

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
WASHINGTON, D.C. 20555-0001

November 30, 2000

**NRC REGULATORY ISSUE SUMMARY 2000-23
RECENT CHANGES TO URANIUM RECOVERY POLICY**

ADDRESSEES

All holders of materials licenses for uranium and thorium recovery facilities.

INTENT

The U.S. Nuclear Regulatory Commission (NRC) is issuing this regulatory issue summary (RIS) to inform materials licensees of the Commission's decisions on four Commission Papers prepared by the Uranium Recovery staff and the Office of the General Counsel (OGC). All the policy decisions will be codified in the 10 CFR Part 41 rulemaking that has been initiated. No specific action nor written response is required.

BACKGROUND

NRC staff prepared four Commission Papers in 1999 to address various uranium recovery issues. One Commission Paper (SECY-99-011, "Draft Rulemaking Plan; Domestic Licensing of Uranium and Thorium Recovery facilities - Proposed New 10 CFR Part 41") addressed the need to revise and update uranium recovery regulations, particularly with respect to *in situ* leach (ISL) facilities and recommended the initiation of rulemaking to create a new Part 41 specific to uranium recovery. The other three Commission Papers addressed issues raised by the National Mining Association (NMA) in its April 1998 paper, "Recommendations for a Coordinated Approach to Regulating the Uranium Recovery Industry." The first of those papers (SECY-99-012, "Use of Uranium Mill Tailings Impoundments for the Disposal of Other Than 11e(2) Byproduct Materials, and Reviews of Applications to Process Material Other Than Natural Ore") discussed the disposal of radioactive waste, other than byproduct material, defined in section 11e.(2) of the Atomic Energy Act (AEA) of 1954, as amended, in mill tailings impoundments, and the processing of material, other than natural ore, for source material at licensed uranium mills. The second of those papers (SECY-99-013, "Recommendations on ways to Improve the Efficiency of NRC Regulation at In Situ Leach Uranium Recovery Facilities") discussed the regulation of ground water at ISL sites and the issue of which waste streams at ISL facilities come under NRC regulatory jurisdiction as 11e.(2) byproduct material. The last paper (SECY-99-277, "Concurrent Jurisdiction of Non-Radiological Hazards of Uranium Mill Tailings") addressed the issue of concurrent jurisdiction (with States that do not have Agreement State regulatory authority for 11e.(2) material under section 274 of the AEA) over the non-radiological hazards of uranium mill tailings.

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On July 13, 2000, the Commission issued a Staff Requirements Memorandum (SRM) on SECY-99-011. On July 26, 2000, the Commission issued SRMs on SECY-99-012 and SECY-99-013, and on August 11, 2000, the SRM on SECY-99-277 was issued.

The decisions and directions in these SRMs and the staff actions in response are discussed in sections that follow.

PART 41 RULEMAKING (SECY-99-011)

SECY-99-011 approved the staff's recommendation to provide a draft Rulemaking Plan (RP) for comment to the Agreement States, with the preferred option being the creation of a new Part 41 dedicated to uranium recovery regulation. The Commission directed the staff to revise the draft RP to reflect the Commission's guidance in the other uranium recovery SRMs.

On September 11, 2000, the staff transmitted the draft RP to all States for comment. The staff sent the draft RP to all States rather than just Agreement States because the issue of concurrent jurisdiction regarding non-radiological hazards primarily affects non-Agreement States, and the staff wanted to give those States an opportunity to comment on the draft RP. Comments have been received from several States. In addition, the NMA and two licensees provided comments on the draft RP. The staff will consider all the comments received in preparing its final RP, which it expects to issue in early 2001.

DISPOSAL OF NON-11e.(2) BYPRODUCT MATERIAL IN TAILINGS IMPOUNDMENTS (SECY-99-012)

In 1995, the staff published guidance, in the *Federal Register* (60 FR 49296), for the disposal, in uranium mill tailings impoundments, of radioactive material that is not byproduct material, as defined in section 11e.(2) of the AEA. The guidance consisted of 10 criteria to determine whether to approve a proposed disposal of non-11e.(2) byproduct material in a uranium mill tailings impoundment. In its 1998 white paper, the NMA emphasized that the criteria were too restrictive, pointing out that no requests for such disposals have been made since the guidance was issued. The Commission, in the SRM for SECY-99-012, approved an option that would allow more flexibility in permitting non-11e.(2) material to be disposed of in tailings impoundments. The NRC intends to incorporate the criteria into the new Part 41. In the interim, the Commission directed the staff to implement the SRM.

