate uranium mill tailings until the passage of UMTRCA and the creation of a new form of byproduct material, 11e.(2) byproduct material. If in-situ uranium recovery were processing underground (the alleged basis for Commission authority over active uranium recovery operations), then after uranium recovery operations cease, the Commission would have no jurisdiction over the depleted underground ore body unless it were 11e.(2) byproduct material, which by regulatory definition it explicitly is not.

UMTRCA was intended to facilitate the remediation of the many abandoned uranium mill tailings piles found mostly in the Western United States that were no longer being operated (Title I sites) and to regulate uranium mill tailings sites that were currently in active operation (Title II sites). The paper crosses the regulation of in-situ wellfields with the Uranium Mill Tailings Radiation Control Act (UMTRCA) which was meant to regulate conventional uranium mill tailings.

The Association believes that the Commission's assertion of authority over groundwater protection at uranium in-situ mining operations based upon UMTRCA is weak at best.

**3. Subpart D—Standards for Management of Uranium Byproduct Materials Pursuant to Section 84 of the Atomic Energy Act of 1954, as Amended**

The SECY paper states:

*UMTRCA directed the EPA Administrator to promulgate generally applicable standards for the protection of public health, safety, and the environment from radiological and nonradiological hazards associated with the production, handling, and disposition of byproduct material resulting from uranium recovery operations. UMTRCA further specified that such generally applicable standards for nonradiological hazards "shall be consistent" with the standards issued by the EPA under the Solid Waste Disposal Act (SWDA) for hazardous wastes. EPA standards issued pursuant to the SWDA were provided in 40 CFR Part 264 ("Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities").*

This is the point at which the SECY paper attempts to derive the Commission's authority to regulate groundwater at in-situ leaching facilities. The use of 40 CFR Part 264 is grounded in the following Environmental Protection Agency (EPA) regulation:

**§ 40 CFR 192.30 Applicability.**

*This subpart applies to the management of uranium byproduct materials under section 84 of the Atomic Energy Act of 1954 (henceforth designated "the Act"), as amended, during and following processing of uranium ores, and to restoration of disposal sites following any use of such sites under section 83(b)(1)(B) of the Act.*

**§40 CFR 192.31 Definitions and cross-references.**

*References in this subpart to other parts of the Code of Federal Regulations are to those parts as codified on January 1, 1983.*

*(a) Unless otherwise indicated in this subpart, all terms shall have the same meaning as in Title II of the Uranium Mill Tailings Radiation Control Act of 1978, subparts A and B of this part, or parts 190, 260, 261, and 264 of this chapter. For the purposes of this subpart, the terms "waste," "hazardous waste," and related terms, as used in parts 260, 261, and 264 of this chapter shall apply to byproduct material.*

*(b) Uranium byproduct material means the tailings or wastes produced by the extraction or concentration of uranium from any ore processed primarily for its source material content. Ore bodies depleted by uranium solution extraction operations and which remain underground do not constitute "byproduct material" for the purpose of this subpart.*

The intent of 40 CFR 192.30 et seq. is the regulation of conventional uranium mill tailings. It in turn references 40 CFR Parts 260, 261, and 264, which are hazardous waste regulations, specifically *40 CFR Part 264 are Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities*. These standards pertain to hazardous waste disposal sites, and specifically to uranium mill tailings impoundments which are required to be constructed to standards that ultimately exceed those of Environmental Protection Agency (EPA) regulated hazardous waste sites.

The SECY paper derives its concentration limits from 40 CFR 264.92 and 40 CFR 264.94. These standards however are from *Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities - Ground-water protection standard and Concentration limits*. These standards are tailings impoundment standards and not directly applicable to uranium in-situ mining operations because they are not hazardous waste sites.

The SECY paper states in reference to 40 CFR 264:

*Although those standards have not yet been embodied in NRC regulations, NUREG-1569 is grounded in the statutory mandate discussed above.*

The limits in 40 CFR 264 are never mentioned in *NUREG-1569 - Standard Review Plan for In Situ Leach Uranium Extraction Applications*, which is supposedly intended to embody the groundwater regulatory program for in-situ uranium recovery facilities. How can NUREG-1569 be grounded in 40 CFR 264 if the regulations are never even mentioned in NUREG-1569? In addition, 40 CFR Section 192 is only mentioned in the NUREG in discussions concerning hazardous chemicals and the radium benchmark dose approach. 40 CFR Section 192 is never mentioned in any discussions regarding groundwater restoration.

