

April 8, 1999

FOR: The Commissioners

FROM: William D. Travers /s/
Executive Director for Operations

SUBJECT: USE OF URANIUM MILL TAILINGS IMPOUNDMENTS FOR THE DISPOSAL OF WASTE OTHER THAN 11e.(2) BYPRODUCT MATERIAL AND REVIEWS OF APPLICATIONS TO PROCESS MATERIAL OTHER THAN NATURAL URANIUM ORES

PURPOSE:

To obtain Commission approval of the staff's approach to address concerns raised by the uranium recovery industry on: (1) the use of uranium mill tailings impoundments for the disposal of wastes other than 11e.(2) byproduct material; and (2) the staff's review of mill licensee applications to process material other than natural uranium ores.

SUMMARY:

In September 1995, the staff issued guidance on: (1) the disposal of material other than Atomic Energy Act of 1954, as amended (AEA) 11e.(2) byproduct material in uranium mill tailings impoundments; and (2) the processing of material other than natural uranium ores (hereinafter, "alternate feed material") at uranium mills. Both of these guidance documents are provided in [Attachment 1](#). The uranium recovery industry has raised concerns about this guidance. In this paper, the staff discusses the industry's concerns and provides recommendations to the Commission on ways to address the issues raised.

BACKGROUND:

Over the past several years, the staff has been engaged in discussions with the uranium recovery industry on a number of issues related to the regulation of uranium recovery facilities.

The industry considers the current staff guidance on the potential for using the available capacity at existing uranium mill tailings impoundments for the disposal of material other than 11e.(2) byproduct material⁽¹⁾ in mill tailings impoundments to be overly restrictive. It is the industry's view that: (1) this disposal capacity should be used to accelerate the cleanup of contaminated sites; and (2) any such disposal should pose no additional hazards to public health and safety or the environment because the long-term design requirements for the tailings impoundments are the same as, or more stringent than, those applied to hazardous waste cells or low-level waste (LLW) disposal cells.

The industry also believes that some material from contaminated sites contains enough uranium to make it worth processing through an operating uranium mill, and that the current staff guidance on the processing of alternate feed material should not include financial considerations in determining if such processing is acceptable. The industry's views of these issues are discussed in the report, "Recommendations for a Coordinated Approach to Regulating the Uranium Recovery Industry" (hereafter, White Paper), submitted to the Commission in April 1998 by the National Mining Association (NMA) on behalf of the uranium producers it represents.

Prior to submittal of the White Paper and consistent with Direction Setting Issue 9 (Option 7) [Staff Requirements Memorandum (SRM) dated March 31, 1997; Attachment 2], the staff has been exploring ways to use mill tailings impoundments as possible disposal cells for material from other contaminated sites. This Commission paper presents a detailed discussion of the issues, NMA's position with respect to the issues, and the staff's recommendations on ways for addressing industry's concerns.

DISCUSSION:

Disposal of Material Other Than 11e.(2) Byproduct Material

In September 1995, the staff published final guidance that provides criteria by which the staff would evaluate applications from uranium mill licensees to dispose of material other than AEA 11e.(2) byproduct material in tailings impoundments ([Attachment 1](#)). This guidance identifies 10 criteria that licensees could use to justify that the U.S. Nuclear Regulatory Commission (NRC) authorize such disposal. As noted in Criterion 1 of the 1995 guidance, the type of material that would be acceptable for disposal in mill tailings impoundments would have radiological characteristics comparable to those of 11e.(2) byproduct material. This limits the type of material that could be placed in tailings impoundments to mainly soil contaminated with primordial elements (uranium and thorium) and their progeny. Fission and activation products, as well as transuranic wastes, are not permitted for disposal under the guidance.

Under the current guidance, material not regulated under the AEA of 1954 would be excluded from disposal in mill tailings impoundments. Also excluded is material that is subject to applicable Resource Conservation and Recovery Act (RCRA) or Toxic Substance Control Act (TSCA) regulations or other U.S. Environmental Protection Agency (EPA) standards for hazardous material and material for which there are Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) related issues. In addition, the placement of all material other than 11e.(2) byproduct material in the tailings impoundment must meet the approval of the Regional Low-Level Waste (LLW) Compacts in which the material originates and in which the disposal site is located.