To comply with the direction in the SRM, the staff is revising the 1995 guidance in the following manner:

- * The staff will remove the prohibitions, found in items 2, 4, and 5, regarding non-AEA radioactive material and material subject to regulation under other legislative authorities, such as the Toxic Substance Control Act (TSCA) or the Resource Conservation and Recovery Act (RCRA).
- The staff will add a criterion regarding approval from the appropriate regulators of TSCA, RCRA, and non-AEA radioactive material for disposal of such material in the tailings impoundment.

- The staff will revise the criterion, in item 8, regarding approval by Low-Level Waste Compacts, to allow for the situation in which material proposed for disposal does not fall under the jurisdiction of Low-Level Waste Compacts (e.g., radioactive material not regulated under the AEA).
- The Commission directed the staff to pursue a generic exemption to NRC's disposal requirements for low-level radioactive waste in 10 CFR Part 61, rather than having to grant an exemption, under 10 CFR 61.6, as identified in item 10. A generic exemption to regulations must be issued through a rulemaking process. Therefore, the staff will pursue incorporating the generic exemption in the new Part 41. In the interim, the requirement for a specific exemption will remain in the guidance, with addition of a caveat for material not regulated under Part 61.

The staff therefore is revising its 1995 guidance. The complete revised guidance, is in Attachment 1.

PROCESSING OF MATERIAL OTHER THAN NATURAL URANIUM ORES (SECY-99-012)

In 1995, the staff published its position and guidance, in the *Federal Register* (60 FR 49296), on the use of uranium feed material other than natural ores (alternate feed material), in uranium mills. The guidance identified three determinations that the staff had to make in order to approve an alternate feed request. The third determination -- whether the ore is being processed primarily for its source material content -- generated considerable controversy. This determination was required to address the concern that wastes that would otherwise have to be disposed of as radioactive or mixed waste would be proposed for processing at a uranium mill primarily to be able to dispose of them in the tailings pile as 11e.(2) byproduct material. This determination was essentially a determination of the motives of the mill operator in requesting approval of a specific stream of alternate feed material. In many cases it involved questioning the financial aspects of acquiring and processing the alternate feed material, and selling the resultant uranium product.

In its 1998 white paper, the NMA emphasized that NRC should not be looking to a licensee's motives in processing alternate feed material. After careful consideration of stakeholder comments and the staff's analysis, the Commission, in the SRM for SECY-99-012, directed the staff to allow processing of alternate feed material without inquiry into a licensee's economic motives, and referred to a Commission decision (CLI-00-01 51 NRC 9) on a specific instance of proposed processing of alternate feed, that was brought before the Atomic Safety Licensing Board and then appealed to the Commission. The Commission also addressed the second determination in the 1995 guidance (i.e., whether the feed material contains hazardous waste). It directed the staff to allow more flexibility with regard to this issue consistent with its direction to the staff on the disposal of non-11e.(2) byproduct material in tailings piles.

The Commission directed the staff to revise, issue, and implement final guidance on the processing of alternate feed as soon as possible and to codify the guidance in the new Part 41.

To comply with the SRM, the staff is revising the 1995 position and guidance in the following manner:

- The staff will modify the prohibition in item 2 on feed material containing hazardous waste, to allow such feed material provided that the licensee obtains approval of the U.S. Environmental Protection Agency (EPA) or the State, and a commitment from the long-term custodian to accept the tailings after site closure.
- The staff will revise the manner in which it determines whether the ore is being processed primarily for its source material content, to focus on the product of the processing, and eliminate any inquiry into the licensee's economic motives for the processing.

The staff therefore is revising its 1995 guidance. The complete revised guidance, is in Attachment 2.

CLASSIFICATION OF LIQUID WASTES AT ISL FACILITIES (SECY-99-013)

Before 1995, the staff practice for addressing the disposal of evaporation pond sludges at ISL facilities relied on a broad reading of the definition of 11e.(2) byproduct material. This broad reading only addressed discrete surface wastes capable of controlled disposal and did not distinguish between wastes generated at various phases of an ISL operation. All waste materials generated during ISL operations and ground-water restoration activities were designated 11e.(2) byproduct material and disposed of at licensed uranium mill tailings impoundments, in accordance with 10 CFR Part 40, Appendix A, Criterion 2.