#### 4. Regulation of Wellfields and Depleted Wellfields

In Discussion, the SECY paper states:

*Although the underground mining zone is not byproduct material, it is part of the uranium extraction process, which the NRC regulates.*

Restoration standards however apply to depleted wellfields, not those being actively mined. Depleted wellfields are clearly exempt from the definition of byproduct material and Commission jurisdiction in 10 CFR Part 40.4, which states in part:

*Underground ore bodies depleted by such solution extraction operations do not constitute "byproduct material" within this definition*

and are also exempt under Environmental Protection Agency (EPA) regulations (40 CFR 192.31) which states:

*Ore bodies depleted by uranium solution extraction operations and which remain underground do not constitute "byproduct material" for the purpose of this subpart.*

A uranium orebody depleted by a uranium solution extraction operation consists of the sands that hosted the uranium, as well as the water filling the pore spaces between the grains of the host sand. If the entire depleted underground orebody is not 11e.(2) byproduct material then no part of it can be 11(e).2-byproduct material. Neither the depleted sands nor the fluid filling the interstices between the sand grains (pore spaces) can be 11(e).2 byproduct material. Thus the fluids within a depleted uranium orebody cannot be 11(e).2-byproduct material and are not subject to Commission jurisdiction.

#### 5. Exempted Aquifer Considerations

The terms *aquifer exemption* or *exempted aquifer* do not appear anywhere in the document. This is critical. All in-situ mining is conducted in exempted aquifers as defined in 40 CFR 144.3 as follows:

*Exempted aquifer means an "aquifer" or its portion that meets the criteria in the definition of "underground source of drinking water" but which has been exempted according to the procedures in §144.7.*

In order for an aquifer exemption to be issued to allow in-situ uranium recovery the aquifer to be exempted must meet the following minimum criteria listed in 40 CFR 146.04:

##### **§ 146.4 Criteria for exempted aquifers.**

*An aquifer or a portion thereof which meets the criteria for an "underground source of drinking water" in §146.3 may be determined under 40 CFR 144.8 to be an "exempted aquifer" if it meets the following criteria:*

*(a) It does not currently serve as a source of drinking water; and*

*(b) It cannot now and will not in the future serve as a source of drinking water because:*

*(1) It is mineral, hydrocarbon or geothermal energy producing, or can be demonstrated by a permit applicant as part of a permit application for a Class II or III operation to contain minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible.*

*(2) It is situated at a depth or location, which makes recovery of water for drinking water purposes economically or technologically impractical;*

*(3) It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or*

*(4) It is located over a Class III well mining area subject to subsidence or catastrophic collapse; or*

*(c) The total dissolved solids content of the ground water is more than 3,000 and less than 10,000 mg/l and it is not reasonably expected to supply a public water system.*

Because all in-situ uranium recovery wellfields are in exempted aquifers, they do not have to meet the same groundwater standards that that uranium mill tailings impoundments must meet under UMTRCA requirements embodied in the standards referenced in 40 CFR Part 264. Aquifer exemptions are not a part of UMTRCA regulations for uranium mill tailings impoundments and are not used in regulating groundwater plumes beneath and around conventional uranium mill tailings impoundment hence the regulatory standards for conventional uranium mill tailings impoundments do not apply to in-situ uranium recovery operations since these operations occur in exempted aquifers.

Aquifer exemptions are not granted lightly. Environmental Protection Agency (EPA) Groundwater Protection Branch (GWPB) Guidance #34 entitled *Guidance for Review and Approval of State Underground Injection Control (UIC) Programs and Revisions to Approved State Programs*, requires submission of detailed information regarding “a summary of logging which indicates that commercially producible quantities of minerals are present, a description of the mining method to be used, *general information on the mineralogy and geochemistry of the mining zone*, and a development timetable.”

This issue is clearly discussed in *NUREG-1569 Standard Review Plan for In Situ Leach Uranium Extraction License Applications* (another Nuclear Regulatory Commission (NRC) document) which states:

*NRC shares the regulatory oversight of ground-water restoration with the EPA under its Underground Injection Control Program (40 CFR Part 144) and those underground injection control programs administered by EPA Authorized States. In addition to the NRC license, the EPA Authorized States issue underground injection control permits for in situ leaching operations, after the EPA grants an exemption from ground-water protection provisions for the portion of the aquifer undergoing uranium extraction (the exploited ore zone in an aquifer). The EPA aquifer exemption effectively removes that portion of the aquifer from any future consideration for ground-water protection; however, the ground-water protection provisions are still in effect for the aquifer adjacent to the exempted area.*

This language is clear. The aquifer exemption effectively removes the exempted portion of the aquifer (the wellfield and some amount of surrounding area) permanently from any future consideration for groundwater protection and only subjects adjacent unexempted areas to groundwater protection standards. This conflicts with the following statement in the SECY paper:

*After the completion of uranium recovery in a particular mining area, licensees are required to restore the affected groundwater to established standards to assure the protection of public health, safety, and the environment. Because the most significant impact of ISL mining is the chemical alteration of the groundwater in the ore zone of interest, the groundwater restoration elements of the NRC's groundwater protection program are the most important aspects of the NRC's program for ISL facilities.*

Aquifer exemptions are not reversible/revocable (Mario Salazar/EPA - November 21, 2001 "*Exemptions under the federal regulations are not reversible.*")

According to *NUREG-1569*, only the aquifer adjacent to the exempted area is subject to groundwater protection provisions. This makes eminent sense based upon the permanent nature of the aquifer exemption.

In conclusion the Association would like to state:

1. *SECY-05-0123 – Status of the Development of Memoranda of Understanding with Nebraska and Wyoming, Regarding the Regulation of Groundwater Protection at their In-Situ Leach Uranium Recovery Facilities* fails to accurately describe the current status of in-situ uranium wellfield regulation by completely ignoring the fact that in-situ mining occurs within a Federally exempted portion of an aquifer. The presence of an aquifer exemption makes the groundwater protection standards for in-situ uranium recovery operations completely different from those of uranium mill tailings, which are regulated under UMTRCA.
2. The SECY paper attempts to extend UMTRCA to uranium in-situ mining operations and specifically incorporates references to *40 CFR Part 192* and *40 CFR Part 264* ("*Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities*") which apply to the management of uranium mill tailings and solid wastes as opposed to in-situ uranium recovery operations.
3. The paper appears to conflict with the legislative intent of UMTRCA which was to draft laws for the regulation of tailings from conventional uranium milling operations.

4. The paper fails to draw the critical distinction between operating uranium recovery wellfields and depleted wellfields in which groundwater restoration occurs which are not subject to regulation as either 11e.(2)-byproduct material by exemptions in the regulations or source material because they are by definition depleted of their source material content.
5. In addition, it has come to the Association's attention, that the paper was prepared and released by the Commission without prior review by and consultation with Environmental Protection Agency (EPA) staff with whom the Commission shares oversight of groundwater protection at in-situ uranium recovery operations.
6. The NRC has repeatedly stated that they wish to reduce the duplicative regulation between states and the NRC with regard to in-situ leach mining. ISL groundwater restoration is the prime example of where NRC should support each individual state's right to regulate their own groundwater.
7. The Association believes that this SECY paper should be rescinded because the analysis fails to acknowledge that all groundwater in the production zone is exempted from consideration as a source of drinking water by the Environmental Protection Agency (EPA) under its underground injection control (UIC) regulatory program. The Association believes that the States of Wyoming and Nebraska should be allowed to enter in to Memorandums of Understanding (MOUs) with the Nuclear Regulatory Commission (NRC) regarding the regulation of groundwater protection at their in-situ leach uranium recovery facilities.
8. The Association supports the comments submitted by the National Mining Association (NMA) on this SECY paper.

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

Sincerely yours,  
WYOMING MINING ASSOCIATION



Marion Loomis  
Executive Director

cc: Katie Sweeney - National Mining Association (NMA)

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