The uranium recovery industry believes that criteria prohibiting non-AEA, RCRA, TSCA, and CERCLA materials are overly restrictive and essentially

preclude the use of tailings impoundments for disposal of material other than 11e.(2) byproduct material. The industry believes that mills should be allowed to accept these materials for disposal in addition to some special nuclear material, which is not allowed under Criterion 3 of the current guidance, absent compelling reasons to the contrary.⁽²⁾ Finally, the industry considers the requirement for approval from the regional LLW compacts in which the waste originated and where the tailings impoundment is located to be overly burdensome.

The primary purpose of the prohibitions in the current staff guidance is to reduce the potential for the regulation of the tailings impoundments by more than one regulatory agency. For example, the staff included a criterion precluding the disposal of radioactive material not covered by the AEA, because the disposal of radioactive material not covered by the AEA in the tailings impoundments could create dual regulation of the impoundments by NRC and the State. This would allow the State an opportunity to require changes to NRC-accepted final tailings stabilization and remediation plans. Unlike the concurrent jurisdictional situation for non-radiological components of 11e.(2) byproduct material, the radiological aspects are preemptively regulated solely by the Federal government (and Agreement States).

A similar situation exists for the disposal of hazardous material. Because mill tailings impoundments contain material that would otherwise be regulated under the Solid Waste Disposal Act (SWDA), Congress directed the EPA to develop standards for the non-radiological aspects of mill tailings regulation to be consistent with the SWDA requirements. In addition, in Section 275 of the AEA, Congress precluded any permitting of mill tailings disposal under the SWDA. The legislative history on the enactment of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA) contains elements supporting the view that Congress intended that the dual regulation of these sites be avoided. Senator Randolph, during discussions on UMTRCA, stated that "Standards and requirements under the amendment [UMTRCA] will be implemented and enforced by the Commission through its permitting process." The Senator further stated that "...no Environmental Protection Agency permit could be required under these provisions or the Solid Waste Disposal Act." If NRC followed the industry's suggestions and allowed the disposal of SWDA material other than mill tailings in these impoundments, then it would be opening the site to regulation by both NRC and EPA or EPA authorized State. This could create a problem for the Federal agency, in this case, the U.S. Department of Energy (DOE), or State agency tasked with the long-term surveillance and care of the stabilized and remediated tailings impoundment on license termination.

As noted in the attached SECY 91-243 (Attachment 3), SECY 95-211 (Attachment 4), and the differing professional view [(DPV); Attachment 5], the guidance currently being used by the staff was developed in extensive consultation with DOE in its capacity as the anticipated long-term custodian for the majority, if not all, of the remediated tailings impoundments on license termination. During that consultation, DOE was particularly concerned that placing hazardous waste in mill tailings impoundments would open a site to the potential for perpetual dual regulation by either EPA or individual States, in addition to NRC.

Since the development of the original guidance, DOE has allowed the placement of TSCA waste in at least one 11e.(2) mill tailings impoundment. The TSCA waste was a mixed waste comprised of 11e.(2) byproduct material and transformer oil that contained polychlorinated biphenyls (PCBs). In the completed licensing action, DOE allowed the NRC licensee to construct a second cell on top of its tailings impoundment for the disposal of TSCA waste. Also, DOE obtained from the licensee an increase in the long-term care funding to conduct additional ground-water monitoring required by the EPA permit, and a perpetual indemnification from the licensee to pay for any problems that could arise from the mixed-waste cell. Disposal of TSCA material was handled independently by DOE and, as such, DOE had the lead in determining if the disposal was acceptable. NRC had little involvement in agreeing to the resolution of the issues involved. DOE worked with a large degree of independence on these issues. NRC eventually accepted the proposal that the 11e.(2) material could be disposed of in this manner, but was not involved in the other permitting and negotiations undertaken by DOE.