The staff issued two guidance documents in 1995 to address issues raised by the industry in the uranium recovery program. The first, "Staff Technical Position on Effluent Disposal at Licensed Uranium Recovery Facilities" (hereinafter, the effluent guidance), was intended to ensure protection of the environment and public, while providing uranium recovery licensees with flexibility regarding the disposal of various types of liquid effluents generated during the operation of their facilities. In issuing this guidance, the staff took a more narrow view of the definition of 11e.(2) byproduct material. It differentiated between the various waste waters generated during ISL operations on the basis of their origin and whether uranium was extracted for its source material content during that phase of the operation. Waste waters and the associated solids produced during the uranium extraction phase of site operations, called "production bleed," were classified as AEA Section 11e.(2) byproduct material and therefore subject to regulation by NRC. Conversely, waste waters and the resulting solids produced after uranium extraction (i.e., during ground-water restoration activities) were classified as "mine waste waters," and therefore were subject to regulation by individual States under their applicable mining programs. These wastes were considered naturally occurring radioactive material (NORM). However, because licensees often dispose of waste waters from uranium extraction and post-extraction activities in the same evaporation ponds, the resulting solids are a commingled waste consisting of 11e.(2) byproduct material and sludges derived from mine waste water.

In the second guidance document, "Final Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments" (hereinafter, the disposal guidance), the staff identified 10 criteria that licensees should meet before NRC could authorize the disposal of AEA material other than 11e.(2) byproduct material in tailings impoundments. One of these criteria prohibited the disposal of radioactive material not covered by the AEA, including NORM (see earlier discussion for policy revisions). This criterion was

intended to avoid the possibility of dual regulation of the radioactive constituents in the impoundments, since individual States are responsible for radioactive materials not covered by the AEA.

The industry expressed concerns, in NMA's white paper, that, taken together, these two guidance documents leave no option for the disposal of radioactively contaminated sludges from ISL evaporation ponds. The reason for this concern is that the 11e.(2) byproduct material was commingled with a NORM waste, which the disposal guidance prohibits from disposal in a tailings impoundment. The industry emphasized that the staff's waste classification, based on the origin of the waste water (i.e., from the extraction or restoration phase) at an ISL facility, makes the disposal of such sludges in a mill tailings impoundment, as required under Criterion 2 of 10 CFR Part 40, Appendix A, impossible -- even though the sludges derived from waste waters produced throughout a facility's life cycle are physically, chemically, and radiologically identical.

The staff analyzed several options in SECY-99-013 for addressing the industry's concerns. In the SRM for SECY-99-013, the Commission determined that all liquid effluents at ISL uranium recovery facilities are 11e.(2) byproduct material. NRC takes the position that any waste water generated during or after the uranium extraction phase of site operations, and all evaporation pond sludges derived from such waste waters, are classified as 11e.(2) byproduct material. The staff will make no legal distinction among the waste waters produced at different stages in a facility's life cycle.

This revised policy is effective immediately. The staff intends to codify this policy in the new rulemaking for Part 41 and associated regulatory guidance.

GROUND-WATER ISSUES AT ISL FACILITIES (SECY-99-013)

Over the past several years, the industry has expressed concern that NRC's regulation of ground water at ISLs is duplicative of the ground-water protection programs required by the Safe Drinking Water Act (SDWA), as administered by EPA or EPA-authorized States. EPA and the States protect ground-water quality through the Underground Injection Control (UIC) program, under the SDWA. The States often require additional measures in the UIC program that are more stringent than the Federal program. As presented in NMA's white paper, the industry contended that NRC's review and licensing activities are a duplicative form of regulation covering the same issues. Additionally, NMA also expressed the view that NRC did not have authority to regulate ground water at ISLs.

Historically, NRC has imposed conditions on ISL operations to ensure that ground-water quality is maintained during licensed activities and that actions are taken to ensure the restoration of ground-water quality before the license is terminated. The specific conditions imposed in an ISL license have typically been the result of NRC's independent review, as documented in safety evaluation reports and appropriate environmental evaluations.

In addition to NRC's review, licensees must also obtain a UIC permit from EPA or the EPA-authorized State before uranium recovery operations can begin. EPA or the authorized State conducts many of the same types of reviews as NRC. This is evidenced by NRC incorporating ground-water protection limits from a State's permitting program into specific license

requirements, after conducting its own review of the licensee's groundwater protection program, including the use of State-imposed standards -- and staff routinely accepting specific methodologies and guidance developed by EPA or States for ground-water monitoring programs and well construction.

In the SRM for SECY-99-013, the Commission approved the staff continuing discussions with EPA and appropriate States to determine the extent to which NRC can rely on the EPA UIC program for ground-water protection issues, thereby potentially minimizing duplicative review of ground-water protection at ISL facilities. Part of the discussions with EPA and appropriate States should include appropriate methods to implement any agreements, including Memoranda of Understanding (if necessary) and potential requirements that could be incorporated in the new Part 41. In the interim, it is recognized that some NRC/EPA dual regulation of the ground-water at ISL facilities will continue until such time that NRC can defer to EPA's UIC program.

NRC has initiated a new round of discussions with the EPA since the Commission decision in July 2000, and discussions with the appropriate States should begin in early to mid 2001.

In February 1998, staff documented its review process for ISLs, including a detailed evaluation of ground-water activities, in a draft Standard Review Plan (draft SRP) for ISL facility license applications (NUREG-1569), that was published for public comment. Following the comment period, staff held a public workshop on the SRP to discuss the issues raised. The staff intends to use the draft SRP in licensing reviews until the rulemaking for new Part 41 (SECY 99-011) has been completed and NUREG-1569 is finalized.

CONCURRENT JURISDICTION OF NON-RADIOLOGICAL HAZARDS OF URANIUM MILL TAILINGS (SECY-99-277)

In 1980, the staff considered the issue of whether the Uranium Mill Tailings Radiation Control Act (UMTRCA) preempts a non-Agreement State's authority to regulate the non-radiological hazards associated with 11e.(2) byproduct material and concluded that it did not. The NRC concluded that NRC and the State both exercised this authority. As a result, the staff has followed the practice of sharing jurisdiction of the non-radiological hazards with States. In its 1998 white paper, the NMA questioned the 1980 staff interpretation of UMTRCA. The Commission, in the SRM for SECY-99-0277 determined that NRC has exclusive jurisdiction over both the radiological and non-radiological hazards of 11e.(2) byproduct material.

As a result of this decision, the staff will implement its exclusive authority over the non-radiological hazards of 11e.(2) byproduct material and not recognize State authority in this area.

SUMMARY OF ISSUES

The Commission has evaluated a range of uranium recovery issues and the staff evaluation and has directed, through SRMs, the staff to take various actions that will ultimately be incorporated into the new Part 41 rulemaking and existing uranium recovery SRPs.

In the interim, this RIS informs the licensees of the Commission's decisions. These are: 1) to allow more flexibility in the disposal of non-11e.(2) material in tailings impoundments, subject to certain considerations; 2) to allow alternate feed material to be processed for uranium (or thorium) without any inquiry into a licensee's economic motives; 3) to classify all waste water and sludges generated during or after the uranium (or thorium) extraction phase of in situ leach operations as 11e.(2) byproduct material; 4) to continue discussions with EPA and appropriate States to determine the extent that NRC can rely on the EPA UIC program for ground-water protection at ISL facilities; and 5) to note that NRC has exclusive jurisdiction over both the radiological and non-radiological hazards of 11e.(2) byproduct material.

This regulatory issue summary requires no specific action nor written response. If you have any questions about this summary, please contact the technical contact listed below.

/RA/

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Attachments:

1. Interim Guidance Non-11e.(2)
2. Interim Position Alternate Feed
3. List of Recently Issued NRC Regulatory Issue Summaries

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Interim Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments

1. In reviewing licensee requests for the disposal of wastes that have radiological characteristics comparable to those of Atomic Energy Act of 1954, Section 11e.(2) byproduct material [hereafter designated as "11e.(2) byproduct material"] in tailings impoundments, the Nuclear Regulatory Commission staff will follow the guidance set forth below. Since mill tailings impoundments are already regulated under 10 CFR Part 40, licensing of the receipt and disposal of such material [hereafter designated as "non-11e.(2) byproduct material"] should also be done under 10 CFR Part 40.
2. Special nuclear material and Section 11e.(1) byproduct material waste should not be considered as candidates for disposal in a tailings impoundment, without compelling reasons to the contrary. If staff believes that such material should be disposed of in a tailings impoundment in a specific instance, a request for Commission approval should be prepared.
3. The 11e.(2) licensee must provide documentation showing necessary approvals of other affected regulators (e.g., the U.S. Environmental Protection Agency or State) for material containing listed hazardous wastes or any other material regulated by another Federal agency or State because of environmental or safety considerations.
4. The 11e.(2) licensee must demonstrate that there will be no significant environmental impact from disposing of this material.
5. The 11e.(2) licensee must demonstrate that the proposed disposal will not compromise the reclamation of the tailings impoundment by demonstrating compliance with the reclamation and closure criteria of Appendix A of 10 CFR Part 40.
6. The 11e.(2) licensee must provide documentation showing approval by the Regional Low-Level Waste Compact in whose jurisdiction the waste originates as well as approval by the Compact in whose jurisdiction the disposal site is located, for material which otherwise would fall under Compact jurisdiction.
7. The U.S. Department of Energy (DOE) and the State in which the tailings impoundment is located, should be informed of the U.S. Nuclear Regulatory Commission findings and proposed action, with a request to concur within 120 days. A concurrence and commitment from either DOE or the State to take title to the tailings impoundment after closure must be received before granting the license amendment to the 11e.(2) licensee.