Using this experience as a model, under any revisions to the disposal guidance, the permitting of material other than 11e.(2) in a tailings impoundment would require involvement and approval from DOE, or the long-term custodian, before disposal. The particulars worked out by the long-term custodian and the current licensee would be handled by those parties and any other regulatory agency involved. The guidance currently contains a criterion requiring DOE approval before NRC would authorize such disposals. The staff would propose that this criterion remain in any revision to the disposal guidance. Under these circumstances, the staff believes there may not be the need to engage in the same level or extensiveness of consultations with DOE as was held when the guidance was initially promulgated. If those parties could not reach agreement, then the licensee would fail to meet one of the criteria for NRC accepting an application for such disposal. The staff would emphasize that, absent legislative change, this approach would reintroduce the likelihood of multiple regulation by EPA, the States, and NRC, which the current approach and the underlying design of UMTRCA sought to avoid.

In addition, if DOE agreed to take sites with material other than 11e.(2) byproduct material, DOE would be doing so under the provisions of Section 151(b) of the Nuclear Waste Policy Act (NWPA). As long as DOE is willing to take these sites under its NWPA authority, such transfer should not create any procedural problems. Essentially, the approach for transferring sites to DOE under Section 151(b) should be very similar to the process used to effect such transfers under UMTRCA. Therefore, procedurally there should be no difference from what is already addressed under UMTRCA.

Options:

Given the preceding discussion, the Commission could revisit these issues and the guidance it approved for publication in 1995. The staff has reviewed that guidance to examine ways to simplify the review process and resolve the industry's concerns. Based on this review, the staff has identified three options to address issues related to the disposal capacity of mill tailings impoundments.

1. **Retain the staff guidance in its current form.** Under this option, material to be placed in tailings impoundments would continue to be limited to certain types of material regulated under the AEA. The staff would retain the prohibitions against the disposal of special nuclear material and 11e.(1) byproduct material (without compelling reasons to the contrary). In addition, licensees would continue to be required to demonstrate that the material proposed for disposal was not subject to RCRA, TSCA, or CERCLA regulation and the licensee would continue to be required to obtain approvals from the appropriate LLW compacts.

The principal advantage of this option is that NRC would remain the sole regulator of the radiological components of the 11e.(2) byproduct material disposed of in mill tailings impoundments. In addition, this approach remains consistent with the legislative framework governing such disposal. This approach is also responsive to the LLW Forum, who by resolution adopted on February 12, 1999, encouraged NRC not to change the criterion requiring approvals from the appropriate regional LLW compacts for disposal of material other than 11e.(2) byproduct material. However, cleanup of radioactively and chemically contaminated sites around the country would not be aided, because the use of the disposal capacity of mill tailings impoundments would remain constrained.

- 2. Revise the staff guidance to allow for more flexibility in using the disposal capacity of mill tailings impoundments.** Under this option, the staff would modify its guidance by allowing the disposal of any material that was physically and chemically similar to the material already in the impoundment and that contained the primordial elements (uranium and/or thorium) and their progeny as the only radionuclides present. Like the existing guidance, the revised guidance would allow for the disposal of soils contaminated with source material and progeny. Fission and activation products, as well as transuranic waste, would still not be permitted for disposal. In addition, the prohibition against the disposal of special nuclear material and 11e.(1) byproduct material without compelling reasons to the contrary would remain.

The staff would remove the prohibitions in the guidance against the disposal of non-AEA material, and of materials regulated under RCRA, TSCA, and CERCLA. Instead, the staff would rely on the concurrence and commitment of the long-term custodian to accept the site on license termination. Under this option, staff would issue a generic exemption to the requirements of 10 CFR Part 61. This would remove the need for individual exemptions for each proposed disposal.

Finally, given the current situation in the LLW program wherein operating LLW disposal facilities are accepting waste from outside their regional compact, it may be possible to relax the criterion that a mill licensee obtain concurrence from the appropriate LLW compact. However, because the material that would be disposed of meets the definition of LLW, removing compact approval could lead to questions of jurisdiction and may not be desirable due to the associated litigation this may invite. This criterion was included in the guidance at the direction of the Commission (SRM dated September 20, 1991; Attachment 6); therefore, the staff is not prepared to remove the criterion without prior Commission approval. Similar to the placement of non-AEA and chemical wastes in mill tailings impoundments, the staff does not see a need to obtain agreement from the compacts if the long-term custodian were to agree to accept the disposal site for long-term care and custody with LLW in it. Such agreement may still be required under the Low-Level Radioactive Waste Policy Amendments Act of 1985, even if staff removed this criterion from its guidance.

The principal advantage of this option is that the staff's review process for proposals to dispose of material other than 11e.(2) byproduct material in mill tailings impoundments would be streamlined and less constrained (see as an example, draft revised guidance included as [Attachment 7](#)). As a result, the potential for material other than 11e.(2) byproduct material to be disposed in mill tailings impoundments could be increased depending on the willingness of licensees and the long-term custodian to accept dual or multiple regulation. However, if licensees accept other material for disposal, staff resource needs may increase as dealings with other Federal and/or State regulatory agencies will also increase with regard to areas of mutual concern (e.g., the final design for the reclamation and long-term stabilization of the mill tailings), and the associated additional regulation could decrease the viability of this approach. As long as any other regulations impose requirements that are more stringent than those in Part 40, Appendix A, the staff would find this additional level of conservatism acceptable. If NRC requirements were found to be more conservative, then the staff would continue to follow these. In the revised guidance, staff would provide this level of discussion to clarify how more conservative requirements would be handled.

- 3. Seek Legislative Change with Regard to the Types of Materials to be Placed in a Tailings Impoundment and under the Long-Term Care of DOE**

Because Option 2 involves the regulation of the tailings impoundments by more than one regulatory agency should non-AEA materials be placed in the impoundment and would require that DOE assume the long-term care responsibility under UMTRCA for all such sites, a clarification from Congress through a legislative initiative to amend the UMTRCA may be desirable. Under Option 3, staff would work with the Office of Congressional Affairs and the Office of the General Counsel (OGC) to develop a legislative package that would expand the types of material that can be disposed of in tailings impoundments without opening those sites to perpetual dual regulation by NRC, EPA, and potentially individual States. The legislative initiative would also be coordinated with the DOE.

The staff prefers Option 3. The bases for this preference are that this option would give Congressional certainty to the decision to expand the use of tailings impoundments, and simplify the NRC review process and also give licensees greater flexibility in the types of materials that could be disposed of in their tailings impoundments. Option 3 also offers a solution for expanding the types of materials that can be placed in tailings impoundments, but avoids the likelihood of opening sites to regulation by multiple entities.

Processing of Material Other Than Natural Ore

In September 1995, the staff also issued final guidance for reviewing licensee requests to process alternate feed material (also found in [Attachment 1](#)). The guidance contains a criterion that requires mill licensees to demonstrate that they will be processing the alternate feed material primarily⁽³⁾ for its source-material content. One method a licensee may use is to provide certification to this effect, supported by a justification based on either the high uranium content of the material, financial considerations, or other factors. The criterion that includes financial considerations to support the milling of alternate feed is based on an order from the Presiding Officer in a 1993 hearing ([Attachment 8](#)) involving the staff's approval of Umetco Minerals Corporation's (Umetco's) application to test alternate feed material for possible processing at its White Mesa mill near Blanding, Utah (current owner and operator is International Uranium Corporation).

The 1993 hearing focused on one of the major issues raised by the State of Utah in its hearing request, which concerned the staff's reliance on an unsupported certification from Umetco that it would be processing the material primarily for its source-material content. As part of the business deal for

the material in question, however, Umetco would have received a fee for taking the material, thus making the deal profitable for Umetco when the revenues from the fee and the sale of the recovered uranium were combined. The State of Utah asserted that, in accepting a fee for the material, Umetco was operating, in fact, a LLW disposal facility, without prior approval from the appropriate regulatory authority, i.e., the State of Utah. In its petition, the State further argued that Umetco simply would be processing the material in an attempt to change the material's legal definition from "low-level waste" to "11e.(2) byproduct material," thus effectively circumventing the State's regulations. The State of Utah called the processing of material simply to change its legal definition "sham" disposal.

Although the Presiding Officer did not grant the State's petition to overturn the staff's approval, he did discuss, in his order [In the Matter of Umetco Minerals Corporation; 37 NRC 267 (1993)] ([Attachment 8](#)) his concerns with the staff's review, including a need to examine the economic factors of a licensee's request to process alternate feed materials. He stated that this review of economics would help ensure that mill licensees were not trying to sidestep other licensing requirements by processing material simply to change its legal definition. To address this issue, the staff revised its then draft guidance to include an additional criterion that a licensee could use financial considerations in the supporting justification for processing alternate feed material primarily for its source-material content. This additional criterion is one of three in the guidance. The licensee can elect to use any one of the three to justify processing alternate feed material.

However, the uranium recovery industry is concerned that NRC has stepped beyond its legislative authority by including financial considerations to support a licensee's request to process alternate feed material in assessing whether the material was processed primarily for its source-material content. A representative of the waste disposal industry, on the other hand, has expressed concerns that the staff's economic test is insufficient to guard against processing solely to change the material's legal definition.

Using the 1995 guidance, the staff has reviewed and approved a total of seven applications from a single mill licensee to process alternate feed materials. In all cases, the licensee used financial consideration of the proposed action to justify that the material was being processed primarily to extract its uranium content although other means could have been used by the licensee to demonstrate that processing was primarily for the extraction of uranium. In another hearing request on a June 1998 amendment authorizing the processing of alternate feed, the State of Utah again asserted that material approved by NRC for processing at the White Mesa mill is being subject to "sham" disposal. In a February 9, 1999, ruling on the State's petition ([Attachment 9](#)), the Presiding Officer's decision rejecting the State's position was based on language in the AEA, which defines byproduct material 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." The Presiding Officer's ruling was that "primarily" does not refer to a test of motive or purpose, but to what is removed from the material being processed. Therefore, if source material is removed from alternate feed material in a uranium milling process, it meets the "primarily" test. The State of Utah has appealed this decision to the Commission.

To address this situation, the staff considers that Commission guidance on the Presiding Officer's 1993 Order is warranted. If the Commission believes that the 1993 order should be superseded and the staff should focus its review solely on the public health and safety aspects of applications to process alternate feed materials, then the staff could revise its guidance to eliminate any discussion about economics and consider the "primarily" test to determine the acceptability of an application to process alternate feed sufficient. This revised guidance would also be issued for public review and comment.

The revised guidance would also allow mill licensees to process alternate feed material without always obtaining prior NRC approval. Under this approach, licensees could request a performance-based license amendment authorizing processing of alternate feed material primarily for its source material content. The performance-based amendment would make individual amendments each time alternate feed material is to be processed unnecessary. The amended license would require the licensee to determine if the alternate feed material contains enough uranium to justify processing the material through the mill. This is what licensees currently do with natural ore. Since alternate feed would meet the definition of ore in the current and revised guidance, licensees would be given the same flexibility for processing alternate feed material as they currently have for natural ore. Mill licensees would have to document in writing the results of all analyses conducted under their licenses, and the staff would be able to review the adequacy of these evaluations during routine site inspections.

Any justification developed by the licensee would need to demonstrate that the material was processed primarily for its uranium content. Such a demonstration could be based on: (1) the concentration of uranium in the alternate feed material; (2) financial considerations (if the licensee chooses to use that basis); (3) a demonstration that the material can be disposed of directly in the tailings impoundment without further processing [and therefore truly is being processed for its source-material content]; or (4) any other basis of equivalent capability to make the demonstration. This justification is needed to ensure that the residuals from processing can be classified as 11e.(2) byproduct material for disposal into mill tailings impoundments. This issue may become moot if the legislation proposed earlier is enacted. Such legislation would allow for material other than 11e.(2) byproduct material to be disposed of in mill tailings impoundments. Another way this issue would be rendered moot is if the Commission were to uphold the Presiding Officer's decision that the definition of primarily is based on the removal of uranium from ore, and not related to the motive of a licensee in processing material. As such, the question of "sham" disposal would no longer be an issue.

For those instances in which a listed hazardous waste was present in a proposed feed material, licensees would be required to receive NRC approval to process such material if the licensee was not already approved to accept this type of material. The staff's approval would hinge on documentation of the long-term custodian's willingness to take the site on license termination. If the licensee had previous approvals to accept such materials, then the staff would expect to see, during its routine site inspections, documentation in the licensee's records of the long-term custodian's willingness to take the site.

As identified previously, [Attachment 5](#) is a differing professional view [(DPV); as allowed under Management Directive (MD) 10.159] on this recommendation, submitted by a staff member on November 19, 1998. The DPV complements the analysis presented in this paper and offers a legislative proposal that might address the uranium recovery industry's concerns. The DPV was reviewed under MD 10.159, and a DPV review panel report dated January 15, 1999, is provided as [Attachment 10](#). The DPV panel report contains eight recommendations on the disposal guidance and three

on the alternate feed guidance. Information on these recommendations has been incorporated into this paper or into the revised guidance in [Attachment 7](#).

RESOURCES:

At this time, it is not possible to quantify the resource impacts associated with the staff's recommendations. To date, there have been no specific proposals from mill licensees to dispose of non-11e.(2) byproduct material. In addition, the staff has reviewed only seven applications to process alternate feed material and supported only three hearings on alternate feed material amendments over the past six years. It is possible that savings in staff resources resulting from revision and implementation of the current guidance documents (e.g., in review time and hearing support for alternate feed requests) could be offset by an increase in staff interactions with other Federal or State agencies resulting from increased licensee requests to dispose of non-11e.(2) byproduct material, and to process alternate feed materials.

Resources to modify the existing guidance in accordance with the recommendations are included in the current budget to develop the new proposed 10 CFR Part 41. The rulemaking plan for the proposed rule is before the Commission as SECY-99-011.

RECOMMENDATIONS:

That the Commission:

- 1) Supersede the Presiding Officer's direction in Umetco Minerals Corporation [37 NRC 267 (1993)];
- 2) Approve the staff's recommendation to seek legislative change with regard to the types of materials to be disposed of in an 11e.(2) tailings impoundment. The proposed legislative change would allow disposal of non-AEA 11e.(2) byproduct material and hazardous materials; and
- 3) Allow the staff to revise its current guidance on processing of alternate feed, as discussed in this paper.

If the Commission approves a rulemaking plan for a new Part 41 (SECY-99-011), these changes could be codified as part of that rulemaking.

COORDINATION:

The Office of the General Counsel has reviewed this Commission Paper and has no legal objections. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objection.

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- Attachments:**
1. September 1995 Non-11e.(2) Byproduct Material Disposal and Alternate Feed Guidance
 2. SRM dated March 31, 1997
 3. SECY 91-243
 4. SECY 95-211
 5. DPV dated November 19, 1998
 6. SRM dated September 20, 1991
 7. [Example Revised Non-11e.\(2\) Byproduct Material Disposal Guidance](#)
 8. Judge Gleason's April 12, 1993, Order
 9. Presiding Judge's decision, dated February 9, 1999
 10. Report of DPV review panel, dated January 15, 1999

ATTACHMENT 7

Draft Revised "Guidance on Disposal of Atomic Energy Act Non-Section 11e.(2) Byproduct Material in Tailings Impoundments" if Staff Recommendations Are Approved

The mechanism to authorize the disposal of material other than Atomic Energy Act of 1954, Section 11e.(2) byproduct material (hereafter designated as non-11e.(2) byproduct material⁽⁴⁾) in a uranium mill tailings impoundment is an amendment to the mill license under 10 CFR Part 40, authorizing the receipt of the material and its disposal. The 11e.(2) licensee shall submit an environmental report meeting the requirements of 10 CFR 51.45 in support of its license amendment request.

If the 11e.(2) licensee is seeking approval to accept for disposal materials regulated under the Resource Conservation and Recovery Act, the Toxic Substance Control Act, or the Comprehensive Environmental Response, Compensation and Liability Act, the licensee should obtain the necessary permits(s) or an exemption to such permit(s) from the appropriate regulatory agency(ies), in addition to receiving from NRC the necessary approval under 10 CFR Part 40. If the requirements for disposal of such material are more stringent than those required in Part 40, then NRC would view those as adding conservatism to the design. If the Part 40 requirements are more conservative, NRC would still require that its regulations are met. Through this approach, NRC believes that any conflicts between the different regulatory requirements could be handled. In the rare instances where the State imposed requirements would conflict with NRC's responsibilities to fulfill UMTRCA, NRC would rely on Federal preemption to avoid such conflicts. However, as NRC has successfully done at mill sites currently undergoing regulation, it would hope to cooperatively work with States. Such cooperative arrangements in the States of New Mexico and Wyoming have allowed current mills to move toward reclamation and license termination. As such, NRC's willingness to work with individual States who are cooperative to achieving sound resolution to waste issues should avoid any conflicts as long as individual States exhibit the reasonableness NRC has found in past work on areas where concurrent jurisdiction was present.

In reviewing licensee requests for the disposal of wastes that have radiological characteristics comparable to those of 11e.(2) byproduct material in tailings impoundments, 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 non-11e.(2) byproduct material should also be done under 10 CFR Part 40.

1. Only those non-11e.(2) byproduct materials with physical and chemical characteristics similar to those of 11e.(2) byproduct material present in tailings impoundments and containing the primordial element(s) (uranium and/or thorium) and their daughter elements as the only radionuclides present, can be approved for disposal.
2. Special nuclear material and Section 11e.(1) byproduct material waste should not be considered as candidate for disposal in tailings impoundments, without compelling reasons to the contrary. If staff believes that disposal of such material in a tailings impoundment in a specific instance is acceptable, such approval will only be granted after review by the Commission.
3. The 11e.(2) licensee must demonstrate that the material proposed for disposal will not modify the physical or chemical characteristics of the material already present in the tailings impoundment and that the proposed disposal will not compromise the reclamation of the tailing impoundment in accordance with the reclamation and closure criteria of Appendix A of 10 CFR Part 40.
4. A concurrence and commitment from the long-term custodian (either the Department of Energy (DOE) or the State in which the tailings impoundment is located) to take title to the tailings impoundment including associated non-11e.(2) product materials after closure must be received before granting the license amendment to the 11e.(2) license. The licensee should inform DOE and the State in which the tailings impoundment is located, of the U.S. Nuclear Regulatory Commission findings and approved action.
5. If the licensee proposes to dispose of low-level waste in the tailings impoundment the licensee must certify that the disposal of low-level waste under these criteria does not require a license under 10 CFR Part 61, as long as such disposal is in accordance with these criteria and adhere to the criteria in Appendix A of 10 CFR Part 40.

1. The definition of 11e.(2) byproduct material comes from Section 11e.(2) of the Atomic Energy Act of 1954, as amended, which states that it is the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content. Material other than 11e.(2) material that is discussed in this paper as acceptable for disposal in mill tailings impoundments is material with radiological characteristics comparable to 11e.(2) (e.g., soil contaminated with primordial elements such as uranium and thorium and their progeny, including materials such as NORM), and does not include fission and activation products or transuranic wastes.

2. The Industry's recommendations regarding disposal of material other than 11e.(2) byproduct material were presented in the NMA White Paper. The Industry believes mills should be allowed to accept low radioactivity wastes that are similar to uranium mill tailings in volume, radioactivity, and toxicity. Examples of such wastes include secondary process wastes generated during the capture of uranium in side stream recovery operations; sludges or residues generated during treatment of mine water containing suspended or dissolved source material; and naturally occurring radioactive material.

3. The requirement to find that the material was produced from processing "primarily for its source-material content" derives from the UMTRCA amendment to Section 83 of the AEA; therefore, the residuals from such processing are 11e.(2) byproduct material. UMTRCA added the definition of byproduct material that encompasses tailings from material processed primarily for its source-material content. The determination with regard to "primarily" is a statutory requirement.

4. "Non-11e.(2) byproduct material" as used here is simply an encompassing term for source, special nuclear, and 11e.(1) byproduct material.