8. The mechanism to authorize the disposal of non-11e.(2) byproduct material in a tailings impoundment is an amendment to the mill license under 10 CFR Part 40, authorizing the receipt of the material and its disposal. Additionally, an exemption to the requirements of 10 CFR Part 61, under the authority of 10 CFR 61.6, must be granted, if the material would otherwise be regulated under Part 61. (If the tailings impoundment is located in an Agreement State with low-level waste licensing authority, the State must take appropriate action to exempt the non-11e.(2) byproduct material from regulation as low-level waste.) The license amendment and the 10 CFR 61.6 exemption should be supported with a staff analysis addressing the issues discussed in this guidance.

Interim Position and Guidance on the Use of Uranium Mill Feed Material Other Than Natural Ores

In reviewing licensee requests to process alternate feed material (material other than natural ore) in uranium mills, the Nuclear Regulatory Commission staff will follow the guidance presented below. Besides reviewing to determine compliance with appropriate aspects of Appendix A of 10 CFR Part 40, the staff should also address the following issues:

1. Determination of whether the feed material is ore.

For the tailings and wastes from the proposed processing to qualify as 11e.(2) byproduct material, the feed material must qualify as "ore." In determining whether the feed material is ore, the following definition of ore will be used:

Ore is a natural or native matter that may be mined and treated for the extraction of any of its constituents or any other matter from which source material is extracted in a licensed uranium or thorium mill.

2. Determination of whether the feed material contains hazardous waste.

If the proposed feed material contains hazardous waste, listed under subpart D Sections 261.30-33 of 40 CFR (or comparable Resource Conservation and Recovery Act (RCRA) authorized State regulations), it would be subject to the U.S. Environmental Protection Agency (EPA) or State regulation under RCRA. If the licensee can show that the proposed feed material does not contain a listed hazardous waste, this issue is resolved.

Feed material exhibiting only a characteristic of hazardous waste (ignitable, corrosive, reactive, toxic) would not be regulated as hazardous waste and could therefore be approved for recycling and extraction of source material. However, this does not apply to residues from water treatment, so determination that such residues are not subject to regulation under RCRA will depend on their not containing any characteristic hazardous waste. Staff may consult with EPA (or the State) before making a determination of whether the feed material contains hazardous waste.

If the feed material contains hazardous waste, the licensee can process it only if it obtains EPA (or State) approval and provides the necessary documentation to that effect. Additionally, for feed material containing hazardous waste, the staff will review documentation from the licensee that provides a commitment from the U.S. Department of Energy or the State to take title to the tailings impoundment after closure.

3. Determination of whether the ore is being processed primarily for its source-material content.

For the tailings and waste from the proposed processing to qualify as 11e.(2) byproduct material, the ore must be processed primarily for its source-material content. If the only product produced in the processing of the alternate feed is uranium product, this determination is satisfied. If, in addition to uranium product, another material is also produced in the processing of the ore, the licensee must provide documentation showing that the uranium product is the primary product produced.

If it can be determined, using the aforementioned guidance, that the proposed feed material meets the definition of ore, that it will not introduce a hazardous waste not otherwise exempted, or if it has been approved by the EPA (or State) and the long-term custodian, and that the primary purpose of its processing is for its source-material content, the request can be approved.

LIST OF RECENTLY ISSUED
NRC REGULATORY ISSUE SUMMARIES

Regulatory Issue Summary No.	Subject	Date of Issuance	Issued to
2000-22	Issues Stemming from NRC Staff Review of Recent Difficulties Experienced in Maintaining Steam Generator Tube Integrity	11/03/00	All holders of OIs for pressurized-water reactors (PWRs), except those who have permanently ceased operations and have certified that fuel have been permanently removed from the reactor vessel
2000-21	Changes to the Unplanned Scram and Unplanned Scram With Loss of Normal Heat Removal Performance Indicators	10/31/00	All holders of OIs for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel
2000-20	Advance Notice of Intent to Pursue License Renewal	11/14/2000	All holders of OIs for nuclear power reactors, except those licensees who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel
2000-19	Partial Release of Reactor Site for Unrestricted Use Before NRC Approval of the License Termination Plan	10/24/00	All holders of OIs for nuclear power reactors, including those licensees who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel