



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

DOCKETED
USNRC

May 6, 1999

'99 MAY -6 P4:19

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In the Matter of
INTERNATIONAL URANIUM (USA) CORPORATION
Receipt of Notice for Tonawanda, New York
Docket No. 40-8681-MLA-4

Dear Administrative Judges:

Enclosed for your information is a copy of SECY-99-012, "Use Of Uranium Mill Tailings Impoundments For The Disposal Of Waste Other Than 11e.(2) Byproduct Material And Review Of Applications To Process Material Other Than Natural Uranium Ores."

Sincerely,

Lisa B. Clark
Counsel for NRC Staff

Enclosure: As stated

cc w/encl:

Fred Nelson, Esq.
Anthony J. Thompson, Esq.

Office of the Secretary
OCAA

Adjudicatory File
Atomic Safety and Licensing
Board

SECY-040

D503
20346



POLICY ISSUE (Notation Vote)

April 8, 1999

SECY-99-012

FOR: The Commissioners

FROM: William D. Travers
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.

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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 material¹ 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

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.

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

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.

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 primarily³ 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

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.

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.



William D. Travers
Executive Director
for Operations

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

Commissioners' completed vote sheets/comments should be provided directly to the Office of the Secretary by COB Monday, June 21, 1999.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT June 14, 1999, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

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Uranium Mill Facilities, Notice of Two Guidance Documents: Final Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments; Final Position and Guidance on the Use of Uranium Mill Feed Materials Other Than Natural Ores

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of final guidance.

SUMMARY: The U.S. Nuclear Regulatory Commission has finalized two uranium mill licensing guidance documents after consideration of comments received in response to a request for public comment in a *Federal Register* notice published May 13, 1992 (57 FR 20525). Only minor changes were made to the proposed guidance documents titled, "Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments" and "Position and Guidance on the Use of Uranium Mill Feed Materials Other Than Natural Ores."

ADDRESSES: Copies of the comments and the NRC staff responses, as well as SECY-91-243, can be examined at the Commission's Public Document Room at 2120 L Street NW. (lower level), Washington DC.

FOR FURTHER INFORMATION CONTACT: Myron Fliegel, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555; telephone (301) 415-6629.

SUPPLEMENTARY INFORMATION:

Final Revised 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 (AEA) of 1954, Section 11e.(2) byproduct material (hereafter designated as "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 such material [hereafter designated as "non-11e.(2) byproduct material"] should also be done under 10 CFR part 40.

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

2. Radioactive material not regulated under the AEA shall not be authorized for disposal in an 11e.(2) byproduct material impoundment.

3. 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 approval by the Commission should be prepared.

4. The 11e.(2) licensee must demonstrate that the material is not subject to applicable Resource Conservation and Recovery Act (RCRA) regulations or other U.S. Environmental Protection Agency (EPA) standards for hazardous or toxic wastes prior to disposal. To further ensure that RCRA hazardous waste is not inadvertently disposed of in mill tailings impoundments, the 11e.(2) licensee also must demonstrate, for waste containing source material, as defined under the AEA, that the waste does not also contain material classified as hazardous waste according to 40 CFR part 261. In addition, the licensee must demonstrate that the non-11e.(2) material does not contain material regulated under other Federal statutes, such as the Toxic Substances Control Act. Thus, source material physically mixed with other material, would require evaluation in accordance with 40 CFR part 261, or 40 CFR part 761. (These provisions would cover material such as: Characteristically hazardous waste; listed hazardous waste; and polychlorinated biphenyls.) The demonstration and testing should follow accepted EPA regulations and protocols.

5. The 11e.(2) licensee must demonstrate that there are no Comprehensive Environmental Response, Compensation and Liability Act issues related to the disposal of the non-11e.(2) byproduct material.

6. The 11e.(2) licensee must demonstrate that there will be no significant environmental impact from disposing of this material.

7. 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.

8. 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.

9. The Department of Energy (DOE) and the State in which the tailings impoundment is located, should be informed of the 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.

10. 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 § 61.6, must be granted. (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 § 61.6 exemption should be supported with a staff analysis addressing the issues discussed in this guidance.

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

Staff reviewing licensee requests to process alternate feed material (material other than natural ore) in uranium mills should 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 must 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 §§ 261.30-33 of 40 CFR (or comparable RCRA authorized State regulations), it would be subject to EPA (or State) regulation under RCRA. To avoid the

complexities of NRC/EPA dual regulation, such feed material will not be approved for processing at a licensed mill. 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 acceptance of such residues as feed material will depend on their not containing any hazardous or characteristic hazardous waste. Staff may consult with EPA (or the State) before making a determination of whether the feed material contains hazardous waste.

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. There is concern that wastes that would 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 it in the tailings pile as 11e.(2) byproduct material. In determining whether the proposed processing is primarily for the source-material content or for the disposal of waste, either of the following tests can be used:

a. *Co-disposal test:* Determine if the feed material would be approved for disposal in the tailings impoundment under the "Final Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments," or revisions or replacements to that guidance. If the material would be approved for disposal, it can be concluded that if a mill operator proposes to process it, the processing is primarily for the source-material content. The material would have to be physically and chemically similar to 11e.(2) byproduct material and not be subject to RCRA or other EPA hazardous-waste regulations, as discussed in the guidance.

b. *Licensee certification and justification test:* The licensee must certify under oath or affirmation that the feed material is to be processed primarily for the recovery of uranium and for no other primary purpose. The licensee must also justify, with reasonable documentation, the

certification. The justification can be based on financial considerations, the high uranium content of the feed material, or other grounds. The determination that the proposed processing is primarily for the source material content must be made on a case-specific basis.

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, and that the primary purpose of its processing is for its source-material content, the request can be approved.

Dated at Rockville, Maryland, this 13th day of September 1995.

For the Nuclear Regulatory Commission.

Joseph J. Holonich,
Chief, High-Level Waste and Uranium Recovery Projects Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards.

[FR Doc. 95-23531 Filed 9-21-95; 8:45 am]

BILLING CODE 7590-01-P

SECURITIES AND EXCHANGE COMMISSION

[Rel. No. IC-21362; No. 812-9602]

Golden American Life Insurance Company, et al.

September 15, 1995.

AGENCY: Securities and Exchange Commission ("SEC" or "Commission").

ACTION: Notice of Application for an Order under the Investment Company Act of 1940 ("1940 Act").

APPLICANTS: Golden American Life Insurance Company ("Golden American"), Separate Account B ("Account B") and Separate Account D ("Account D"—together with Account B, "Separate Accounts"), and Directed Services, Inc. ("DSI").

RELEVANT 1940 ACT SECTION: Order requested under Section 6(c) of the 1940 Act granting exemptions from Sections 12(b), 26(a)(2) and 27(c)(2) thereof and Rule 12b-1 thereunder.

SUMMARY OF APPLICATION: Applicants seek an order permitting the deduction of mortality and expense risk charges, including an asset-based enhanced death benefit charge, from the assets of the Separate Accounts in connection with the offering of certain variable annuity contracts ("Contracts") and certain other variable annuity contracts ("Future Contracts") issued in the future by Golden American that are materially similar to the Contracts. Applicants also request that the order permit the

deduction of a mortality and expense risk charge from the assets of any other separate accounts ("Future Accounts") established in the future by Golden American in connection with the offering of the Future Contracts.

FILING DATE: The application was filed on May 11, 1995, and amended on August 29, 1995.

HEARING OR NOTIFICATION OF HEARING: An order granting the application will be issued unless the Commission orders a hearing. Interested persons may request a hearing by writing to the Secretary of the Commission and serving Applicants with a copy of the request, personally or by mail. Hearing requests should be received by the Commission by 5:30 p.m. on October 10, 1995, and should be accompanied by proof of service on Applicants in the form of an affidavit or, for lawyers, a certificate of service. Hearing requests should state the nature of the requestor's interest, the reason for the request, and the issues contested. Persons may request notification of a hearing by writing to the Secretary of the Commission.

ADDRESSES: Secretary, Securities and Exchange Commission, 450 5th Street, NW., Washington, DC 20549.

Applicants, c/o Mitchell M. Cox, Esq., Vice President, Assistant Secretary and Associate General Counsel, Golden American Life Insurance Company, 1001 Jefferson Avenue, 4th Floor, Wilmington, Delaware 19801.

FOR FURTHER INFORMATION CONTACT: Yvonne M. Hunold, Assistant Special Counsel, or Patrice M. Pitts, Special Counsel, Office of Insurance Products (Division of Investment Management), at (202) 942-0670.

SUPPLEMENTARY INFORMATION: The following is a summary of the application; the complete application is available for a fee from the Public Reference Branch of the Commission.

Applicants' Representation

1. Golden American is a stock life insurance company authorized to do business in all jurisdictions, except New York. Golden American is a wholly-owned subsidiary of BT Variable, Inc. and a wholly-owned indirect subsidiary of Bankers Trust Company.

2. The Separate Accounts were established by Golden American as segregated asset accounts to fund variable annuity contracts. Account B is registered under the 1940 Act as a unit investment trust. Account D is registered under the 1940 Act as a non-diversified open-end management company. Registration statements on Form N-4 and Form N-3, registering the Contracts as securities under the



SECRETARY

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 31, 1997

MEMORANDUM TO: L. Joseph Callan
Executive Director for Operations
FROM: John C. Hoyle, Secretary
SUBJECT: STAFF REQUIREMENTS - COMSECY-96-058 -
DECOMMISSIONING - NON REACTOR FACILITIES,
(DSI 9)

The Commission continues to support its preliminary views on this issue which, subject to the Commission's modifications as set forth in the preliminary view, was the selection of a combination of options including: (1) Change the Decommissioning Process [Option 2]; (2) Focus on Decommissioning Cases in which - can be made [Option 6]; (3) Take an Aggressive Position to Develop Regulatory Frameworks for Lower Cost Decommissioning Waste Disposal Options [Option 7]; and (4) Develop a Litigation Strategy [Option 8].

In its preliminary views on this issue, the Commission directed the staff to include in the pilot program and only those licensees who (1) volunteer for the program and the staff finds suitable for the pilot program. The Commission believes that the pilot program should be designed to be a test of identifying those licensee attributes that are important in deciding which licensees should be allowed to participate in the pilot program. Specifically, the Commission directs the staff to consider the following as potential criteria for making determinations on the suitability of a licensee for the pilot program. First, the licensee should be technically capable and adequately funded and second, the licensee's site should be minimally contaminated, not complex, and undergoing only routine decommissioning activities. The staff should provide a status report on this effort by June 15, 1998 or sooner if circumstances warrant.

(EDO)

(SECY Suspense: 6/15/98)

The staff should sponsor a workshop in connection with the pilot program to make sure that candidates for the pilot program know what NRC expects of the licensees. The Commission's preliminary view had further guidance on this matter.

(EDO)

(SECY Suspense: 3/31/98)

The staff should continue to evaluate any new and different

Attachment 2

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approaches to the decommissioning review process as they are presented. One such process is to adopt an approach that requires a decommissioning plan with supporting data and information that is commensurate with the complexity and risk associated with the site to be decommissioned. The Commission further directs the staff to consider how implementation of this simplified review process could also enhance the review process for routine sites being decommissioned other than SDMP sites.

(EDO)

(SECY Suspense: 9/30/97)

Regarding Options 4 and 9, the Commission does not believe that the Superfund approach would be an effective tool for the NRC to oversee decommissioning activities.

With regard to Option 6, the Commission believes that referral to EPA should be a last resort, should be approved by the Commission, and should be used only in those circumstances where EPA agrees that the remedies that it will bring to bear have a higher probability of success in terms of achieving cleanup.

Finally, the SRM on DSI 21 addresses the fact that many NRC costs for site decommissioning management plan activities are not recoverable under Part 170 fees, and as such, the NRC should attempt to move these costs outside the fee base to a direct appropriation.

cc: Chairman Jackson
Commissioner Rogers
Commissioner Dicus
Commissioner McGaffigan
Commissioner Diaz
K. Cyr
D. Rathbun
H. Bell
A. Galante
R. Scroggins
W. Beecher

PDR



POLICY ISSUE

(NEGATIVE CONSENT)

August 7, 1991

SECY-91-243

For: The Commissioners

From: James M. Taylor
Executive Director
for Operations

Subject: DISPOSAL OF MATERIAL OTHER THAN ATOMIC ENERGY ACT OF 1954,
AS AMENDED, SECTION 11e.(2) BYPRODUCT MATERIAL INTO URANIUM
MILL TAILINGS IMPOUNDMENTS

Purpose: To inform the Commission of the staff's approach for responding to applicant requests to dispose of material other than Atomic Energy Act (AEA), of 1954, as amended, Section 11e.(2) byproduct material [hereafter designated as "non-11e.(2) byproduct material"] in uranium mill tailings impoundments and to obtain Commission approval of a memorandum to Region IV implementing the revised policy guidance on this subject.

Background: The Uranium Mill Tailings Radiation Control Act of 1978 amended Section 11e. of the AEA to include specifically as byproduct material "...the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content." For the purposes of this paper, these tailings or wastes, as defined in Section 11e.(2) of the AEA, will be designated as "11e.(2) byproduct material."

Over the past several years, the Nuclear Regulatory Commission (NRC) and Agreement States have received requests for the disposal of radioactive waste materials other than 11e.(2) byproduct material into the tailings impoundments of

Contact:
Myron H. Fliegel, NMSS
492-0555

NOTE: TO BE MADE PUBLICLY AVAILABLE
WHEN THE FINAL SRM IS MADE
AVAILABLE

licensed uranium milling operations. The non-11e.(2) byproduct material that has been considered for co-disposal at uranium mill tailings sites has included source, byproduct [as defined in Section 11e.(1) of the AEA and hereafter designated as "byproduct material"], and special nuclear material (SNM), as well as naturally-occurring radioactive material. These radioactive wastes have had similar characteristics to 11e.(2) byproduct material with low specific activity and long half-lives. Examples of these non-11e.(2) byproduct material wastes include mine-water cleanup residues and tailings resulting from a rare-earth operation containing source material.

In the past, uranium mills have occasionally disposed of small quantities of non-11e.(2) byproduct material in tailings either under the conditions of their existing license or after NRC staff approval of a specific license amendment request under 10 CFR Part 40 or Agreement State compatible regulations. The NRC staff approved these disposals because the quantities were negligible in comparison to the quantity of mill tailings.

As these requests for disposal became more frequent, the NRC staff developed specific policy guidance in 1988 (Enclosure 1) for addressing these requests. In the guidance, the staff concluded that NRC should not allow the disposal of naturally-occurring and accelerator-produced radioactive materials (NARM) wastes in tailings impoundments. Staff continues to believe this position with respect to NARM disposal is appropriate, but will revisit it if the need arises. The guidance allows the NRC staff to approve, on a case-specific basis, the disposal of non-11e.(2) byproduct material generated by operations regulated under the AEA, into tailings impoundments, if the following four conditions are met:

1. The disposal will have no significant additional effects on public health and safety, and the environment.
2. The disposal will not compromise the reclamation of the impoundment. In effect, the disposal must comply with the reclamation and closure criteria in 10 CFR Part 40, Appendix A.
3. The disposal will not result in the tailings impoundment becoming subject to the Resource Conservation and Recovery Act (RCRA) or Comprehensive Environmental Response, Compensation and Liability Act.
4. The U.S. Department of Energy (DOE) or the State agrees to take title to the site upon completion of the reclamation.

In regard to the fourth condition, DOE has indicated, in letters of November 16, 1990, and December 24, 1990, that it would not object if NRC approved transfer of a remediated commercial milling site to DOE containing NARM and other low-activity non-11e.(2) byproduct materials, in accordance with Section 83 of the AEA (Enclosure 2). DOE stated that if NRC can make a finding that DOE will not incur any cost associated with these wastes, specifically that there would be no adverse environmental effect or outstanding compliance issue under any environmental law (for example, RCRA), then NRC could authorize disposal of non-11e.(2) byproduct material in a uranium mill tailings impoundment.

DOE further responded in a January 23, 1991, letter (Enclosure 3) to five specific questions NRC staff had raised on acceptable quantities and concentrations of several categories of non-11e.(2) byproduct material. DOE's response included considerations that NRC would have to address in determining such acceptability. The findings and considerations discussed in the DOE letters of November 16, 1990, and January 23, 1991, are encompassed by the first three demonstrations required under the current staff guidance discussed above. Thus, demonstration of those three findings will result in the fourth (DOE's agreement to take title to the tailings impoundment) finding being met. However, to reduce the potential of future problems with transfer to DOE, NRC will notify DOE (with an opportunity to provide comments) of each impending decision to allow non-11e.(2) byproduct material disposal in a tailings impoundment. NRC believes that DOE also has authority for low-level waste disposal site ownership under Section 151.(b) of the Nuclear Waste Policy Act of 1982.

Discussion:

A major issue that the staff considered is the types of wastes that would be allowed to be disposed of in tailings impoundments. Current staff policy is to consider, on a case-specific basis, wastes generated by operations regulated under the AEA. This would allow consideration of byproduct material and SNM, in addition to source material. The non-11e.(2) byproduct materials proposed for co-disposal in a uranium mill tailings impoundment have, thus far, consisted primarily of source material, but there have been instances where contaminated soils containing low levels of byproduct material and SNM (such as from spills at fuel fabrication facilities) have been candidates for such co-disposal.

Staff considers that SNM and byproduct material [i.e., 11e.(1)] that may be present in contaminated soils should not be considered as a candidate for disposal in a uranium mill tailings impoundment without significant reasons to the contrary. Appendix A of Part 40 presents criteria for the disposal of 11e.(2) byproduct material. These

criteria to properly dispose of this material were developed based on the physical, chemical, and radiological characteristics of the material. The basis for most of the requests to commingle non-11e.(2) byproduct material in tailings impoundments is that the proposed bulk material is similar in characteristics to 11e.(2) byproduct materials but does not meet the definition, which is based on process and history, rather than characteristics. Because of this similarity to 11e.(2) byproduct material, the criteria in Appendix A are appropriate to use, to ensure safe disposal of this material. This premise is only valid for bulk material whose primary radiological contamination is uranium, thorium, and radium in low concentrations. Wastes contaminated with 11e.(1) byproduct material are sufficiently different that this premise may not be valid.

Soils contaminated with SNM may be similar to 11e.(2) byproduct material in physical, chemical, and radiological characteristics. There are, however, issues related to the disposal of SNM- or byproduct material- contaminated soils, in tailings impoundments, that preclude routine approval using the criteria in Appendix A of Part 40. Possession of SNM or byproduct material would have to be licensed under 10 CFR Parts 70 or 30, respectively, and not Part 40. For SNM, the issues of criticality, material control and accountability, and site security might have to be addressed.

For these reasons, the staff will not approve the disposal of byproduct material or SNM through the process discussed in this paper. If there is a compelling reason to consider a specific proposed disposal of byproduct material or SNM in a tailings impoundment, approval of the Commission will be required.

The issues discussed above are explained in greater detail in Enclosure 4 and have been included in the revised policy guidance for disposal of non-11e.(2) byproduct material in uranium mill tailings piles (Enclosure 5).

Throughout the period of development of the agency position on disposal of non-11e.(2) byproduct material, the staff has been aware of the importance of this matter to the State of Washington. On June 19, 1991, the Secretary of the State of Washington Department of Health requested by telephone that NRC staff expedite the approval and release of this agency position on non-11e.(2) byproduct material. The State of Washington has under review a major uranium mill licensing action that includes issues relating to the disposal of mine sludge waste [non-11e.(2) byproduct material] in a tailings impoundment. The target date established for completing

action on the uranium mill license is by the end of July 1991. The State of Washington is reluctant to take such action prior to NRC issuance or approval of the guidance discussed in this paper, since NRC must concur in the license termination for this facility.

There has been some outside interest in the subject of disposal of non-11e.(2) byproduct material in tailings impoundments. We recently received correspondence from an NRC applicant, who is also an Agreement State low-level waste licensee, expressing concern about this subject. A copy of that July 31, 1991, letter is provided in Enclosure 6.

Resource
Implications:

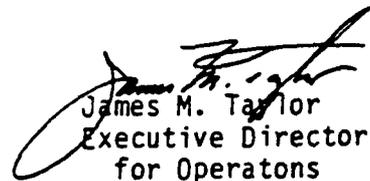
Staff review of a request to commingle non-11e.(2) byproduct material in tailings impoundments, under both the current guidance and this proposed revised guidance, would be in the context of a proposed license amendment and the number of such requests are estimated to be few. As such, resources required for these reviews are included in the budget allocated for review of license amendments.

Recommendation:

Unless advised to the contrary by the Commission, within 10 working days from the date of this paper the staff plans to continue dealing with requests for co-disposal of non-11e.(2) byproduct material (for source material only) in tailings impoundments on a case-specific basis. The revised policy guidance contained in Enclosure 5 will be transmitted to Region IV for implementation.

Coordination:

The Office of the General Counsel has reviewed this paper and has no legal objection. The Office of Governmental and Public Affairs has reviewed this paper and concurs.


James M. Taylor
Executive Director
for Operations

Enclosures:

1. 7/27/88 NMSS memo to RIV
2. 11/16/90 and 12/24/90 DOE
ltrs to NRC
3. 1/23/91 DOE ltr to NRC
4. Non-11e.(2) Byproduct Material Paper
5. NMSS memo to RIV
6. 7/31/91 Envirocare ltr to NRC

SECY NOTE: In the absence of instructions to the contrary, SECY will notify the staff on Wednesday, August 21, 1991, that the Commission, by negative consent, assents to the action proposed in this paper.

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JUL 27 1988

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- 1 -

MEMORANDUM FOR: Robert D. Martin, Regional Administrator
Region IV

FROM: Hugh L. Thompson, Jr., Director
Office of Nuclear Material Safety
and Safeguards

SUBJECT: DISPOSAL OF NON-BYPRODUCT MATERIALS IN TAILINGS
IMPOUNDMENTS

In your February 23, 1988 memorandum, you requested a policy decision on the disposal of non-byproduct waste materials (NARM and other wastes) in mill tailings impoundments. To facilitate our review, we used the two categories of wastes discussed in your memorandum. These categories are: (1) NARM wastes, those generated by operations not regulated under the Atomic Energy Act (the Act) and (2) other wastes, those generated by operations regulated under the Act. Neither of these waste categories is included in the legislative definition of byproduct material.

The major regulatory issues discussed in your memorandum and noted below would have to be favorably resolved before the NRC could consider approving the disposal of the NARM category of waste in mill tailings impoundments under current statutory authority. The statutory authority is unlikely to change in the near future. Therefore, we agree with your recommendation that NRC not approve a policy of disposal of material in the NARM category of waste in mill tailings impoundments.

The primary issue is whether the inclusion of NARM wastes in a mill tailings disposal site is consistent with U.S. Government ownership (or State ownership) and other authorities under Section 83 of the Act. Since the Department of Energy (DOE) is currently designated to take title to the mill tailings sites, NRC requested DOE's view on this question. DOE's response stated that DOE has doubts about its authority to take title to the mill tailings disposal sites if NRC has allowed the commingling of NARM (non-byproduct) materials in the impoundments (a copy of the DOE response is attached).

As noted in your request, NRC does not have authority to regulate NARM. Therefore, disposal of NARM in tailings impoundments would result in a commingling of regulated and unregulated materials in the same disposal unit. This could create duplicative jurisdiction between NRC and other Federal or State agencies with respect to the commingled radioactive materials. Moreover, if NARM waste constituents were to violate the current standards (e.g. migrate into ground water), the Commission's authority under Section 84c of the Act to approve alternatives to requirements for disposal or reclamation would be seriously impaired.

Additionally, the wastes may be subject to presently applicable Resource Conservation and Recovery Act (RCRA) regulations or other U.S. Environmental Protection Agency (EPA) rules for hazardous constituents or NARM, as well as to applicable State requirements. If the waste results from a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) clean-up

Enclosure 1

action, the EPA requirements required to be met would also need to be considered by the licensee to ensure that there is no issue regarding suitability of the site for disposal of the CERCLA wastes. The appropriate regulatory authorities would have to address these requirements.

Finally, since there is currently a NARM disposal site licensed by the State of Utah and a license application under review in the State of Colorado, there appears to be no compelling need at this time to dispose of NARM material in uranium mill tailings impoundments.

The other waste category includes waste materials generated from several different types of licensee activities regulated under the Act. Although these wastes do not meet the legislative definition of "byproduct material," we agree from a policy and technical standpoint with your proposal that their disposal in tailings impoundments should be considered on a case-by-case basis, provided the volume of material is not large when compared to the existing tailings in the impoundment. With respect to the land transfer issue, the DOE in its letter of June 10, 1988 stated that it would be willing to discuss this in more detail on a site-specific basis. Additionally, for the other waste category, the other issues appear to be more amenable to resolution on a case-by-case basis. Therefore, if NRC can make a finding that (1) there is no significant environmental impact, (2) the reclamation of the impoundment will not be impacted, (3) there are no RCRA or CERCLA problems, and (4) the DOE agrees to take title to the site upon completion of the reclamation, then NRC could authorize such a disposal.

In our view, it is the applicant's responsibility to demonstrate that these four points have been met. This demonstration should include reaching the appropriate agreements with EPA, DOE, and the State. The NRC should not take on this responsibility for the applicant.

(Signed) Robert M. Bernero



Hugh L. Thompson, Jr., Director
Office of Nuclear Material Safety
and Safeguards

Enclosure:
DOE letter dated June 10, 1988



Department of Energy
Washington, DC 20548

JUN 10 1988

Mr. Richard L. Bangart, Acting Director
Division of Low-Level Waste Management
and Decommissioning
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Bangart:

This is in response to M. R. Knapp's letter of April 14, 1988, to the Department of Energy regarding the Department's acceptance of transfer of ownership of licensed uranium mill tailings impoundments if non-byproduct materials were also disposed there.

While the Department supports the Nuclear Regulatory Commission's efforts to find permanent disposal sites for these materials, it is not clear that the Department would have the authority under Section 83 of the Atomic Energy Act to accept custody of non-byproduct materials. Congressional action may be needed to provide an unambiguous resolution on this issue.

Assuming some means of resolving the authority question was achieved, the prior satisfaction of all Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, requirements would be essential. Appropriate financial arrangement would have to be provided so that the Department would bear no additional cost associated with the acquisition of this material.

Your letter indicated that there are three pending applications before the Commission for the disposal of non-byproduct material at licensed uranium mill tailings sites. We also understand there may be different materials in question; some ("NARM") clearly outside of NRC jurisdiction and some ("secondary" recovery waste) within NRC jurisdiction. We would be willing to discuss this in more detail, if you desire, with respect to specific material at specific sites.

Sincerely,

John E. Baublitz
Acting Director
Office of Remedial Action
and Waste Technology
Office of Nuclear Energy

638/2



Department of Energy
Washington, DC 20585

November 16, 1990

Mr. Richard L. Bangert
Director, Division of Low-Level
Waste Management and Decommissioning, NMSS
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Bangert:

This letter is in partial response to your letter of October 5, 1989, to Mr. John E. Baublitz on the disposal of "select" wastes, such as Naturally Occurring and Accelerator Produced Radioactive Materials (NARM) and other low-activity radioactive wastes in active commercial uranium mill tailings piles. We understand that much of this commercially-generated waste is currently scattered around the country at unremediated temporary storage sites and may pose a long-term potential risk to public health and safety. We also understand that the Low-Level Radioactive Waste Policy Amendments Act of 1985 does not require the States to dispose of this waste.

In November 1989, the Office of Environmental Restoration and Waste Management (EM) was approved as an organizational entity reporting directly to the Secretary of Energy. Mr. Leo P. Duffy is the Director of that organization. I am the Director of the Office of Environmental Restoration, EM-40, and report to Mr. Duffy. Mr. John E. Baublitz is now the Deputy Associate Director of this office. This office has the responsibility for managing all environmental restoration activities associated with the cleanup and assessment of inactive facilities and sites contaminated by wastes generated from past nuclear operations connected with major Department of Energy (DOE) nuclear programs. Remediation and long-term surveillance and maintenance of inactive uranium milling sites under the Uranium Mill Tailings Remedial Action Program is the responsibility of this office. This office is also responsible for managing both the Formerly Utilized Sites Remedial Action Program and the Surplus Facilities Management Program. Over the past year, our staffs have been discussing the issues raised by your 1989 letter.

We agree that there is no presently approved disposal site for NARM and other low-activity radioactive wastes and little chance that the problem will be resolved in the near future. Consequently, it generally would appear advisable for the Nuclear Regulatory Commission (NRC) to authorize the utilization of planned future disposal facilities for uranium mill tailings for the placement of these wastes. Technical, economic, and health and safety considerations likely should justify this course of action.

At this time, we would interpose no objection if NRC transferred a remediated commercial milling site containing these wastes to DOE in accordance with section 83 of the Atomic Energy Act, which requires that the transfer and resulting custody be without cost to DOE. To ensure that DOE would not incur any cost associated with these wastes, we suggest that prior to such a transfer, the NRC make the following findings: (1) that there is no adverse environmental impact resulting from the disposal of these wastes (e.g., that the reclamation of the impoundment will not be impacted or that there are no groundwater restoration issues); and (2) there are no outstanding environmental compliance issues under any applicable environmental law (e.g., under the Resource Conservation and Recovery Act or under the Comprehensive Environmental Response, Compensation, and Liability Act).

Under separate cover, we will forward to you our detailed response to the five questions you raised in your letter.

Let me know if you have any questions regarding this letter. You or your staff may also wish to talk with Dr. Ralph Lightner (301-353-5476), Jacob Gatrell (301-427-1759), or Steven Miller (202-586-6947).

Sincerely,


R. P. Whitfield
Associate Director
Office of Environmental Restoration



Department of Energy

Washington, DC 20585

DEC 21 1990

Mr. Paul H. Lohaus, Chief
Operations Branch
Division of Low-Level Waste
Management and Decommissioning
Office of Nuclear Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Lohaus:

This letter is in response to the issues you and Mike Fliegel raised in our December 11 meeting in Germantown. You asked for clarification on several points relative to the November 16, 1990, response from Mr. Whitfield to Mr. Bangert on non-by-product waste materials being placed in mill tailings impoundments.

In that letter on page 1, paragraph 3, it states that "planned future disposal facilities" would be used for placement of naturally occurring and accelerator-produced radioactive materials and other low-activity radioactive wastes. The word "future" refers to when they would become formal disposal facilities that could be transferred to the Department of Energy (DOE) after the current owners completed their required remediation of the Title II sites. This wording in no way was meant to imply that active site owners could not place materials in their sites now.

A second question raised at the December 11 meeting related to the possible need for specific DOE concurrences on individual disposal decisions. We do not feel that a DOE concurrence would be appropriate or necessary as long as the Nuclear Regulatory Commission (NRC) has determined that the waste material meets the criteria outlined in the November 16 letter. In summary, the NRC would determine that disposal as proposed would be appropriate; that the waste material can be transferred at no cost to DOE; that no adverse environmental impact would result from the disposal; and that there exists no outstanding compliance issues under applicable environmental law.

Let me know if you have any questions regarding this letter. You may also wish to talk to Jacob Gatrell of my staff at 301-427-1759.

Sincerely,

Ralph G. Lightner
Director
Division of Southwestern Area Programs
Office of Environmental Restoration

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Department of Energy

Washington, DC 20585

JAN 23 1991

Mr. Richard L. Bangert
Director
Division of Low-Level Waste Management
and Decommissioning, NMSS
United States Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Response to the Nuclear Regulatory Commission's
Questions about Non-By-Product Waste Materials Being
Placed in Mill Tailing Impoundments

Dear Mr. Bangert:

The following are the Department of Energy's (DOE) responses to the five questions you asked in your October 5, 1989, letter to John E. Baublitz on the above subject. The general conclusion, based on technical review of the questions and applicable regulations, is that, in many cases, the composition of the non-by-product waste is expected to be sufficiently similar to typical mill tailings such that co-disposal of these wastes with mill tailings may be acceptable or even desirable based on the technical considerations discussed herein.

General Comments

In general, a Title II disposal site (surface impoundment) for uranium mill tailings (by-product materials) must be compatible with the requirements of the Resource Conservation & Recovery Act (RCRA). Technical requirements (design criteria and performance specifications) for Title II disposal sites are summarized below.

Design standards for Title II disposal sites are 40 CFR 192.32. Title II disposal sites are defined as surface impoundments that must be designed, constructed, and installed in accordance with 40 CFR 264.221. This regulation contains standards for RCRA-permitted surface impoundments.

The groundwater protection standard for Title II sites is 40 CFR 264.92, which is the groundwater protection standard for RCRA-permitted disposal facilities. In addition to the list of hazardous constituents that must be considered for groundwater protection under RCRA, molybdenum and uranium must also be considered per 40 CFR 192.32. Also, groundwater standards for radioactivity are specified in 40 CFR 192.32.

Each Title II site must satisfy the RCRA Closure Performance Standard, 40 CFR 264.111, for non-radiologic hazards. In addition, the Title II impoundment is to have a minimum effective lifetime of 200 years per 40 CFR 192.32. In the event that groundwater standards are exceeded following closure, a corrective action program, in accordance with 40 CFR 264.100, must be implemented.

Under current law, no provision is made for disposal in Title II surface impoundments of the following types of waste:

1. Wastes generated by operations that are licensed and regulated under the Atomic Energy Act but that do not satisfy the legislated definition of "by-product" material.
2. Naturally occurring and accelerator-produced radioactive materials (NARM).

Responses to the Five Questions

Question 1: Are there any quantities or concentrations of NARM that could be disposed of in the tailings piles without compromising DOE's ability to eventually accept title to and custody of the reclaimed tailings site? If so, please identify these quantity or concentration limits.

Criteria for determining the acceptability of non-by-product materials should consider:

- a) Concentrations of hazardous constituents in the non-by-product materials.
- b) Impact of the additional material quantity (volume) of non-by-product materials that the Title II site would have to accommodate.
- c) Possibility that Radon-222 releases from the disposal site would exceed the limits specified in 40 CFR 192.32 as a result of including non-by-product materials in the Title II site.

Tables I, II, and III show reported concentrations (US EPA, 1982; and Ford, Bacon & Davis, 1981) of radiological and non-radiological constituents typically found in mill tailings that have been or will be disposed of in UMTRA project repositories. Constituents in tailings at Title II sites are expected to be in most, if not all, cases similar to wastes going into UMTRA project repositories. Table IV shows the chemical composition of representative uranium ore samples.

In establishing acceptable concentrations of contaminants, the recommended values could be selected from the tables and adopted as upper limits for waste acceptability. If the constituent

Table I. Highest Residual Average Concentrations of Non-Radiological Constituents Found in UMTRA Program Mill Tailings

<u>Constituent</u>	<u>Wt. %</u>	<u>Approximate PPM</u>
Aluminum	>1.0	>10,000
Antimony	0.016	160
Arsenic	0.0254	254
Barium	0.386	3,860
Bismuth	0.012	120
Boron	<0.01	<100
Cacmium	0.000869	8.69
Calcium	>1.0	>10,000
Chromium	0.203	2,030
Cobalt	0.0182	182
Copper	0.1160	1,160
Cyanide	<0.000001	<0.01
Gallium	<0.01	<100
Gold	0.00021	2.1
Iron	3.11	31,100
Lead	1.0	10,000
Magnesium	>1.0	>10,000
Manganese	1.0	10,000
Mercury	0.0109	109
Molybdenum	1.0	10,000
Nickel	0.107	1,070
Potassium	>1.0	>10,000
Rubidium	0.056	560
Selenium	0.0391	391
Silicon	1.0	>10,000
Silver	0.0006	6
Sodium	>1.0	>10,000
Strontium	0.413	4,130
Tin	0.62	6,200
Titanium	1.0	10,000
Tungsten	0.057	570
Vanadium	0.399	3,990
Zinc	0.0359	359
Zirconium	0.042	420

Table II. Highest Residual Average Concentrations of Radiological Constituents Found in UMTRA Program Mill Tailings

<u>Constituent</u>	<u>Concentration (PPM)</u>
Radium	0.001
Uranium	480

Table III. Other Constituents for Which Limited Data are Available

<u>Constituent</u>	<u>Concentration (PPM)</u>
Bromine	<1.4-6.3
Cerium	18-279
Cesium	0.9-15.1
Chlorine	27-6820
Europium	0.33-2.13
Hafnium	2.9-8.7
Lanthanum	4.6-43.8
Neodymium	41-95
Scandium	1.1-9.5
Tantalum	<0.5-2.6
Terbium	<0.1-5.4
Thorium	1.2-33.1
Ytterbium	<0.5-6.3

Table IV. Elemental Composition of Vanadiferous Uranium Ore from the Salt Wash Member of the Morrison Formation (Jurassic). The number in parentheses identifies the source of the data cited in the column.*

Element	Average Concentration (ppm)					
	Ore (1)	Unmin. ss ^a (1)	Ore (2)	Unmin. ss (2)	Ore (3)	Unmin. ss (3)
U	-- ^b	51	3800	13	10400	11
V	4900	10	9510	578	16900	400
Mo	13	<5	100	8	200	26
As	168	<10	417	32	275	20
Zn	116	53	228	<89	180	<56
Cu	86	13	23	7	32	16
Ni	8	0.5	35	<5	23	16

(1) Source: Shoemaker and others, 1959 (geometric mean).

(2) Source: Cannon, 1964, Yellow Car area, Thompson District, Utah.

(3) Source: Cannon, 1964, Urevan belt.

^aUnmin. ss refers to unmineralized sandstone.

^bOre data apparently withheld for security reasons (Shoemaker and other, 1959, p. 46). Minimum acceptable grade established by AEC was 0.10 percent U₃O₈.

*DOE, 1989.

concentrations in the non-by-product waste do not exceed these limits, the non-by-product material could be accepted for inclusion into the disposal site. If any of the hazardous constituents in the non-by-product waste exceed the concentrations adopted from the tables (or other sources), it is recommended that a risk assessment be performed on the waste for the constituent in question in order to determine if the constituent is compatible with or conducive to protection of "the public health and safety and the environment."

Should questions or uncertainties still exist, a baseline risk assessment could be performed to determine the health hazards posed by the by-product materials intended for the Title II impoundment. This baseline risk assessment would be used to predict the risk posed by the by-product materials alone. (Such an assessment may already exist as part of remedial action planning for some Title II sites.) A second risk assessment, evaluating the impact of the non-by-product materials at the Title II site, could be performed next. These two assessments would define the additional hazard or risk posed by the non-by-product materials that would enable the Nuclear Regulatory Commission (NRC) to consider the acceptability of the non-by-product materials based on the significance (or lack thereof) of any new risk posed by the addition of non-by-product materials.

The question of what quantity or volume of non-by-product waste that would be acceptable at a Title II repository is difficult to address because the Title II sites differ in size and designed capacity. A fixed upper limit on the volume of non-by-product waste acceptable at a given Title II site may be impossible to define due to inherent uncertainties in the estimated quantity of by-product materials earmarked for that site. Determination of the volume of non-by-product waste that will be acceptable should be made on a site-by-site basis using the following factors: cost impact, schedule impact, design capacity of the impoundment, estimated increase in total waste volume at closure--with due consideration for the worst case impact of errors and uncertainties in these projections and estimates.

As assessment would also need to be made to determine if the Radon-222 flux-rate limits, specified in 40 CFR 192.32, would be exceeded as a result of the addition of the non-by-product material to the disposal cell. If radon flux due to the addition of a quantity of non-by-product material would exceed specified limits, the quantity of this material would have to be limited.

Question 2: Likewise, are there any such quantity or concentration limits on accepting title and custody transfer of sites wherein matter with a source material content may be disposed of? Specifically, if such source material were to be placed in tailings piles without having processed it for the source material content, would DOE have reservations depending on

quantities or concentrations? For example, the Teledyne Wah Chang zirconium tailings or filtercake residue from mine water cleanup are two examples where such material has been suggested for direct disposal into existing, licensed uranium mill tailings piles.

These types of materials would need to be screened as described under the answer to question 1, before deciding to dispose of them in a Title II repository.

Question 3: Formerly Utilized Sites Remedial Action Program (FUSRAP) material has been proposed for disposal into uranium mill tailings piles, without any processing. In some cases, this material qualifies as 11.e(2) byproduct material, but in others there are quantities of this material containing constituents specifically covered under the Resource Conservation and Recovery Act (RCRA) or the Toxic Substances Control Act (TSCA). Can such material, or limited quantities or concentrations of this material, be placed directly into a uranium mill tailings pile without compromising the transferability of the title and custody to DOE upon reclamation?

The primary constituents of the non-by-product waste that would be regulated under TSCA are polychlorinated biphenyls (PCBs) and asbestos. If the waste contains PCBs in excess of 50 ppm, then treatment by incineration prior to placement in a uranium mill tailings disposal site will be required in order to be in compliance with TSCA 40 CFR 761.60 and RCRA Land Disposal Restrictions. After treatment, the wastes could be placed in the Title II impoundment without further regulatory concern.

Asbestos can be disposed of in most landfills provided it is packaged and handled in accordance with the NESHAP for airborne asbestos established by 40 CFR 61.156. There is no technical reason why asbestos-containing waste cannot be disposed of in a mill tailings impoundment.

Wastes from FUSRAP sites that contain RCRA-regulated substances should not present disposal problems from either a technical or regulatory standpoint provided:

- a) The wastes in question are compatible with the disposal cell liner.
- b) The wastes in question do not violate the RCRA Land Disposal Restrictions, effective in May 1990.

The requirements under RCRA for surface impoundment disposal facilities must, however, be satisfied, as discussed above under general comments.

Question 4: Mine wastes and mine water, which cannot be released into waterways or on open ground, is usually treated to remove

those contaminants in order to comply with National Pollutants Discharge Elimination System (NPDES) limits for such releases. As a result, the residues from the treatment process must be disposed of properly. If such water or residues are then processed for their source material content, either at the uranium mill or off site, can the resultant material be disposed of in the tailings piles without compromising DOE's authority or willingness to take title to and custody of the reclaimed tailings pile?

These types of materials would need to be screened as described under the answer to question 1, before deciding to dispose of them in a Title II repository.

Question 5: Some materials, which have been processed for extraction of certain economically valuable minerals, have been additionally processed for source material as well. These "secondary wastes" have been referred to as NARM, source material, select wastes and so on. Frequently, these wastes are almost indistinguishable from uranium mill tailings. They are not byproduct material simply because some mineral, such as vanadium or copper, has been extracted prior to being processed for uranium or thorium, usually in another facility other than a uranium mill. FUSRAP, NARM and the phosphate tailings in Florida and Louisiana may fall under this category. Are there any conditions, under which such material could be disposed of into tailings, which would not compromise DOE's ability to take title and custody upon reclamation?

These types of materials would need to be screened as described under the answer to question 1, before deciding to dispose of them in a Title II repository.

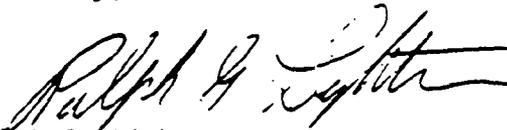
Conclusion

As Mr. Whitfield stated in his letter to you dated November 16, 1990, we agree that since there is no presently approved disposal site for NARM and similar low activity radioactive wastes, it makes good technical, economic, and safety sense to use existing disposal facilities, including Title II disposal sites, for disposal of non-by-product wastes. This is preferable to storing these wastes at unremediated sites, at temporary sites, or at sites not designed for long-term containment.

Title II disposal sites, designed for a 200- to 1000-year containment lifetime, are at least equivalent to, and in certain respects preferable to, surface impoundments designed to meet RCRA. Therefore, most non-by-product wastes, including those containing RCRA wastes, should be acceptable to the public if they are contained in a Title II impoundment, assuming that risk considerations are acceptable.

If you have any further questions, please call me on 301-353-5476
or have your staff call Tony Brazley on 301-427-1757.

Sincerely,



Ralph G. Lightner
Director
Division of Southwestern Area Programs
Office of Environmental Restoration
Office of Environmental Restoration
and Waste Management

cc:
R. P. Whitfield, EM-40

References

Ford, Bacon & Davis Utah Inc. 1981, Engineering Assessment of Uranium Mill Tailings, series of reports for Department of Energy Contract No. DE-AC04-76GJ01658.

U.S. Department of Energy, 1988. Series of Studies on Cover Designs, UMTRA-DOE/AL0400642.0000

U.S. Environmental Protection Agency, 1982. Final Environmental Impact Statement for Remedial Action Standards for Inactive Uranium Processing Sites (40 CFR 192), Volume 1, EPA 520/4-82-013-1, October 1982.

The following Federal Regulations:

40 CFR 61 - National Emission Standards for Hazardous Air Pollutants (NESHAPs).

40 CFR 192 - Health and Environmental Protection Standards for Uranium Mill Tailings.

40 CFR 264 - Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.

40 CFR 267 - Interim Standards for Owners and Operators of New Hazardous Waste Land Disposal Facilities.

40 CFR 761.60 - Polychlorinated Biphenyls (PCBs), Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions: Disposal Requirements.

STAFF ANALYSIS OF DISPOSAL OF NON-11e.(2) BYPRODUCT MATERIAL INTO URANIUM MILL TAILINGS PILES

1. INTRODUCTION

Recently, the Nuclear Regulatory Commission (NRC) received several requests to allow activities other than the normal processing of native uranium ore at licensed uranium milling facilities. We have, in the past, received, and, in some cases, approved, similar requests. These requests have fallen into two categories. The first category of requests is to allow the processing of feedstock material that is not usually thought of as ore, for the extraction of uranium, and then dispose of the resulting wastes and tailings in the facility's tailings pile. The second category of requests is to allow the direct disposal of non-Atomic Energy Act (AEA) of 1954, Section 11e.(2) byproduct material¹ [hereafter designated as "non-11e.(2) byproduct material"], that was not generated onsite, into tailings piles.

In assessing these requests, the staff has raised two concerns related to tailings piles. The first concern is that the requested activity might result in complicated, dual, or even multiple regulation of the tailings pile, and the second concern is that the requested activity might jeopardize the ultimate transfer to the United States Government, for perpetual custody and maintenance, of the reclaimed tailings pile.

This analysis addresses the second category of requests, that is, requests to dispose of non-11e.(2) byproduct material in tailings piles. Issues relating to such proposals requesting regulatory consideration of commingling of tailings with other radioactive wastes are discussed. This paper is limited to options involving commingling with existing tailings impoundments.

2. BACKGROUND

The Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978 amended the AEA to specifically include uranium and thorium mill tailings and other wastes from the process as radioactive material to be licensed by NRC. Specifically, the definition of byproduct material was revised in Section 11e.(2) of the AEA, to include "...the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content."

¹For the purposes of this paper, the term "non-11e.(2) byproduct material" will be used to refer to radioactive waste that is similar to byproduct material, as defined in the AEA in Section 11e.(2), but is not legally considered to be 11e.(2) byproduct material.

The definition of byproduct material² in Section 11e.(2) of the AEA includes all the wastes resulting from the milling process, not just the radioactive components. In addition, Title II of UMTRCA amended the AEA to explicitly exclude the requirement for the Environmental Protection Agency (EPA) to permit 11e.(2) byproduct material under the Resource Conservation and Recovery Act (RCRA). The designation of 11e.(2) byproduct material contrasts significantly with the situation for source material³ and other radioactive materials controlled under the authority of the AEA. This possibility for dual regulation by both NRC and EPA can become an issue when dealing with mixed hazardous wastes. As a result of UMTRCA, NRC amended 10 CFR Part 40 to regulate the uranium and thorium tailings and wastes and the milling processes. Thus, under normal operation, all the tailings and wastes in an NRC or Agreement State licensed mill producing uranium or thorium are classified as "11e.(2) byproduct material," and are disposed of in tailings piles regulated under Part 40. They are not subject to EPA regulation, under RCRA. However, the EPA Clean Air Act regulations still result in direct EPA permit authority over the mill tailings, whether or not they are commingled with non-11e.(2) byproduct material waste.

The UMTRCA also required and provided for long-term custody and surveillance of the byproduct material and the land used for its disposal. The Department of Energy (DOE) is the Federal agency currently designated as the "custodial agency" by the AEA. However, the UMTRCA specifically referred only to 11e.(2) byproduct material. UMTRCA contains no provision allowing for the transfer of custody or title, and hence for eventual long-term custody and surveillance of other material, even if the material were no more radioactive or toxic than the uranium or thorium tailings themselves.

3. THE CATEGORY OF REQUESTS FOR COMMINGLED DISPOSAL TO BE ADDRESSED

Some licensees have proposed to directly dispose of radioactive wastes in existing uranium mill tailings sites. The materials vary from tailings from extraction processes for metals and rare-earth metals (such as copper, tantalum, columbium, zirconium) to spent resins from water-treatment processes. However, because these materials did not result from the extraction or concentration of uranium or thorium from ore, they are not 11e.(2) byproduct material. Many of these "orphaned" wastes have elevated concentrations of source material, and unless otherwise exempted, require licensed control, if the materials exceed the 0.05-percent licensable (content of source material by weight) criterion in Part 40. Some of the wastes proposed for commingling contain radioactive material, not regulated by NRC, that classify as

²Henceforth, byproduct material as defined in Section 11e.(2) of the AEA will be referred to as "11e.(2) byproduct material."

³Except in the case of source material ore, source material consists only of the radioactive components of the waste, that is, uranium, thorium, or any combination of the two [10 CFR 40.4(h)].

naturally-occurring and accelerator-produced radioactive material (NARM) and as such cannot be easily disposed of. In most of the proposals the staff has seen, disposal of these materials in tailings impoundments would not significantly increase the effect on the public health, safety, and environment. Because of the relatively large volumes of these wastes, low-level waste disposal options are limited. These wastes are similar to tailings in volume, radioactivity, and toxicity. Therefore, some waste producers see the mill tailings disposal sites as providing an economical option for such disposal.

4. TYPES OF WASTES BEING PROPOSED FOR DISPOSAL INTO TAILINGS PILES

The NRC and the Agreement States continue to receive requests for the direct disposal of non-11e.(2) byproduct material into uranium mill tailings piles. The following general categories of non-11e.(2) byproduct material illustrate the requests submitted to NRC and the Agreement States for disposal into uranium mill tailings piles licensed under authority established by Title II of UMTRCA:

4.1 Mine Wastes

To mine uranium or other source material ore from underground or open-pit mines, operators frequently need to dewater the mine cavities. This results in quantities of mine water with suspended or dissolved constituents, some of which are source material. After processing the mine water to satisfy National Pollution Discharge Elimination System or other release requirements, the resultant clean mine water is then discharged offsite. In some cases, the resulting water-treatment filter-cake or sludge residues exceed the 0.05-percent licensable limit for source material. These residues do not satisfy the definition of 11e.(2) byproduct material, because they do not result from the extraction or concentration of uranium or thorium from ore.

NRC and the Agreement States have been contacted by licensees and waste generators that desire to dispose of such filter-cake or sludge residue directly into the tailings piles at licensed uranium mill tailings sites. NRC has indicated that such material does not constitute 11e.(2) byproduct material.

4.2 Secondary Process Wastes

Frequently, natural ores that are processed for rare-earth or other metals have significant concentrations of radioactive elements. Examples include copper, zirconium, and vanadium ores. Sometimes the uranium is captured in a side-stream recovery operation, in which uranium is precipitated out of the pregnant solution, before or after the rare earth or other metal. Although this side-stream recovery operation is licensed by NRC, the tailings (which consist of the crushed depleted ore and the depleted solution after recovery of metals and rare earths) are not 11e.(2) byproduct material. This is because the ore was not processed primarily for its source material content, but for the rare

earth or other metal. If the tails contain greater than 0.05 percent uranium and thorium, they would be source material and would thus be licensable and have to be disposed of in compliance with NRC regulations. NRC has received requests from NRC and Agreement State licensees to dispose of such tailings (resulting from processes to extract other metals) into licensed uranium mill tailings piles.

4.3 Formerly Utilized Sites Remedial Action Program (FUSRAP)

These sites primarily processed materials, such as monazite sands, to extract thorium for commercial applications. Government contracts were issued for thorium source material used in the Manhattan Engineering District and early Atomic Energy Commission programs. Wastes resulting from that processing and disposed of at these sites would qualify as 11e.(2) byproduct material. However, it is not clear that all the contaminated material at these sites resulted from processing of ore for thorium. At some sites there was also processing for rare earths and other metals. The DOE, which accepts responsibility for the FUSRAP materials, is investigating options for disposal and control of these materials. DOE estimates that a total of 1.7 million cubic yards of material is located at sites in 13 States. Recent proposals have considered the transportation of FUSRAP materials from New Jersey to tailings piles at uranium mills in other States, such as Utah, Washington, and Wyoming.

4.4 NARM

These wastes result from a wide range of operations, but are not generally regulated by the AEA. Past requests for disposal in uranium mill tailings ponds have included contaminated resins from ion-exchange well-water purifying operations. NRC has also received inquiries regarding the disposal of construction scrap and radium-contaminated soil from old commercial operations. The individual States usually administer the regulatory responsibility over NARM, but many other Federal agencies have jurisdictional responsibilities related to NARM. These include EPA, the Consumer Product Safety Commission, the Department of Health and Human Services, and the Department of Labor. There is a State-licensed NARM disposal facility in Clive, Utah, licensed to Envirocare of Utah, Inc.

Two common elements run through most of the requests we have received for direct disposal of non-11e.(2) byproduct material in tailings piles; the material is of low specific-activity, and the material is physically similar to 11e.(2) byproduct material. Most of the requests are for bulk material like soil, crushed rock, or sludges, contaminated with source material in relatively low concentrations.

5. PREVIOUS STAFF GUIDANCE

In response to a request from Region IV, the Director of the Office of Nuclear Material Safety and Safeguards (NMSS) provided guidance for addressing requests to allow the disposal of non-11e.(2) byproduct material in licensed mill tailings impoundments (see Enclosure 1). The staff considered that the types of material proposed for such disposal could be separated into two categories: (1) NARM wastes; and (2) wastes generated by operations regulated under the AEA.

In the guidance, the staff concluded that it would not approve a policy of allowing disposal of NARM wastes in tailings impoundments. A major concern was that NRC did not have authority to regulate NARM. If States or EPA became involved in regulation of NARM, a situation with duplicative jurisdiction with respect to the commingled radioactive materials could be created. Furthermore, the Commission's authority, under Section 84c of the AEA, to approve alternatives to requirements, if the NARM wastes were to violate standards, would be impaired.

The staff viewed the other category, wastes generated by operations regulated under the AEA, as potentially acceptable in a mill tailings impoundment. Each such proposal should be considered on a case-specific basis. The guidance identified four findings that would have to be made before NRC would authorize such disposal.

As a result of this guidance, present policy is that NRC will approve of proposed disposals of source material on their individual merits, and only if the licensee can demonstrate the following:

- a. The disposal will have no significant additional effects on public safety and health, and the environment.
- b. The disposal will not compromise the reclamation of the tailings impoundment. In effect, disposal must comply with the reclamation and closure criteria in Part 40, Appendix A.
- c. The disposal will not result in the tailings becoming subject to RCRA or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).
- d. DOE or the State agrees, in advance, to take title to the site, upon completion of the reclamation.

The first two conditions are self-evident and will not be discussed further. The other two conditions can be significant obstacles to any routine decisions to allow such commingling of byproduct and non-11e.(2) byproduct materials under UMTRCA, and are discussed, along with other issues, below.

6. MAJOR ISSUES

Although the technical, economic and societal advantages in some proposals have appeared to encourage such disposal of low specific-activity radioactive material into tailings piles, significant statutory and regulatory issues may complicate such disposal:

6.1 RCRA Authority and Mixed Waste

The NRC and Agreement State licensed uranium and thorium milling facilities do not fall under the jurisdiction of RCRA. The AEA explicitly excludes 11e.(2) byproduct material from RCRA permitting. However, radioactive wastes that are not 11e.(2) byproduct material and contain hazardous wastes are mixed wastes and are not exempted from RCRA. Commingling RCRA-regulated wastes with tailings could result in the application of the EPA RCRA regulations and separate EPA-permitting authority. The licensee would have to comply with both EPA- and AEA-related regulations.

NRC has revised the regulations in Part 40 (including Appendix A) to conform to the appropriate portions of EPA's RCRA regulations. The UMTRCA, as amended, stipulates that regulations for byproduct material be consistent with the Solid Waste Disposal Act (SWDA). On November 13, 1987, NRC conformed the regulations of Part 40 to the RCRA provisions of the SWDA. However, if a licensee disposes of source material compounds or mixtures other than uranium or thorium ores, in the tailings piles, only the source material component of that compound or mixture would be excluded from the provisions of RCRA, if the compound or mixture qualifies as "hazardous." The bulk of such material would come under the purview of EPA RCRA regulations, resulting in dual regulation of the tailings impoundment. To preclude this dual regulatory authority and the complications resulting from it, including potential conflicts in requirements, the staff will not approve co-disposal of non-11e.(2) byproduct material containing hazardous constituents, regulated under RCRA.

6.2 Custody and Title Transfer

UMTRCA, Title II, Section 202 (Section 83 of the AEA) stipulates that such title to the 11e.(2) byproduct material and to the land used for the disposal of 11e.(2) byproduct material shall be transferred to either the United States Government or to the State in which the land is located. UMTRCA identifies DOE, or any other agency so designated by the President, to be the custodial agency for the U.S. Government. However, at its option, the State may elect to become the custodial licensee of the site after closure.

The NRC staff has two concerns relating to this transfer:

- a. The licensee for any site where the materials would be commingled would need strong assurances or permission from either the State or DOE that the commingling would not compromise the eventual transfer of title and custody.
- b. The license cannot be legally terminated, unless the custody and title have been transferred as stipulated in Section 83 b(1)(A) of the AEA. Commingling of wastes could complicate this transfer and, hence, the termination of the license.

Because of these concerns, NRC staff wrote to DOE regarding its position on such transfers. DOE's response of June 10, 1988, indicated its uncertainty regarding authority to accept custodial transfer of tailings sites, where radioactive material not constituting 11e.(2) byproduct material has been commingled. In further correspondence, of October 5, 1988, and March 16, 1990, the NRC staff requested more specificity from DOE.

DOE's initial responses (Enclosure 2) addressed the general issue of DOE acceptance of a Title II site containing non-11e.(2) byproduct material. DOE would have no objection to such a transfer provided it would not incur any additional costs related to the non-11e.(2) byproduct material. To ensure that there would be no additional costs due to the non-11e.(2) byproduct material, DOE suggested that NRC make the following findings before transfer:

- That there is no adverse environmental impact resulting from the disposal of these wastes (e.g., that the reclamation of the impoundment will not be impacted or that there are no groundwater restoration issues).
- There are no outstanding environmental compliance issues under any applicable environmental law (e.g., under RCRA or CERCLA).

These conditions will be met if the first three conditions (a-c) discussed in Section 5, above, are demonstrated.

By letter dated January 23, 1991 (Enclosure 3), DOE responded to five specific questions NRC staff had raised. The questions focused on the quantities and concentrations of several categories of non-11e.(2) byproduct material that DOE would find acceptable to dispose of in tailings impoundments without jeopardizing title transfer. DOE's response stated that criteria for determining acceptability should consider three issues:

- a. Concentrations of hazardous constituents in the non-11e.(2) byproduct materials.

Tables showing concentrations typically found in tailings were presented and the statement made that acceptable concentrations could be selected from those tables. DOE also recommended that if concentrations in the non-11e.(2) byproduct material exceed those "...adopted from the tables (or other sources)...", a risk assessment be performed.

Thus, DOE described a process, with an ultimate resort to risk assessment, that could be used to determine acceptable concentrations of constituents in non-11e.(2) byproduct materials. The first demonstration, discussed in Section 5, above (that the disposal have no significant additional effects on public safety and health and the environment), encompasses this DOE consideration. Thus, this consideration will be met if the 1988 staff guidance is adhered to.

- b. Impact of the additional material quantity (volume) of non-11e.(2) byproduct materials that the Title II site would have to accommodate.

DOE stated that this determination would have to be made on a site-specific basis, considering cost, schedule, design capacity of the impoundment, and the impact of errors and uncertainties in these projections and estimates. This consideration will be satisfied by the first two demonstrations discussed in Section 5 above.

- c. Possibility that Radon-222 releases from the disposal site would exceed the limits specified in 40 CFR 192.32, as a result of including non-11e.(2) byproduct materials in the Title II site.

The Radon-222 release limits in 40 CFR 192.32 are incorporated in Criterion 6 of Part 40, Appendix A. Thus, this consideration will be satisfied by the second demonstration discussed in Section 5 above.

Therefore, demonstration of the first three findings discussed in Section 5 above (health and safety, compliance with Appendix A, and no RCRA problems), should result in the fourth finding (DOE acceptance of title) being met. However, there is one remaining concern related to DOE's acceptance of title to tailings impoundments containing non-11e.(2) byproduct material. None of DOE's responses to NRC on this question contains an unequivocal statement that, if NRC determines that the above discussed concerns and criteria are satisfied, DOE will accept title to such a site. For example, in the letter of November 16, 1990 (Enclosure 2), DOE states "At this time, we would interpose no objection if NRC transferred..." At a meeting on December 11, 1990, NRC staff discussed this issue with DOE and a possible DOE concurrence on individual NRC decisions to allow non-11e.(2) byproduct material disposals. DOE responded by letter dated December 24, 1990 (Enclosure 2), that its concurrence would not be appropriate or necessary. However, in order to reduce the potential for future problems with transfer to DOE, NRC staff will notify DOE (with an opportunity to provide comments) of each impending decision to allow non-11e.(2) byproduct material disposal in a tailings impoundment.

6.3 Acceptable Wastes

As discussed in Section 4 above, most of the requests for commingling non-11e.(2) byproduct material in tailings impoundments pertain to material similar to uranium mill tailings and wastes. These are usually bulk materials like soil, crushed rock, or sludges contaminated with low concentrations of source material or NARM.

For the reasons discussed in Section 5 above, the staff will not approve commingling of NARM in tailings impoundments. However, current staff policy is to consider on a case-specific basis, wastes generated by operations regulated under the AEA. This would allow consideration of byproduct, as defined in Section 11e.(1) of the AEA, and special nuclear material (SNM) wastes, in addition to source material waste, for disposal in tailings impoundments. Recently, there have been inquiries to the staff about disposal of SNM-contaminated soils in tailings impoundments. For the reasons discussed below, NRC staff will not normally approve disposal of 11e.(1) byproduct material (hereafter referred to as "byproduct material") or of SNM in tailings impoundments.

Appendix A of Part 40 presents criteria for the disposal of 11e.(2) byproduct material. These criteria, to properly dispose of this material, were developed based on the physical, chemical, and radiological characteristics of the material. The basis for most of the requests to commingle non-11e.(2) byproduct material in tailings impoundments is that the proposed material is similar in characteristics to 11e.(2) byproduct material, but does not meet the definition, which is based on process and history, rather than characteristics. Because of this similarity to 11e.(2) byproduct material, the criteria in Appendix A are appropriate to use, to ensure safe disposal of this material.

This premise is only valid for the types of materials discussed in Section 4, that is, bulk material whose primary radiological contamination is uranium, thorium, and radium in low concentrations. Wastes contaminated with byproduct material are sufficiently different that this premise may not be valid.

Soils contaminated with SNM may be similar to 11e.(2) byproduct material in physical, chemical, and radiological characteristics. There are, however, issues related to the disposal of byproduct material or SNM-contaminated soils in tailings impoundments that preclude routine approval, using the criteria in Appendix A of Part 40. Possession of byproduct material or SNM would have to be licensed under 10 CFR Parts 30, or 70, respectively, and not Part 40. For SNM, the issues of criticality, material control and accountability, and site security might also have to be addressed.

For these reasons, the staff will not approve the disposal of byproduct material or SNM through the process discussed in this paper. If there is a compelling reason to consider a specific proposed disposal of byproduct material or SNM in a tailings impoundment, approval of the Commission will be required.

6.4 Regulatory Issues

The non-11e.(2) byproduct material being proposed for disposal in tailings impoundments is regulated under the AEA. As such, its disposal would be regulated under 10 CFR 20.301. That section states that no licensee shall dispose of licensed material except by (a) transfer to an authorized recipient as provided in Parts 30, 40, 60, 61, 70, or 72; or (b) disposal authorized pursuant to 10 CFR 20.302 or Part 61. To dispose of the non-11e.(2) byproduct material in a tailings impoundment, the owner would have to transfer it to the impoundment owner. The impoundment owner would need to have its Part 40 license amended to both authorize receipt of the material and to dispose of it in the tailings impoundment. The license amendment is the mechanism the staff will use to formally approve of the proposed disposal.

7. RESULTS OF STAFF ANALYSIS

NRC staff identified the following course of action with respect to requests for direct disposal of non-11e.(2) byproduct material in tailings impoundments:

1. Each proposal will be treated on its individual merits.
2. The guidance outlined in Enclosure 1 and discussed in Section 5, will be followed. Specifically, for each such co-disposal request, the staff will:
 - a. Reject the request if the non-11e.(2) byproduct material is NARM waste.
 - b. Determine whether the request is for bulk material contaminated with low concentrations of source material. If the request is for byproduct material or SNM, determine if there is a compelling reason to grant the request. If so, a specific request for approval by the Commission will be prepared.
 - c. Determine whether the proposed disposal will cause significant additional effects to public safety, health and the environment.
 - d. Determine whether the proposed disposal will compromise the reclamation of the tailings impoundment by determining whether compliance with the reclamation and closure criteria stated in Part 40, Appendix A, will be ensured.
 - e. Not approve the request if the non-11e.(2) byproduct material contains hazardous constituents regulated under RCRA.
 - f. Notify DOE (with an opportunity to provide comments) if the staff intends to approve the proposed disposal.
3. Approval of the request will be accomplished through an amendment to the Part 40 license of the impoundment owner.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MEMORANDUM FOR: Robert D. Martin, Regional Administrator
Region IV

FROM: Robert M. Bernero, Director
Office of Nuclear Material Safety
and Safeguards

SUBJECT: REVISED GUIDANCE ON DISPOSAL OF NON-ATOMIC ENERGY ACT OF 1954,
SECTION 11e.(2) BYPRODUCT MATERIAL IN TAILINGS IMPOUNDMENTS

The enclosed paper on the above cited subject replaces the policy guidance contained in the July 27, 1988, memorandum to you from Hugh L. Thompson (Enclosure 1). The new guidance provides several additional issues to those in the July 27, 1988, memorandum. These include:

- (1) Licensing of the receipt and disposal of non-Atomic Energy Act (AEA) of 1954, Section 11e.(2) byproduct material should be done under 10 CFR Part 40.
- (2) Special nuclear material and AEA, Section 11e.(1) byproduct waste, should not be considered as candidates for disposal in a tailings impoundment, without significant mitigating reasons to the contrary. If staff believes that such material should be disposed of in a tailings impoundment, a request for approval by the Commission should be prepared.
- (3) The licensee should follow such procedures to ensure that the Department of Energy (DOE) or the State will accept transfer of the title at the time of license termination. DOE or the State should be informed of the proposed Nuclear Regulatory Commission action, with an opportunity to provide comments within 30 days, before granting the license amendment.

A handwritten signature in cursive script, appearing to read "Robert M. Bernero".

Robert M. Bernero, Director
Office of Nuclear Material Safety
and Safeguards

Enclosures:

1. July 27, 1988, NMSS memorandum to Region IV, "Disposal of Non-Byproduct Materials in Tailings Impoundments"
2. Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments

Enclosure 5

REVISED GUIDANCE ON DISPOSAL OF NON-ATOMIC ENERGY ACT OF 1954,
SECTION 11e.(2) BYPRODUCT MATERIAL IN TAILINGS IMPOUNDMENTS

1. The Policy guidance below applies only to disposal of source material wastes that have radiolytic characteristics comparable to those of Atomic Energy Act (AEA) of 1954, Section 11e.(2) byproduct material [hereafter designated as "11e.(2) byproduct material"]. Licensing of the receipt and disposal of such non-AEA, Section 11e.(2) byproduct material [hereafter designated as "non-11e.(2) byproduct material"] should be done under 10 CFR Part 40.
2. Naturally occurring and accelerator produced material waste shall not be authorized for disposal in a 11e.(2) byproduct material impoundment.
3. Special nuclear material and AEA, 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 approval by the Commission should be prepared.
4. The 11e.(2) licensee must demonstrate that the material is not subject to applicable Resource Conservation and Recovery Act regulations or other U.S. Environmental Protection Agency standards for hazardous or toxic wastes.
5. The 11e.(2) licensee must demonstrate that there are no Comprehensive Environmental Response, Compensation and Liability Act issues related to the disposal of the non-11e.(2) byproduct material.
6. The 11e.(2) licensee must demonstrate that there will be no significant environmental impact.
7. 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 Part 40.
8. The Department of Energy should be informed of the Nuclear Regulatory Commission findings and proposed action, with an opportunity to provide comments within 30 days, before granting the license amendment to the 11e.(2) licensee.
9. The mechanism to authorize the disposal of non-11e.(2) byproduct material in a tailings impoundment is an amendment to the mill license under Part 40, authorizing the transfer of the material and its disposal. The license amendment should be supported with a staff analysis paper addressing the issues discussed in this guidance.

ENVIROCARE OF UTAH, INC.

THE SAFE ALTERNATIVE

July 31, 1991

Mr. Richard L. Bangert
Director
Division of Low-Level Waste Management
and Decommissioning, NMSS
United States Regulatory Commission
Washington, DC 2055

Subject: USNRC Staff Position Paper Proposing to Dispose of Non-
11e(2) Radioactive Wastes in Title II Uranium Mill
Tailings Ponds

As we discussed per our telephone conversation on July 30, 1991, Envirocare of Utah, Inc. has serious concerns about the subject staff position paper. The NRC staff proposal to allow disposal of non-mill tailings radioactive waste in Title II uranium mill tailings ponds without input or comment from the public or from other federal agencies appears to be in direct conflict with various laws and Congressional mandates. Examples are:

1. Most or all of the Title II uranium mill sites were required to have Environmental Impact Statements prepared. These Statements presented various disposal options which were evaluated in public forums by the public and various governmental entities. A disposal and closure plan was selected for each EIS. Since NRC is now proposing to convert sites it would seem that a new EIS (complete with public input) is called for under NEPA and UMTRCA. At the time UMTRCA was passed the Congressional report accompanying the Act stated "The committee does not want to visit this problem again with additional aid. The remedial action must be done right the first time." Proposals to change previously agreed-upon remedial actions may be of some interest to agencies other than NRC. It should also be noted that proposals to put radioactive waste from other sites into Texas mill sites met with sufficient adverse public reaction to scuttle the proposals.

2. Out of approximately 24 Title II uranium mill sites which are operating, inactive, or being dismantled, 18 sites are located in states which have not accepted uranium mill licensing authority so that NRC licenses the mills. If NORM or NARM wastes are placed in these sites, then in Wyoming (9 sites) NRC will be placed in the position of licensing and regulating these commingled NARM and 11e(2) wastes.

Page 2
Mr. Richard Bangert

Historically, NRC has elected to not license NARM wastes. This would seem to set a precedent requiring NRC to regulate all NARM. This is a significant federal action requiring public and other agency input. In Utah (4 sites) and New Mexico (5 sites) NRC would license the tailings and if the states agreed they would license the other radioactive waste such as source material or non-11e(2) byproduct material.

In Utah and New Mexico this would lead to dual regulation at each site and could force the states to get involved in regulating sites which they have previously elected not to regulate. This would also require additional state resources.

3. Placing radioactive wastes such as source or byproduct materials which are covered under the Low-Level Waste Policy Act in the tailings pile would require a 10 CFR 61 license application and evaluation in addition to the original 11e(2) evaluation. This would require public input. For the Wyoming mills, presumably NRC would do the Part 61 reviews. For the other states additional state resources would probably be needed.

4. Placing radioactive wastes covered under the Low-Level Waste Policy Act into the mill sites would seem to be a direct competition with the various Low-Level Waste Compacts as well as leading to an unwarranted proliferation of Low-Level Radioactive Wastes sites. It is difficult to believe that Congress would not consider this to be worthy of a public forum.

5. As noted in the Statements of Consideration for 10 CFR Parts 40 and 150 (Uranium Mill Tailings Regulations: Conforming NRC Requirements to EPA Standards), EPA has a responsibility to develop standards for mill tailings disposal while NRC has the responsibility to implement and enforce the EPA standards during the conduct of NRC licensing activities. The standards which EPA has developed and published do not address the commingling of other radioactive wastes during the disposal of uranium mill tailings. Before such commingling is licensed by NRC, it would appear necessary for EPA to develop and publish revised standards which address the impact of placing radionuclides and other hazardous wastes not addressed or evaluated in the original standards development. These revised standards would require public input and may well include such things as limits on concentration for some of the additional radioisotopes and hazardous materials.

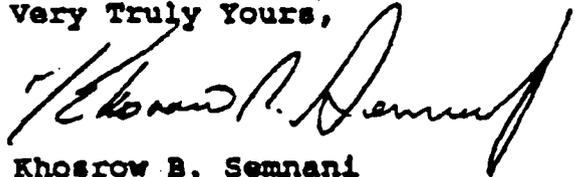
ENVIROCARE

Page 3
Mr. Richard Bangert

This is only a partial list of some of our concerns but should give you some idea of the problems that we foresee.

It is our belief that our request for at least a 30 days Public Comment Period is only in line with NRC existing policy making rules and procedures and clearly due to the nationwide impact of the proposed policy our request should receive your favorable recommendation for consideration to the Commissioners.

Very Truly Yours,



Khosrow B. Semnani
President

CC: Larry Anderson, Director
Utah BRC

KBS/kk



POLICY ISSUE **(Notation Vote)**

August 15, 1995

SECY-95-211

FOR: The Commissioners

FROM: James M. Taylor
Executive Director for Operations

SUBJECT: FINAL "REVISED GUIDANCE ON DISPOSAL OF NON-ATOMIC ENERGY ACT OF 1954, SECTION 11e.(2) BYPRODUCT MATERIAL IN TAILINGS IMPOUNDMENTS," AND FINAL "POSITION AND GUIDANCE ON THE USE OF URANIUM MILL FEED MATERIALS OTHER THAN NATURAL ORES"

PURPOSE:

To obtain Commission approval of two final guidance documents related to the Uranium Recovery Program (Attachment 1).

BACKGROUND:

Over the past several years, the U.S. Nuclear Regulatory Commission staff has developed guidance on proposed activities, other than the normal processing of native uranium ore, at uranium mills. On August 7, 1991, SECY-91-243 informed the Commission of the staff's proposed approach for responding to applicant requests to dispose of material other than Atomic Energy Act (AEA) of 1954, Section 11e.(2), byproduct material in mill tailings impoundments. On January 17, 1992, the staff provided revisions to the guidance proposed in SECY-91-243, to address concerns raised by the Commission, in a Staff Requirements Memorandum (SRM) dated September 20, 1991.

Contact: Myron Fliegel, NMSS
415-6629

TO BE MADE PUBLICLY AVAILABLE IN 5 WORKING
DAYS FROM THE DATE OF THIS PAPER

SECY-91-347, dated October 25, 1991, requested Commission approval of proposed staff guidance on a related uranium recovery issue. This guidance defined "ore" to encompass a broad range of uranium mill feed materials, but included procedures to ensure that approval of a specific feed material would not be given if the proposed processing were primarily to permit the disposal of the feed material in a tailings impoundment.

In an SRM dated December 3, 1991, the Commission directed the staff to publish the two proposed policy guidance documents in a single Federal Register notice, for public comment. On April 30, 1992, the Commission approved a Federal Register notice combining the two guidance documents. The notice was published in the Federal Register on May 13, 1992, requesting public comment within 30 days. Additionally, copies of the Federal Register notice were sent to the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), Agreement States, and Low-Level Waste Compacts, for review and comment. The Federal Register notice (Attachment 2) provides an in-depth discussion of the issues related to the guidance documents.

There were several requests for extension of the comment period. Staff assured all such requesters that it would consider comments received after the end of the comment period, to the extent practical. Staff received 24 letters, all of which it fully considered. Comments were received from Federal agencies, States, industrial groups, NRC licensees, a member of the U.S. Congress, a law firm, an environmental group, and an individual.

On October 28, 1992, in a separate initiative, an Advance Notice of Proposed Rulemaking (ANPRM) on 10 CFR Part 40 was published in the Federal Register (57 FR 48749) for public comment. Two of the issues identified in the ANPRM were the disposal of non-11e.(2) waste materials into tailings impoundments and the use of alternate feed materials (i.e., the issues discussed the proposed guidance documents published in the Federal Register on May 13, 1992). Although the ANPRM addressed a much broader range of issues, some of the comments received related to these two issues. However, these comments were consistent with comments received on the May 13, 1992, Federal Register notice. No new issues were identified, in the ANPRM comments, that would result in reconsideration of the proposed guidance documents. The summary, analysis, and response to those comments will be included in the document, to be published by the Office of Nuclear Regulatory Research, addressing comments on the ANPRM.

The NRC staff reviewed all the comments received on the proposed guidance documents and carefully analyzed, categorized, and grouped them by subject areas. Staff categorized comments, based on which guidance document was addressed: Category A refers to comments on Part A of the guidance document, pertaining to non-11e.(2) byproduct material; Category B refers to comments on Part B of the guidance, pertaining to alternate feed materials; and Category C refers to comments that are applicable to both Parts A and B. A summary of the comments received and NRC staff responses are provided in Attachment 3.

In reviewing the comments on the proposed guidance documents, NRC staff identified 11 subject areas of issues raised by commenters: six in Category A, four in Category B, and one in Category C.

There was an issue that delayed finalization of the guidance documents. In an October 1992, mixed waste meeting between NRC, EPA, and DOE staff, EPA identified potential inconsistencies in NRC's interpretation of the definition of source material in conjunction with the exclusion of source material from the definition of solid waste in the Resource Conservation and Recovery Act (RCRA). In making its point, EPA cited the May 13, 1992, Federal Register notice on the disposal of non-11e.(2) byproduct material. The staff had delayed finalization of the uranium recovery policy guidance documents, pending resolution of the source material definition issue. However, the staff has now decided that these two policy guidance documents can be finalized, independent of the source material issue, because the guidance is not dependent on the interpretation of the definition of source material.

DISCUSSION:

In addition to minor editorial changes, the final "Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments" contains three changes from the version published in the Federal Register on May 13, 1992. First, Item 2 of the guidance has been revised to exclude, from disposal in tailings impoundments, radioactive material not regulated by NRC or an Agreement State under the AEA. The guidance published in the Federal Register had excluded naturally occurring and accelerator-produced radioactive material (NARM). Several commenters requested a definition of NARM and pointed out that uranium would likely qualify as NARM. The change in wording was made, since the intent always was to preclude disposal of radioactive material not regulated by NRC or an Agreement State under the AEA. In view of the elimination of reference to NARM in the guidance, the phrase "non-11e.(2) byproduct material" has been defined in a more narrow sense. The second change was that Item 4 of the guidance has been revised to provide additional specificity to ensure that no RCRA material is included in non-11e.(2) byproduct material. Finally, Item 9 of the guidance has been revised to require concurrence and a commitment, from either DOE, or the State in which the tailings impoundment is located, to take title to the site after closure.

The final "Position and Guidance on the Use of Uranium Mill Feed Materials Other Than Natural Ores" contains two changes to Item 3b of the guidance, in addition to minor clarifying editorial changes from the version published in the Federal Register. First, the licensee certification with regard to RCRA aspects of the proposed alternate feed material has been eliminated as unnecessary, since Item 2 requires a licensee demonstration that the material would not be regulated under RCRA. The second change is that the licensee certification that the proposed feed material is to be processed primarily for its source material content, has been expanded to require licensee justification.

After Commission approval, the staff plans to publish the final guidance documents in the Federal Register and to implement the guidance. A proposed Federal Register notice is provided in Attachment 4. As proposed in SECY-92-138, and approved by the Commission on May 13, 1992, the staff used the guidance on alternate feed materials in approving a license amendment request from Umetco Minerals Corporation.

RECOMMENDATION:

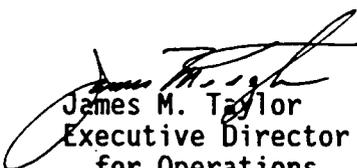
The staff recommends that the Commission approve the two enclosed final guidance documents.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection.

These policies have been coordinated with the Agreement States by letter dated May 14, 1992, which requested the Agreement States to comment on the policies. The Agreement States' responses were varied and did not present a consistent position on the policies. Their responses are included in the discussion in Attachment 3.

Staff does not believe further coordination with the Agreement States on the content of the final policies is required since no significant changes have been made to the policies and Agreement State comments have been considered. The staff will distribute copies of the final policies to the Agreement States after these have been published.


James M. Taylor
Executive Director
for Operations

Attachments:

1. Final staff guidance documents
2. May 13, 1992, Federal Register notice
3. NRC staff's responses to
comments on proposed
guidance documents
4. Proposed Federal Register notice

Commissioners' comments or consent should be provided directly to the Office of the Secretary by COB Wednesday, August 30, 1995.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT August 23, 1995, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

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FINAL GUIDANCE DOCUMENTS

FINAL REVISED 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 (AEA) of 1954, Section 11e.(2) byproduct material [hereafter designated as "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 such material [hereafter designated as "non-11e.(2) byproduct material"¹] should also be done under 10 CFR Part 40.
2. Radioactive material not regulated under the AEA shall not be authorized for disposal in an 11e.(2) byproduct material impoundment.
3. 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 approval by the Commission should be prepared.
4. The 11e.(2) licensee must demonstrate that the material is not subject to applicable Resource Conservation and Recovery Act (RCRA) regulations or other U.S. Environmental Protection Agency (EPA) standards for hazardous or toxic wastes prior to disposal. To further ensure that RCRA hazardous waste is not inadvertently disposed of in mill tailings impoundments, the 11e.(2) licensee also must demonstrate, for waste containing source material, as defined under the AEA, that the waste does not also contain material classified as hazardous waste according to 40 CFR Part 261. In addition, the licensee must demonstrate that the non-11e.(2) material does not contain material regulated under other Federal statutes, such as the Toxic Substances Control Act. Thus, source material physically mixed with other material, would require evaluation in accordance with 40 CFR Part 261, or 40 CFR Part 761. (These provisions would cover material such as: characteristically hazardous waste; listed hazardous waste; and polychlorinated biphenyls.) The demonstration and testing should follow accepted EPA regulations and protocols.
5. The 11e.(2) licensee must demonstrate that there are no Comprehensive Environmental Response, Compensation and Liability Act issues related to the disposal of the non-11e.(2) byproduct material.

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

6. The 11e.(2) licensee must demonstrate that there will be no significant environmental impact from disposing of this material.
7. 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.
8. 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.
9. The Department of Energy (DOE) and the State in which the tailings impoundment is located, should be informed of the 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.
10. 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 § 61.6, must be granted. (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 § 61.6 exemption should be supported with a staff analysis addressing the issues discussed in this guidance.

FINAL POSITION AND GUIDANCE ON THE USE OF URANIUM MILL FEED MATERIAL OTHER THAN NATURAL ORES

Staff reviewing licensee requests to process alternate feed material (material other than natural ore) in uranium mills should 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 must 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 §§ 261.30-33 of 40 CFR (or comparable RCRA authorized State regulations), it would be subject to EPA (or State) regulation under RCRA. To avoid the complexities of NRC/EPA dual regulation, such feed material will not be approved for processing at a licensed mill. 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 acceptance of water treatment residues as feed material will depend on their not containing any hazardous or characteristic hazardous waste. Staff will consult with EPA (or the State) before making a determination of whether the feed material contains hazardous waste.

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. There is concern that wastes that would 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 it in the tailings pile as 11e.(2) byproduct material. In determining whether the proposed processing is primarily for the source-material content or for the disposal of waste, either of the following tests can be used:

- a. Co-disposal test: Determine if the feed material would be approved for disposal in the tailings impoundment under the "Final Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments," or revisions or replacements to that guidance. If the material would be approved for disposal, it can be concluded that if a mill operator proposes to process it, the processing is primarily for the source-material content. The material would have to be physically and chemically similar to 11e.(2) byproduct material and not be subject to RCRA or other EPA hazardous-waste regulations, as discussed in the guidance.
- b. Licensee certification and justification test: The licensee must certify under oath or affirmation that the feed material is to be processed primarily for the recovery of uranium and for no other primary purpose. The licensee must also justify, with reasonable documentation, the certification. The justification can be based on financial considerations, the high uranium content of the feed

material, or other grounds. The determination that the proposed processing is primarily for the source material content must be made on a case-specific basis.

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, and that the primary purpose of its processing is for its source-material content, the request can be approved.

contention must be one which, if proven, would entitle the petitioner to relief. A petitioner who fails to file such a "supplement" which satisfies these requirements with respect to at least one contention will not be permitted to participate as a party.

Those permitted to intervene become parties to the proceeding, subject to any limitations in the order granting leave to intervene, and have the opportunity to participate fully in the conduct of the hearing, including the opportunity to present evidence and cross-examine witnesses.

Since the Commission has made a final determination that the amendment involves no significant hazards consideration, if a hearing is requested, it will not stay the effectiveness of the amendment. Any hearing held would take place while the amendment is in effect.

A request for a hearing or a petition for leave to intervene must be filed with the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Docketing and Services Branch, or may be delivered to the Commission's Public Document Room, the Gelman Building, 2120 L Street, NW., Washington, DC 20555, by the above date. Where petitions are filed during the last ten (10) days of the notice period, it is requested that the petitioner promptly so inform the Commission by a toll-free telephone call to Western Union at 1-(800) 325-6000 (in Missouri 1-(800) 3426700). The Western Union operator should be given Datagram Identification Number 3737 and the following message addressed to (Project Director): petitioner's name and telephone number, date petition was mailed, plant name, and publication date and page number of this Federal Register notice. A copy of the petition should also be sent to the Office of the General Counsel, U.S. Nuclear Regulatory Commission, Washington, DC 20555, and to the attorney for the licensee.

Nontimely filings of petitions for leave to intervene, amended petitions, supplemental petitions and/or requests for hearing will not be entertained absent a determination by the Commission, the presiding officer or the Atomic Safety and Licensing Board that the petition and/or request should be granted based upon a balancing of the factors specified in 10 CFR 2.714(a)(1)(i)-(v) and 2.714(d).

Duquesne Light Company, et al., Docket No. 50-412, Beaver Valley Power Station, Unit 2, Shippingport, Pennsylvania

Date of amendment request: January 13, 1992

Description of amendment request: The amendment revises Table 3.2-1 of Technical Specification 3.2.5, "DNB Parameters." Specifically, it lowers the value for the minimum required reactor coolant system (RCS) total flow rate from 274,800 gpm to 270,850 gpm and lowers the flow measurement uncertainty value, specified in the footnote, from 3.5% to 2.0%.

Date of issuance: April 23, 1992

Effective date: April 23, 1992

Amendment No.: 45

Facility Operating License No. NPP-73. Amendment revised the Technical Specifications. Public comments requested as to proposed no significant hazards consideration: No. The Commission's related evaluation of the amendment, finding of emergency circumstances, and final determination of no significant hazards consideration are contained in a Safety Evaluation dated April 23, 1992.

Local Public Document Room location: B. F. Jones Memorial Library, 663 Franklin Avenue, Aliquippa, Pennsylvania 15001.

Attorney for licenses: Gerald Charnoff, Esquire, Jay E. Silberg, Esquire, Shaw, Pittman, Potts & Trowbridge, 2300 N Street, NW., Washington, DC 20037.

NRC Project Director: John F. Stolz
Dated at Rockville, Maryland, this 5th day of May 1992.

For the Nuclear Regulatory Commission
Steven A. Varga,

Director, Division of Reactor Projects - I/II,
Office of Nuclear Reactor Regulation
[Doc. 92-11099 Filed 5-12-92; 8:45 am]
BILLING CODE 7590-01-F

Uranium Mill Facilities, Request for Public Comments on Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments and Position and Guidance on the Use of Uranium Mill Feed Materials Other Than Natural Ores

AGENCY: Nuclear Regulatory Commission.

ACTION: Request for public comment.

SUMMARY: The Nuclear Regulatory Commission (NRC) is soliciting public comment on two guidance documents: "Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, section 11e.(2) Byproduct Material in Tailings Impoundments" and "Position and Guidance on the Use of Uranium Mill Feed Materials Other Than Natural Ores," along with the associated staff analyses.

DATES: The comment period expires June 12, 1992.

ADDRESSES: Send written comments to Chief, Rules and Directives Review Branch, U.S. Nuclear Regulatory Commission, Washington, DC 20555, or hand deliver to 7920 Norfolk Avenue, Bethesda, MD, between 7:45 a.m. and 4:15 p.m. on Federal workdays.

FOR FURTHER INFORMATION CONTACT: Myron Fliegel, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555; telephone (301) 504-2555.

SUPPLEMENTARY INFORMATION:

Discussion

NRC staff has prepared a revision to its licensing guidance, issued July 27, 1988, on the disposal of material other than that defined in section 11e.(2) of the Atomic Energy Act of 1954 (AEA), as amended, in uranium mill tailings impoundments (Part A of the Supplementary Information). The staff has also prepared new licensing guidance on the processing of feed materials other than natural ores in uranium mills (Part B of the Supplementary Information). In developing the guidance, staff analyzed the policy and legal issues involved for each guidance document. In order to solicit input all interested parties on the issues associated with these guidance documents, the NRC is soliciting comments from the public, the Environmental Protection Agency, NRC Agreement States, and regional low-level waste compacts. Comments received will be considered in deciding whether the guidance documents should be revised.

In the guidance documents and associated staff analyses, the term "non-11e.(2) byproduct material" is used to refer to radioactive waste that is similar in physical and radiological characteristics (for example, low specific activity) to byproduct material, as defined in Section 11e.(2) of the AEA but does not meet the definition in that section because it is not derived from ore processed primarily for its source material content.

The staff analyses in Parts A and B contain additional definitions and extensive background information necessary to understand the summary guidance documents. The reader should consult the analyses for the terms and issues presented in context.

Part A—Revised 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 source material wastes that have radiological characteristics comparable to those of Atomic Energy Act (AEA) of 1954, section 11e.(2) byproduct material (hereafter designed as "11e(2) byproduct material") in tailings impoundments, staff will follow the guidance set forth below. Licensing of the receipt and disposal of such non-AEA, section 11e.(2) byproduct material [hereafter designated as "non-11e.(2) byproduct material"] should be done under 10 CFR Part 40.

2. Naturally occurring and accelerator produced material waste shall not be authorized for disposal in an 11e.(2) byproduct material impoundment.

3. Special nuclear material and Section 11e.(1) product 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 approval by the Commission should be prepared.

4. The 11e.(2) licensee must demonstrate that the material is not subject to applicable Resource Conservation and Recovery Act regulations or other U.S. Environmental Protection Agency standards for hazardous or toxic wastes prior to disposal.

5. The 11e(2) licensee must demonstrate that there are no Comprehensive Environmental Response, Compensation and Liability Act issues related to the disposal of the non-11e(2) byproduct material.

6. The 11e.(2) licensee must demonstrate that there will be no significant environmental impact from disposing of this material.

7. 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.

8. 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.

9. The Department of Energy should be informed of the Nuclear Regulatory Commission findings and proposed action, with an opportunity to provide

comments within 30 days, before granting the license amendment to the 11e.(2) licensee.

10. 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 § 61.6, must be granted. The license amendment and the § 61.6 exemption should be supported with a staff analysis paper addressing the issues discussed in this guidance.

NRC Staff Analysis of Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments

1. Introduction

Recently, the Nuclear Regulatory Commission (NRC) received several requests to allow activities other than the normal processing of native uranium ore at licensed uranium milling facilities. We have, in the past, received, and, in some cases, approved, similar requests. These requests have fallen into two categories. The first category of requests is to allow the processing of feedstock material that is not usually thought of as ore, for the extraction of uranium, and then dispose of the resulting wastes and tailings in the facility's tailings pile. The second category of requests is to allow the direct disposal of non-Atomic Energy Act (AEA) of 1954, section 11e.(2) byproduct material¹ [hereafter designated as "non-11e.(2) byproduct material"], that was not generated onsite, into tailings piles.

In assessing these requests, the staff has raised two policy concerns related to tailings piles. The first concern is that the requested activity might result in complicated, dual, or even multiple regulation of the tailings pile, and the second concern is that the requested activity might jeopardize the ultimate transfer to the United States Government, for perpetual custody and maintenance, of the reclaimed tailings pile.

This analysis addresses the second category of requests, that is, requests to dispose of non-11e.(2) byproduct material in tailings piles. Issues relating to such proposals requesting regulatory consideration of commingling of tailings with other radioactive wastes are

¹ For the purposes of this analysis, the term "non-11e.(2) byproduct material" will be used to refer to radioactive waste that is similar to byproduct material, as defined in the AEA in section 11e.(2), but is not legally considered to be 11e.(2) byproduct material.

discussed. This analysis is limited to options involving commingling with existing tailings impoundments.

2. Background

The Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978 amended the AEA to specifically include uranium and thorium mill tailings and other wastes from the process as radioactive material to be licensed by NRC. Specifically, the definition of byproduct material was revised in Section 11e.(2) of the AEA, to include ". . . 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 definition of byproduct material² in Section 11e.(2) of the AEA includes all the wastes resulting from the milling process, not just the radioactive components. In addition, Title II of UMTRCA amended the AEA to explicitly exclude the requirement for the Environmental Protection Agency (EPA) to permit 11e.(2) byproduct material under the Resource Conservation and Recovery Act (RCRA). The designation of 11e.(2) byproduct material contrasts significantly with the situation for source material³ and other radioactive materials controlled under the authority of the AEA. This possibility for dual regulation by both NRC and EPA can become an issue when dealing with mixed hazardous wastes. As a result of UMTRCA, NRC amended 10 CFR Part 40 to regulate the uranium and thorium tailings and wastes from the milling process. Thus, under normal operation, all the tailings and wastes in an NRC or Agreement State licensed mill producing uranium or thorium are classified as "11e.(2) byproduct material," and are disposed of in tailings piles regulated under Part 40. They are not subject to EPA regulation, under RCRA. However, the EPA Clean Air Act regulations still result in direct EPA permit authority over the mill tailings, whether or not they are commingled with non-11e.(2) byproduct material waste.

The UMTRCA also required and provided for long-term custody and surveillance of the byproduct material and the land use for its disposal. The Department of Energy (DOE) is the Federal agency currently designated as

² Henceforth, byproduct material as defined in Section 11e.(2) of the AEA will be referred to as "11e.(2) byproduct material."

³ Except in the case of source material ore, source material consists only of the radioactive components of the waste, that is: uranium, thorium, or any combination of the two [10 CFR 40.4(h)].

the "custodial agency" by the AEA. However, the UMTRCA specifically referred only to 11e.(2) byproduct material. UMTRCA contains no provision allowing for the transfer of custody or title, and hence for eventual long-term custody and surveillance of other material, even if the material were no more radioactive or toxic than the uranium or thorium tailings themselves.

3. The Category of Requests for Commingled Disposal To Be Addressed

Some licensees have proposed to directly dispose of radioactive wastes in existing uranium mill tailings sites. The materials vary from tailings from extraction processes for metals and rare-earth metals (such as copper, tantalum, columbium, zirconium) to spent resins from water-treatment processes. However, because these materials did not result from the extraction or concentration of uranium or thorium from ore, they are not 11e.(2) byproduct material. Many of these "orphaned" wastes have elevated concentrations of source material, and unless otherwise exempted, require licensed control, if the materials exceed the 0.05-percent licensable (content of source material by weight) criterion in 10 CFR Part 40. Some of the wastes proposed for commingling contain radioactive material, not regulated by NRC, that classify as naturally-occurring and accelerator-produced radioactive material (NARM) and as such cannot be easily disposed of. In most of the proposals the staff has seen, disposal of these materials in tailings impoundments would not significantly increase the effect on the public health, safety, and environment. Because of the relatively large volumes of these wastes, low-level waste disposal options are limited. These wastes are similar to tailings in volume, radioactivity, and toxicity. Therefore, some waste producers see the mill tailings disposal sites as providing an economical option for such disposal.

4. Types of Wastes Being Proposed for Disposal Into Tailings Piles

The NRC and the Agreement States continue to receive requests for the direct disposal of non-11e.(2) byproduct material into uranium mill tailings piles. The following general categories of non-11e.(2) byproduct material illustrate the requests submitted to NRC and the Agreement States for disposal into uranium mill tailings piles licensed under authority established by title II of UMTRCA:

4.1 Mine Wastes

To mine uranium or other source material ore from underground or open-pit mines, operators frequently need to dewater the mine cavities. This results in quantities of mine water with suspended or dissolved constituents, some of which are source material. After processing the mine water to satisfy National Pollution Discharge Elimination System or other release requirements, the resultant clean mine water is then discharged offsite. In some cases, the resulting water-treatment filter-cake or sludge residues exceed the 0.05-percent licensable limit for source material. These residues do not satisfy the definition of 11e.(2) byproduct material, because they do not result from the extraction or concentration of uranium or thorium from ore.

NRC and the Agreement States have been contacted by licensees and waste generators that desire to dispose of such filter-cake or sludge residue directly into the tailings piles at licensed uranium mill tailings sites. NRC has indicated that such material does not constitute 11e.(2) byproduct material.

4.2 Secondary Process Wastes

Frequently, natural ores that are processed for rare-earth or other metals have significant concentrations of radioactive elements. Examples include copper, zirconium, and vanadium ores. Sometimes the uranium is captured in a side-stream recovery operation, in which uranium is precipitated out of the pregnant solution, before or after the rare earth or other metal. Although this side-stream recovery operation is licensed by NRC, the tailings (which consist of the crushed depleted ore and the depleted solution after recovery of metals and rare earths) are not 11e.(2) byproduct material. This is because the ore was not processed primarily for its source material content, but for the rare earth or other metal. If the tails contain greater than 0.05 percent uranium and thorium, they would be source material and would thus be licensable and have to be disposed of in compliance with NRC regulations. NRC has received requests from NRC and Agreement State licensees to dispose of such tailings (resulting from processes to extract other metals) into licensed uranium mill tailings piles.

4.3 Formerly Utilized Sites Remedial Action Program (FUSRAP)

These sites primarily processed material, such as monazite sands, to extract thorium for commercial applications. Government contracts were issued for thorium source material

used in the Manhattan Engineering District and early Atomic Energy Commission programs. Wastes resulting from that processing and disposed of at these sites would qualify as 11e.(2) byproduct material. However, it is not clear that all the contaminated material at these sites result from processing of ore for thorium. At some sites there was also processing for rare earths and other metals. The DOE, which accepts responsibility for the FUSRAP materials, is investigating options for disposal and control of these materials. DOE estimates that a total of 1.7 million cubic yards of material is located at sites in 13 States. Recent proposals have considered the transportation of FUSRAP materials from New Jersey to tailing piles at uranium mills in other States, such as Utah, Washington, and Wyoming.

4.4 NARM

These wastes result from a wide range of operations, but are not generally regulated by the AEA. Past requests for disposal in uranium mill tailing ponds have included contaminated resins from ion-exchange well-water purifying operations. NRC has also received inquiries regarding the disposal of construction scrap and radium-contaminated soil from old commercial operations. The individual States usually administer the regulatory responsibility over NARM, but many other Federal agencies have jurisdictional responsibilities related to NARM. These include EPA, the Consumer Product Safety Commission, the Department of Health and Human Services, and the Department of Labor. There is a State-licensed NARM disposal facility in Clive, Utah, licensed to Envirocare of Utah, Inc.

Two common elements run through most of the requests we have received for direct disposal of non-11e.(2) byproduct material in tailings piles: the material is of low specific-activity, and the material is physically similar to 11e.(2) byproduct material. Most of the requests are for bulk material like soil, crushed rock, or sludges, contaminated with source material in relatively low concentrations.

5. Previous Staff Guidance

In response to a request from Region IV, the Director of the Office of Nuclear Material Safety and Safeguards (NMSS) provided guidance for addressing requests to allow the disposal of non-11e.(2) byproduct material in licensed mill tailings impoundments. The staff considered that the types of material proposed for such disposal could be

separated into two categories: (1) NARM wastes; and (2) wastes generated by operations regulated under the AEA.

In the guidance, the staff concluded that it would not approve a policy of allowing disposal of NARM wastes in tailings impoundments. A major concern was that NRC did not have authority to regulate NARM. If States or EPA became involved in regulation of NARM, a situation with duplicative jurisdiction with respect to the commingled radioactive materials could be created. Furthermore, the Commission's authority, under section 84c of the AEA, to approve alternatives to requirements, if the NARM wastes were to violate standards, would be impaired.

The staff viewed the other category, wastes generated by operations regulated under the AEA, as potentially acceptable in a mill tailings impoundment. Each such proposal should be considered on a case-specific basis. The guidance identified four findings that would have to be made before NRC would authorize such disposal.

As a result of this guidance, present policy is that NRC will approve of proposed disposals of source material on their individual merits, and only if the licensee can demonstrate the following:

- a. The disposal will have no significant additional effects on public safety and health, and the environment.
- b. The disposal will not compromise the reclamation of the tailings impoundment. In effect, disposal must comply with the reclamation and closure criteria in part 40, appendix A.
- c. The disposal will not result in the tailing becoming subject to RCRA or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).
- d. DOE or the State agrees, in advance, to take title to the site, upon completion of the reclamation.

The first two conditions are self-evident and will not be discussed further. The other two conditions can be sufficient obstacles to any routine decisions to allow such commingling of byproduct and non-11e.(2) byproduct materials under UMTRCA, and are discussed, along with other issues, below.

6. Major Issues

Although the technical, economic and societal advantages in some proposals have appeared to encourage such disposal of low specific-activity radioactive material into tailing piles, significant statutory and regulatory issues may complicate such disposal:

6.1 RCRA Authority and Mixed Waste

The NRC and Agreement State licensed uranium and thorium milling facilities do not fall under the jurisdiction of RCRA. The AEA explicitly excludes 11e.(2) byproduct material from RCRA permitting. However, radioactive wastes that are not 11e.(2) byproduct material and contain hazardous wastes are mixed wastes and are not exempted from RCRA. Commingling RCRA-regulated wastes with tailings could result in the application of the EPA RCRA regulations and separate EPA-permitting authority. The licensee would have to comply with both EPA- and AEA-related regulations.

NRC has revised the regulations in 10 CFR part 40 (including appendix A) to conform to the appropriate portions of EPA's RCRA regulations. The UMTRCA, as amended, stipulates that regulations for byproduct material be consistent with the Solid Waste Disposal Act (SWDA). On November 13, 1987, NRC conformed the regulations of part 40 to the EPA standards containing the RCRA provisions of the SWDA. However, if a licensee disposes of source material compounds or mixtures other than uranium or thorium ores, in the tailings piles, only the source material component of that compound or mixture would be excluded from the provisions of RCRA, if the compound or mixture qualifies as "hazardous." The bulk of such material would come under the purview of EPA RCRA regulations, resulting in dual regulation of the tailings impoundment. To preclude this dual regulatory authority and the complications resulting from it, including potential conflicts in requirements, the staff will not approve co-disposal of non-11e.(2) byproduct material containing hazardous constituents, regulated under RCRA.

6.2 Custody and Title Transfer

UMTRCA, title II, section 202 (Section 83 of the AEA) stipulates that such title to the 11e.(2) byproduct material and to the land used for the disposal of 11e.(2) byproduct material shall be transferred to either the United States Government or to the State in which the land is located. UMTRCA identifies DOE, or any other agency so designated by the President, to be the custodial agency for the U.S. Government. However, at its option, the State may elect to become the custodial licensee of the site after closure.

The NRC staff has two concerns relating to this transfer:

- a. The licensee for any site where the materials would be commingled would

need strong assurances or permission from either the State or DOE that the commingling would not compromise the eventual transfer of title and custody.

- b. The license cannot be legally terminated, unless the custody and title have been transferred as stipulated in Section 83 b(1)(A) of the AEA. Commingling of wastes could complicate this transfer and, hence, the termination of the license.

Because of these concerns, NRC staff wrote to DOE regarding its position on such transfers. DOE's response of June 10, 1988, indicated its uncertainty regarding authority to accept custodial transfer of tailings sites, where radioactive material not constituting 11e.(2) byproduct material has been commingled. In further correspondence, of October 5, 1988, and March 16, 1990, the NRC staff requested more specificity from DOE.

DOE's initial responses addressed the general issue of DOE acceptance of a Title II site containing non-11e.(2) byproduct material. DOE would have no objection to such a transfer provided it would not incur any additional costs related to the non-11e.(2) byproduct material. To ensure that there would be no additional costs due to the non-11e.(2) byproduct material, DOE suggested that NRC make the following findings before transfer:

- That there is no adverse environmental impact resulting from the disposal of these wastes (e.g., that the reclamation of the impoundment will not be impacted or that there are no groundwater restoration issues).
- There are no outstanding environmental compliance issues under any applicable environmental law (e.g., under RCRA or CERCLA).

These conditions will be met if the first three conditions (a-c) discussed in section 5, above, are demonstrated.

By letter dated January 23, 1991, DOE responded to five specific questions NRC staff had raised. The questions focused on the quantities and concentrations of several categories of non-11e.(2) byproduct material that DOE would find acceptable to dispose of in tailings impoundments without jeopardizing title transfer. DOE's response stated that criteria for determining acceptability should consider three issues:

- a. Concentrations of hazardous constituents in the non-11e.(2) byproduct materials.

Tables showing concentrations typically found in tailings were presented and the statement made that acceptable concentrations could be

selected from those tables. DOE also recommended that if concentrations in the non-11e.(2) byproduct material exceed those " . . . adopted from the tables (or other sources) . . ." a risk assessment be performed.

Thus, DOE described a process, with an ultimate resort to risk assessment, that could be used to determine acceptable concentrations of constituents in non-11e.(2) byproduct materials. The first demonstration, discussed in Section 5, above (that the disposal have no significant additional effects on public safety and health and the environment), encompasses this DOE consideration. Thus, this consideration will be met if the 1988 staff guidance is adhered to.

b. Impact of the additional material quantity (volume) of non-11e.(2) byproduct materials that the Title II site would have to accommodate.

DOE stated that this determination would have to be made on a site-specific basis, considering cost, schedule, design capacity of the impoundment, and the impact of errors and uncertainties in these projections and estimates. This consideration will be satisfied by the first two demonstrations discussed in section 5 above.

c. Possibility that Radon-222 releases from the disposal site would exceed the limits specified in 40 CFR 192.32, as a result of including non-11e.(2) byproduct materials in the title II site.

The Radon-222 release limits in 40 CFR 192.32 are incorporated in Criterion 6 of 10 CFR part 40, appendix A. Thus, this consideration will be satisfied by the second demonstration discussed in section 5 above.

Therefore, demonstration of the first three findings discussed in section 5 above (health and safety, compliance with appendix A, and no RCRA problems), should result in the fourth finding (DOE acceptance of title) being met. However, there is one remaining concern related to DOE's acceptance of title to tailings impoundments containing non-11e.(2) byproduct material. None of DOE's response to NRC on this question contains an unequivocal statement that, if NRC determines that the above discussed concerns and criteria are satisfied, DOE will accept title to such a site. For example, in the letter of November 6, 1990, DOE states "At this time, we would interpose no objection if NRC transferred . . ." At a meeting on December 11, 1990, NRC staff discussed this issue with DOE and a possible DOE concurrence on individual NRC decisions to allow non-11e.(2) byproduct material disposals. DOE responded by letter dated December 24, 1990, that its

concurrence would not be appropriate or necessary. However, in order to reduce the potential for future problems with transfer to DOE, NRC staff will notify DOE (with an opportunity to provide comments) of each impending decision to allow non-11e.(2) byproduct material disposal in a tailings impoundment.

6.3 Acceptable Wastes

As discussed in section 4 above, most of the requests for commingling non-11e.(2) byproduct material in tailings impoundments pertain to material similar to uranium mill tailings and wastes. These are usually bulk materials like soil, crushed rock, or sludges contaminated with low concentrations of source material or NARM.

For the reasons discussed in section 5 above, the staff will not approve commingling of NARM in tailings impoundments. However, current staff policy is to consider on a case-specific basis, wastes generated by operations regulated under the AEA. This would allow consideration of byproduct, as defined in section 11e.(1) of the AEA, and special nuclear materials (SNM) wastes, in addition to source material waste, for disposal in tailings impoundments. Recently, there have been inquiries to the staff about disposal of SNM-contaminated soils in tailings impoundments. For the reasons discussed below, NRC staff will not normally approve disposal of 11e.(1) byproduct material (hereafter referred to as "byproduct material") or of SNM in tailings impoundments.

Appendix A of 10 CFR part 40 presents criteria for the disposal of 11e.(2) byproduct material. These criteria, to properly dispose of this material, were developed based on the physical, chemical, and radiological characteristics of the material. The basis for most of the requests to commingle non-11e.(2) byproduct material in tailings impoundments is that the proposed material is similar in characteristics to 11e.(2) byproduct material, but does not meet the definition, which is based on process and history, rather than characteristics. Because of this similarity to 11e.(2) byproduct material, the criteria in appendix A are appropriate to use, to ensure safe disposal of this material.

This premise is only valid for the types of materials discussed in section 4, that is, bulk material whose primary radiological contamination is uranium, thorium, and radium in low concentrations. Wastes contaminated with byproduct material are sufficiently different that this premise may not be valid.

Soils contaminated with SNM may be similar to 11e.(2) byproduct material in physical, chemical, and radiological characteristics. There are, however, issues related to the disposal of byproduct material or SNM-contaminated soils in tailings impoundments that preclude routine approval, using the criteria in appendix A of 10 CFR part 40. Possession of byproduct material or SNM would have to be licensed under 10 CFR part 30 or 70, respectively, and not part 40. For SNM, the issues of criticality, material control and accountability, and site security might also have to be addressed.

For these reasons, the staff will not approve the disposal of byproduct material or SNM through the process discussed in this guidance and analysis. If there is a compelling reason, such as an immediate health and safety concern, to consider a specific proposed disposal of byproduct material or SNM in a tailings impoundment, approval of the Commission will be required.

6.4 Regulatory Issues

There are two regulatory issues that require consideration in developing this guidance:

a. Inasmuch as the kind of material under consideration is within the purview of the States under the Low Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPA), the explicit approval of both the originating and the receiving Compact should be obtained if the waste is going anywhere but a designated Regional facility. Although this is not specifically a health and safety issue, it is an issue that could cause problems for the licensee and perhaps interfere with ultimate reclamation of the tailings. As a result, the policy should include a requirement that the licensee's submittal provide evidence of the Compacts' approval of the proposed disposal.

b. The material being proposed for disposal in tailings impoundments is material subject to the Commission's authority under the Atomic Energy Act. It is mostly, if not all, soil contaminated with uranium, thorium, and associated radium (which is a decay product of uranium and thorium) with radiological characteristics similar to those of tailings (11e.(2) byproduct material). The disposal of such material is regulated by 10 CFR 20.301 (10 CFR 20.2001 in the new part 20). That section states that no licensee shall dispose of licensed material except by (a) transfer to an authorized recipient as provided in 10 CFR part 30, 40, 60, 61, 70, or 72; or (b) disposal authorized pursuant to § 20.302

(20.2002) or part 61. Part 61 provides regulations for the disposal of radioactive waste received from others, while § 20.302 (20.2002) allow for disposal by a licensee of licensed material in a manner not otherwise authorized in the regulations.

Since the material proposed for disposal in tailings impoundments will be received from licensees other than the impoundment owner, 10 CFR part 61 is the appropriate regulation for such disposal. Disposal under § 20.302 has been used by licensees to dispose of their own wastes onsite. It does not preclude disposal of radioactive waste received from others. Section 20.2002 (in the new part 20), however, specifically limits disposals under that Part to licensed material generated in the licensee's activities, so it could not be used for the disposals discussed in this paper. The new Part 20 became effective on June 20, 1991, with discretion by licensees to defer implementation until January 1, 1993 (however, the Commission has under consideration a proposal to change the discretionary implementation date to January 1, 1994).

Thus, in order to allow disposal of non-11e.(2) byproduct material at a tailings impoundment, either a part 61 review would have to be performed and a license under 10 CFR part 61 would have to be issued to the mill operator, or an exemption to such a review and license would have to be granted. The part 61 license to allow disposal of the non-11e.(2) byproduct material in the tailings impoundment would be in addition to the amendment to the part 40 license authorizing receipt of the material.

The basic objectives of parts 40 and 61 are the same: protection of public health and safety and the environment by disposal that controls and isolates the wastes for long periods of time. Part 61.6 of title 10 allows for exemptions from the requirements of Part 61 if such an exemption will not endanger life or property. In order to avoid separate part 40 and 61 reviews and licenses for the disposal of non-11e.(2) byproduct material in tailings impoundments, an exemption under Part 61.6 will be granted for each such proposed commingling that meets all of the other requirements discussed in this analysis. The basis for such an exemption is that the proposed disposal will not endanger life and property by virtue of its meeting the criteria discussed in this analysis (which includes demonstrating that the reclamation and closure criteria in appendix A to part 40 will be met).

7. Results of Staff Analysis

NRC staff identified the following course of action with respect to requests for direct disposal of non-11e.(2) byproduct material in tailings impoundments:

1. Each proposal will be treated on its individual merits.
2. The guidance discussed in section 5, will be followed. Specifically, for each such co-disposal request, the staff will:
 - a. Reject the request if the non-11e.(2) byproduct material is NARM waste.
 - b. Determine whether the request is for bulk material contaminated with low concentrations of source material. If the request is for byproduct material or SNM, determine if there is a compelling reason, such as an immediate health and safety concern, to grant the request. If so, a specific request for approval by the Commission will be prepared.
 - c. Determine whether the proposed disposal will cause significant additional effects to public safety, health and the environment.
 - d. Determine whether the proposed disposal will compromise the reclamation of the tailings impoundment by determining whether compliance with the reclamation and closure criteria stated in 10 CFR part 40, appendix A, will be ensured.
 - e. Not approve the request if the non-11e.(2) byproduct material contains hazardous constituents regulated under RCRA.
 - f. Notify DOE (with an opportunity to provide comments) if the staff intends to approve the proposed disposal.
 - g. The licensee must provide documentation showing approval by the Regional LLW Compact in whose jurisdiction the waste originates as well as approved by the Compact in whose jurisdiction the disposal site is located.
3. Approval of the request will be accomplished through an amendment to the part 40 license of the impoundment owner.

Part B—Position and Guidance on the Use of Uranium Mill Feed Materials Other Than Natural Ores

Staff reviewing licensee requests to process alternate feed material (material other than natural ore) in uranium mills should 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 must 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 Is Mixed Waste

Note to Federal Register notice readers: For further explanation of this complex issue, see the discussion section of the Staff Analysis that follows.

If the proposed feed material were hazardous or mixed waste, it would be subject to EPA regulation under RCRA. To avoid the complexities of NRC/EPA dual regulation, such feed material will not be approved for processing at a licensed mill. If the licensee can show that the proposed feed material would not be a hazardous or mixed waste, if not proposed for processing at the mill, 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 acceptance of such residues as feed material will depend on their not being hazardous or mixed waste. Additionally, if proposed feed material contained a waste listed under Subpart D (261.30-33) of 40 CFR, it would be a hazardous waste and should not be approved.

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. There is concern that wastes that would 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 it in the tailings pile as 11e.(2) byproduct material. In determining whether the proposed processing was primarily for the source-material content or for the disposal of waste, either of the following tests can be used:

- a. *Co-disposal test.* Determine if the feed material would be approved for disposal in the tailings impoundment under the guidance contained in the July 27, 1988, memorandum from Hugh L. Thompson to Robert D. Martin, or subsequent revisions (e.g., as described

in Part A of this notice). If it would, it can be concluded that if a mill operator proposes to process it, the processing is primarily for the source-material content. The material would have to be physically and chemically similar to 11e.(2) byproduct material and not be subject to RCRA or other EPA hazardous-waste regulations, as discussed in Part A.

b. *Licensee certification test.* If the licensee certifies under oath or affirmation that the feed material: (1) is being reclaimed or recycled in accord with RCRA, or does not contain RCRA hazardous waste; and (2) is to be processed primarily for the recovery of uranium and for no other primary purpose, it can be accepted.

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, and that the primary purpose of its processing is for its source-material content, the request can be approved.

NRC Staff Analysis of the Use of Uranium Mill Feed Materials Other Than Natural Ores

1. Introduction

The Nuclear Regulatory Commission (NRC) and Agreement States have received, and in some cases approved, requests to allow a uranium mill to process feed material that was not natural (native, raw) uranium ore and dispose of the resulting waste in the facility's tailings impoundment. In those cases, the feed material was generally either processing wastes from other extraction procedures or the residues from mine-water treatment. These requests were handled on a case-by-case basis, and approvals were based on the interpretation that the proposed feed material was refined or processed ore. This designation of the feed material as ore is critical to the determination of disposal methods. This stems from the definition under section 11e.(2) of the AEA, which limits byproduct material origin to "ore processed primarily for its source material content."

If the alternate feed material does not meet the definition of ore, or is not processed primarily for its source material, there are two concerns. The first is that complicated, dual regulation of the tailings pile by both NRC and the Environmental Protection Agency (EPA) under RCRA could result. The second concern is that the requested activity might jeopardize the ultimate transfer of the reclaimed tailings impoundment to

the State or Federal Government for perpetual custody and maintenance.

During the past three years, several additional requests for approval of alternate feed materials have been received. Decisions on those requests are pending until development of a generic agency position. The analysis addresses the need for a definition of the term "ore" as used in the definition of byproduct material in the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), and for criteria to determine if mill-processing wastes from alternate feed material will meet the requirements for byproduct material under a 10 CFR part 40 license.

2. Background

The UMTRCA amended the AEA to include uranium and thorium mill tailings and other wastes from the milling process as material to be licensed by NRC. Specifically, the definition of byproduct material was revised in section 11e of the AEA by adding:

And (2) the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content.

Such byproduct material includes all the wastes resulting from the milling process, not just the radioactive components. In addition, title II of UMTRCA amended the AEA to explicitly exclude the requirement for EPA to permit 11e.(2) byproduct material under the RCRA. The definition and RCRA exemption of 11e.(2) byproduct material contrasts significantly with the situation for source material and low-level radioactive waste (LLW), where only the radioactive component is regulated under the authority of the AEA. EPA has to address hazardous constituents in those materials separately.

As a result of UMTRCA, the NRC amended 10 CFR Part 40, to regulate the uranium and thorium tailings and wastes from the milling processes. Thus, under normal operation, all tailings and wastes in an NRC or Agreement State licensed mill producing uranium or thorium are classified as "11e.(2) byproduct material," and are disposed of in tailings piles regulated under part 40. They are not subject to EPA regulation, under RCRA. However, if material that did not qualify as 11e.(2) byproduct material was placed in a mill's tailings impoundment, any hazardous constituents it contained could lead to regulation by EPA.

The UMTRCA also required either the United States, or the State in which the byproduct material has been disposed

of, to maintain long-term custody of, and surveillance over, the byproduct material and the land used for its disposal. The AEA currently designates the Department of Energy (DOE) as the Federal "custodial agency." However, the UMTRCA specifically referred only to 11e.(2) byproduct material, and contains no provision allowing for the transfer of custody or title of any other material. While the application of section 151(b) of the Nuclear Waste Policy Act could moot this issue in a specific case, it does not provide a legal basis for avoiding the labeling of a tailings disposal impoundment as either a mixed waste facility or a low-level waste disposal facility with the complex regulatory burdens these labels carry. One of the purposes of the guidance is to avoid these consequences.

The term "alternate feed materials" is used to indicate sources of uranium or thorium (throughout this analysis references to uranium mills or ore should be taken to apply to thorium mills or ore, also), for a mill, that are not natural ore (ore is not defined in the AEA nor in UMTRCA). NRC staff has approved requests, in the form of license amendments, to allow processing of alternate feed materials in uranium mills. The requested license amendments generally were to allow the mill to use feed materials that were either processing wastes such as those derived through the extraction of other elements, or the residues from mine-water treatment.

The following are examples of license amendments approved in the past:

1. Processing Wastes From Other Operations

The Rio Algom (Lisbon uranium mill in Utah) has had its source-material license amended several times in the period from 1982 to 1987, so the mill could receive alternate feed materials. The mill was authorized to use processing wastes from: a uranium hexafluoride conversion facility, a niobium-tantalum recovery facility, and from an yttrium-lanthanides recovery facility. The materials were radiologically consistent with the existing tailings, but, in the first example, the fluoride was in higher concentration (greater than one percent) than in the existing tailings. In 1987, NRC also authorized the Quivira Mining Company to process raffinate sludge from a uranium hexafluoride conversion plant. The uranium content of these wastes (the yttrium-lanthanides wastes averaged 1.17 percent and the uranium hexafluoride waste streams 0.6 to 6.7 percent) was higher than the average

natural ore processed in the United States.

2. Wastes From Treatment of Mine Water

Some mines have to be dewatered as the shafts or pits fill with ground-water. This water often contains dissolved constituents as a result of flow through and contact with ore bodies. It must therefore be treated before it can be discharged offsite. Treatment is often via ion-exchange columns which concentrate high levels of uranium on resins or the eluate. Several mills (Western Nuclear Inc., Split Rock, Wyoming, and Atlas Minerals Corp., Moab, Utah) have obtained license amendments and processed these residues/wastes through the mill.

The NRC staff approved the processing of these alternate feed materials, considering them to be refined and processed ore. This designation as ore is essential so that the residue from uranium processing can qualify as 11e.(2) byproduct material for the reasons stated earlier. With this interpretation, the resultant milling wastes were legitimately classified as 11e.(2) byproduct material.

However, because there is not a definition of ore in 10 CFR Part 40 and because of the potential policy issues involved in approving the processing of feed material other than natural ore, the staff has put recent requests on hold, pending establishment of an agency position.

3. Discussion

Uranium mills were designed and operated to process natural uranium-bearing rock (i.e., ore), usually mined nearby, in order to produce uranium (in the form of yellowcake). There usually was no question of other feed material or what constituted ore. However, there have been occasions when other material has been proposed for processing at uranium mills.

Mill tailings that meet the definition of 11e.(2) byproduct material must be stabilized in accordance with the criteria in appendix A of 10 CFR part 40, but are not subject to separate regulation as LLW or as hazardous waste under RCRA. The wastes and tailings produced in a uranium mill processing uranium-bearing rock from nearby mines would meet the definition of 11e.(2) byproduct material. However, it is not obvious, from the definition alone, whether wastes produced from processing feed material that is something other than rock mine from the earth meets the definition of 11e.(2) byproduct material.

Neither the AEA nor 10 CFR part 40 contains a definition of "ore" as it appears in the definition of 11e.(2) byproduct material. The term "unrefined and unprocessed ore" is, however, defined separately in part 40, in relation to the exemption in 10 CFR 40.13(b) for source material in ore, as:

Ore in its natural form prior to any processing, such as grinding, roasting or beneficiating, or refining.

The fact that the term "any ore", rather than "unrefined and unprocessed ore," is used in the definition of 11e.(2) byproduct material implies that a broader range of feed materials could be processed in a mill, with the wastes still being considered as 11e.(2) byproduct material.

Legislative history confirms the validity of a broad interpretation of the term "any ore." The definition of 11e.(2) byproduct material as originally presented in UMTRCA was:

The tailings or wastes produced by the extraction or concentration of uranium or thorium from any source material.

However, there was a concern that tailings resulting from the processing of ore containing less than 0.05 percent uranium (the minimum concentration that would still meet the definition of source material) would fall outside the definition. To preclude that possibility, it was suggested that the words "any ore processed primarily for its source material content" be substituted for "any source material."

In its decision in a case involving whether certain material in and near the West Chicago, Illinois, facility of Kerr-McGee Chemical Corporation (Kerr-McGee Corporation v. NRC, 903 F.2d 1 (D.C. Cir. 1990) was 11e.(2) byproduct material or source material, the United States Court of Appeals arrived at a broad interpretation of the definition of byproduct material in which the concept of ore is not restricted to native rock. It also cited Chairman Hendrie's testimony before Congress that led to the wording that now exists, in the AEA, defining 11e.(2) byproduct material as establishing that a broad reading of the definition was in line with Congressional expectations.

The previous discussion leads to the conclusion that the term "ore" in the definition of 11e.(2) byproduct material can be applied to a broad spectrum of feed materials from which uranium or thorium is extracted. In view of the foregoing, NRC staff has recommended a definition of ore as follows:

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.

Two major considerations that went into this proposed definition of ore were:

1. It is broad enough to include a wide variety of feed materials.

2. The definition continues to be tied into the nuclear fuel cycle. Because the extraction of uranium in a licensed mill remains the primary purpose of processing the feed material, it excludes secondary uranium side-stream recovery operations at mills processing ore for other metals. Thus, tailings from such side-stream operations at facilities that are not licensed as uranium or thorium mills, would not meet the definition of 11e.(2) byproduct material.

Although the intent of Congress in defining 11e.(2) byproduct material appears to have been to encompass the wastes from all feed material processed primarily for its source-material content, two significant issues result from the proposed definition of ore.

Since some of the feed material could contain hazardous components, in addition to source material, the first significant issue is whether material that would otherwise have to be disposed of as hazardous waste can be processed in a uranium mill and disposed of in the tailings impoundment as 11e.(2) byproduct material. If such feed material were not processed at a uranium mill, it would be classified as mixed waste (radioactivity regulated under AEA, plus hazardous waste regulated by EPA) and would thus have to be disposed of in a mixed waste facility.

To determine if the feed material would be regulated as hazardous waste, one must first determine if it meets the definition of solid waste, since hazardous waste is a subset of solid waste, under RCRA. The EPA regulations that implemented RCRA state (40 CFR 261.1-261.4) that solid waste is any discarded material not excluded in the regulations and includes recycled material. A material is recycled if it is reclaimed. Reclaimed is defined as, " * * * processed to recover a usable product * * *". Since alternate feed material would be reclaimed at the mill, it would be considered solid waste. It also would be classified as byproduct, which EPA defines as, " * * * not one of the primary products of a productive process * * *". However, 40 CFR 261.2c(3) provides that byproducts that exhibit only a characteristic of hazardous waste (ignitable, corrosive, reactive, toxic) and that are being reclaimed are not regulated as hazardous waste. To support the "reclaimed" provision, it must be demonstrated that there is a known

market for the material and documentation provided, such as contracts showing that a second person uses the material as an ingredient in a production process. An exception to this exemption is sludge from a water treatment plant, so residues from mine-water treatment would not qualify.

Since feed material is being used as an ore from which a useable product (uranium) is to be extracted, it is being reclaimed and thus would meet the EPA exemption to regulation as characteristic hazardous waste, except if it were mine-water treatment residues.

The proposed feed material would still be hazardous waste if it contained a waste listed under subpart D (part 261.30-33) of the EPA regulations. It is unlikely that feed material for uranium mills would contain such substances. Assurances need to be provided that these proposed feed materials do not contain RCRA or TSCA listed hazardous wastes.

Constituents with hazardous characteristics that were in feed materials processed at a uranium mill would eventually end up in the tailings impoundment as 11e.(2) byproduct material. As such, they would be regulated under appendix A of 10 CFR part 40 which provides for monitoring and control of hazardous constituents. Thus, the ultimate fate of hazardous constituents that might be in uranium mill feed material would not escape regulatory oversight.

The second significant issue that must be addressed is the potential of converting material that would have to be disposed of as LLW or mixed waste into ore, for processing and disposal as 11e.(2) byproduct material. The possibility of converting such wastes to 11e.(2) byproduct material can be very attractive to owners of such material. This is because of the high cost of disposing of LLW and especially of mixed waste. An owner of such material could pay a mill operator substantially less to process it for its uranium content and dispose of the resulting 11e.(2) byproduct material than to dispose of the material as waste at an appropriate facility. Utah officials have already expressed concern over "sham disposal" (i.e., converting a mill into a LLW disposal site).

The proposed definition of ore would include any material from which source material is extracted in a licensed mill and would thus seem to allow such sham disposals. However the definition of 11e.(2) byproduct material requires that the ore be processed " . . . primarily for its source material content" and thus would not permit such sham disposals. Material that was

processed primarily to convert what would have been LLW or mixed waste into 11e.(2) byproduct material would not meet the definition of 11e.(2) byproduct material.

Therefore, as part of its review of a licensee proposal to process material other than natural ore, the staff would have to determine whether the processing was primarily for the source-material content or for the disposal of waste. This determination would have to be made on a case-specific basis, but either of the following tests can be used:

1. *Co-disposal test:* If the feed material would be approved for disposal in the tailings impoundment, under the guidance contained in the July 27, 1988, memorandum from Hugh L. Thompson to Robert D. Martin, or subsequent revisions, it can be concluded that if a mill operator proposes to process it, the processing is primarily for the source-material content. The material would have to be physically and chemically similar to 11e.(2) byproduct material and not be subject to RCRA or other EPA hazardous-waste regulations, as discussed in this notice.

2. *Licensee certificate test:* If the licensee certifies under oath or affirmation that the feed material: (1) is being reclaimed or recycled in accord with RCRA, or does not contain RCRA hazardous waste; and (2) is to be processed primarily for the recovery of uranium and for no other primary purpose, it can be accepted.

4. Results of Staff Analysis

The staff has determined to issue guidance on the definition of ore and on the issues related to feed material that could be considered waste. Although Agency guidance does not carry the weight of a regulation, the staff concludes that the time and resources required for rulemaking on the definition of ore would not be justified in this instance. There are only a few mills that are in active or standby status and that would be able to process alternate feed material, and it is estimated that the Agency would receive only one or two such requests a year. However, the staff will include the definition of ore the next time amendments to 10 CFR Part 40 are proposed.

Issuance of the guidance would also assist Agreement States. As a policy, the Agreement States are not required to adopt this guidance as a matter of compatibility. However, if an Agreement State implements a similar policy, the State will have some assurance that NRC will not question its policy in program reviews and in making the determination as required in 10 CFR

150.15a(a) prior to the State terminating the license.

Dated at Rockville, Maryland, this 7th day of May 1992.

For the Nuclear Regulatory Commission,

John Surmeier,

Chief, Uranium Recovery Branch, Division of Low-Level Waste Management and Decommissioning, Office of Nuclear Material Safety and Safeguards.

[FR Doc. 92-11215 Filed 5-12-92; 8:45 am]

BILLING CODE 7490-01-M

[Docket No. 50-416]

Entergy Operations, Inc.; Notice of Consideration of Issuance of Amendment to Facility Operating License, Proposed No Significant Hazards Consideration Determination, and Opportunity for Hearing

The U.S. Nuclear Regulatory Commission (the Commission) is considering issuance of an amendment to Facility Operating License No. NPF-29, issued to Entergy Operations, Inc. (the licensee), for operation of the Grand Gulf Nuclear Station, Unit 1, located in Clairborne County, Mississippi.

The proposed amendment would increase the trip setpoints of four circuit breakers for the suppression pool makeup (SMPU) valves.

In response to NRC Generic Letter 89-10, the licensee has identified the need to replace four valve actuators for the SPMU valves with larger actuators. During the design change process, it was determined that the required larger valve actuator motors would require circuit breakers with higher trip setpoints. These trip setpoints are specified in the Technical Specifications (TS), and the licensee must request a TS change to permit the use of the higher trip setpoints. Allowing for the standard 30-day Federal Register notice would delay approval of the requested change beyond the scheduled end of the current refueling outage. The staff concludes that the licensee has provided an acceptable basis for its request and that exigent circumstances exist.

Before issuance of the proposed license amendment, the Commission will have made findings required by the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations.

The Commission has made a proposed determination that the amendment request involves no significant hazards consideration. Under the Commission's regulations in 10 CFR 50.92, this means that operation of the facility in accordance with the proposed

U. S. Nuclear Regulatory Commission
Staff Response to Public Comments
on

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

and

"Position and Guidance on the Use of Uranium Mill Feed Materials
Other Than Natural Ores"

INTRODUCTION

The U. S. Nuclear Regulatory Commission staff developed two proposed guidance documents: "Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments"; and "Position and Guidance on the Use of Uranium Mill Feed Materials Other Than Natural Ores." These documents and their associated staff analyses (hereafter referred to as "Staff Analysis") were published in the Federal Register on May 13, 1992, and public comments were requested on the proposed guidance.

Twenty-four letters were received in response to the notice. Comments were received from Federal agencies, States, industrial groups, NRC licensees, a member of the U.S. Congress, a law firm, an environmental group, and an individual. As expected, the comments varied significantly, depending on the affiliation of the commenter. Several commenters indicated that the proposed guidance provided too much flexibility, while other commenters believed that the guidance was too restrictive. Some commenters supported the guidance, while others thought it needed major modifications.

All of the comments were carefully reviewed, categorized, and grouped by subject areas. Comments were categorized based on which guidance document was addressed: Category A addresses comments on Part A of the guidance document, pertaining to non-11e.(2) byproduct material; Category B addresses comments on Part B of the guidance, pertaining to alternate feed materials; and Category C addresses comments that are applicable to both Parts A and B. The following major comment groups were identified:

Category A - Disposal of Non-11e.(2) Byproduct Material

- A1. Types of material to be allowed for disposal
- A2. Relation of non-11e.(2) byproduct material to low-level waste
- A3. Mixed waste issues
- A4. Transfer of title and custody
- A5. Uranium mill tailings impoundments as disposal sites
- A6. Other disposal topics

Category B - Alternate Feed Material

- B1. Definition of ore
- B2. Mixed waste determination for feed material
- B3. Determination that material is to be processed primarily for source material
- B4. Other feed material topics

Category C - General Comments Applicable to Both Guidance Documents

C1. Comments Applicable to Parts A and B

The comments in categories A, B, and C are summarized and discussed in the following responses to comments. Included in each comment topic are: (1) a list of commenters that presented one or more issues; (2) a summary of the comments and issues raised by the commenters; (3) discussion and response to the comments by NRC staff; and (4) any modifications made to the guidance in response to these comments.

The numbers in parentheses after the name of the commenter were assigned by the NRC staff during the comment review and refer to a specific comment.

RESPONSES TO COMMENTS

A1.0 Types of Material to be Allowed for Disposal

A1.1 Commenters

- Umetco Minerals Corp. (3-1, 3-2, 3-3, 3-4)
- Fuel Cycle Facilities Forum (5-2, 5-3, 5-4, 5-5)
- Don & Hiller for Envirocare of Utah, Inc. (6-7)
- Colorado Department of Health (9-1)
- Office of the Governor, State of Wyoming (11-7)
- Rio Algom Mining Corp. (13-1, 13-2)
- American Mining Congress (14-5, 14-6, 14-8)
- Washington Department of Health (16-2)
- Utah Department of Environmental Quality (20-4, 20-5, 21-4, 21-5)

A1.2 Summary of Issues

Eight commenters expressed opinions on various types of material that should be authorized for disposal in tailings impoundments. A mill operator and two industrial groups expressed agreement that several types of materials identified in the Staff Analysis should be permitted in tailings impoundments. Several commenters opposed aspects of the policy that would either exclude or severely restrict other types of waste for disposal.

Six commenters expressed opinions on the prohibition of naturally occurring and accelerator produced (NARM) waste from tailings impoundments. Wyoming and Utah agreed that NARM wastes should not be allowed in impoundments. Colorado and Washington, Rio Algom, and the American Mining Congress (AMC) argued that NARM wastes and mine wastes should be permitted in tailings impoundments.

Wyoming agreed with the policy to allow disposal of 11e.(1) byproduct material (normally considered "byproduct material") or special nuclear material only when the Commission determines that there are compelling reasons to do so, while Utah objected to even the possibility of such disposals.

Rio Algom, Envirocare, and the AMC expressed the opinion that NRC should more clearly define the materials that would or would not be allowed to be disposed of in tailings impoundments. They were primarily concerned with defining and identifying NARM wastes and differentiating them from mine wastes and other radioactive wastes that would be permitted in impoundments.

A1.3 Discussion and Response to Comments

NARM wastes: The policy excluded NARM wastes because of concerns related to NRC's regulatory authority over those materials and over sites containing those materials. This was discussed in the Staff Analysis. To clarify what material will be permitted in impoundments, rather than define NARM, the policy has been revised to indicate that only radioactive material regulated by NRC under the Atomic Energy Act (AEA) will be permitted.

11e.(1) byproduct and special nuclear material: The staff agrees with Utah that it is unlikely that there would be any circumstances where it would approve disposing of 11e.(1) byproduct material or special nuclear material in an 11e.(2) byproduct material tailings impoundment. Nevertheless, staff seeks to have the flexibility to allow such a disposal if special circumstances warrant. In any case this disposal would require specific Commission approval.

A1.4 Modifications to the Guidance

Item 2 of the guidance has been revised to state that radioactive material not regulated under the AEA, rather than NARM, shall not be authorized for disposal in a tailings impoundment.

A2.0 Relation of Non-11e.(2) Byproduct Material to Low-Level Waste

A2.1 Commenters

Umetco Minerals Corp. (3-1, 3-2, 3-3, 3-5)
Fuel Cycle Facilities Forum (5-1, 5-2, 5-3, 5-4, 5-6)
Don & Hiller for Envirocare of Utah, Inc. (6-1, 6-8)
Crain, Caton & James for Rhone-Poulenc Inc. (7-1)
Office of the Governor, State of Wyoming (11-5)
Rio Algom Mining Corp. (13-3, 13-4)
American Mining Congress (14-7)
Utah Department of Environmental Quality (20-8, 21-8)

A2.2 Summary of Issues

Seven commenters responded to Item 8 of the guidance in Part A of the Federal Register notice (FRN), which requires approval of the disposal by the Regional Low-Level Waste (LLW) Compact in whose jurisdiction the waste originates, as well as the one where the disposal site is located. Wyoming and Utah agreed

with the requirement. The Fuel Cycle Facilities Forum supported the requirement of LLW Compact approval, except for several categories of waste that both it and Rio Algom contended should not be subject to such approval, because of their similarity to 11e.(2) byproduct material. Rio Algom expressed the opinion that LLW Compact approval should not be required when the non-11e.(2) byproduct material and the impoundment where it is to be disposed of are owned by the same company.

Rhone-Poulenc opposed the requirement of LLW compact approval as unnecessary and restrictive, stating that Compacts would have economic incentives to disapprove such disposals and force such wastes into their LLW disposal sites.

Envirocare raised several issues related to the Low Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPA). It objected to the language in the Staff Analysis, which did not clearly state that Compact approval is required by law. It stated that approval of the Governor of the State in which the disposal impoundment is located should be required, in addition to approval by the Compact. It also stated that the guidance should authorize the State or Compact, in which the impoundment is located, to charge or collect fees applicable to disposal in a LLW facility, under the LLRWPA.

Five commenters responded to Item 10 of the guidance, which discusses the regulatory mechanism to authorize disposal of non-11e.(2) byproduct material in tailings impoundments. Umetco, Rio Algom, and the Fuel Cycle Facilities Forum supported the position that an exemption to the requirements of 10 CFR Part 61 be granted under 10 CFR 61.6. The AMC stated that a joint 10 CFR Part 40 and Part 61 license would be redundant. Envirocare stated that the guidance should expressly provide for a hearing to address the propriety of the Part 61 exemption and other issues that may need to be addressed.

A2.3 Discussions and Response to Comments

LLW Compact approval: As stated in the staff analysis, LLW Compact approval is required because non-11e.(2) byproduct material suitable for disposal in an 11e.(2) byproduct material impoundment would likely be LLW and within the purview of the States, under the LLRWPA. The origin of the material (e.g., mine waste, secondary process wastes, etc.) is irrelevant to this issue, unless the material can be shown to meet the definition of byproduct material under Section 11e.(2) of the AEA. If the material can be shown to be 11e.(2) byproduct material, it can be disposed of in a tailings impoundment without meeting the requirements of this policy. Similarly, ownership of non-11e.(2) byproduct material is irrelevant to the issue of whether it is LLW and thus within the purview of LLW Compacts.

We agree that there may be economic incentive for a LLW Compact not to approve disposal of non-11e.(2) byproduct material in an impoundment, thus forcing it to the Compact's LLW facility. In any event, as discussed above, under the LLRWPA, the material would be within the purview of LLW Compacts.

LLRWPA issues: We agree with Envirocare that the requirement in the guidance for approval by LLW Compacts stems from the LLRWPA, as stated in the staff analysis. Since the guidance is clear on the requirement, we see no need to revise it or add a statement tying it to the LLRWPA. Gubernatorial approval,

however, does not follow from the LLRWPA and therefore, will not be added to the guidance. There have been several legislative proposals for such gubernatorial approvals in recent years; NRC has gone on record as considering these proposals unnecessary, and they have not been supported by the U.S. Congress.

The issue of fees and surcharges should be worked out between owners of non-11e.(2) byproduct material, impoundment operators, and LLW Compacts. NRC will neither expressly authorize nor prohibit them. (However, NRC fees and other charges will be handled similar to that for any other mill license amendment.)

Joint Part 40 and Part 61 license: We agree with the AMC that a joint Part 40 and Part 61 license would be redundant and do not anticipate such a joint license. An exemption to Part 61 (and to a Part 61 license) will eliminate the need to issue such a joint license.

Conduct public hearing on Part 61 exemption: We do not agree that the granting of an exemption to Part 61 under 10 CFR 61.6 should require a mandatory hearing. However, since the mechanism for authorization of a disposal of non-11e.(2) byproduct material in a tailings impoundment is an amendment to a Part 40 license (per Item 10 of the guidance), there would be opportunity for a hearing, in accordance with 10 CFR 2.1205.

A3.0 Mixed Waste Issues

A3.1 Commenters

Cabot Corp. (4-7, 4-8)
Don & Hiller for Envirocare Inc. (6-3, 6-10)
Colorado Department of Health (9-2, 9-3)
American Mining Congress (14-4)
Texan Department of Health (17-1, 17-2)
Utah Department of Environmental Quality (20-7, 21-7)
Office of Environmental Restoration, U.S. Department of Energy
(23-4)

A3.2 Summary of Issues

Three commenters responded to Item 5 of the proposed guidance, which states that the licensee must demonstrate that there are no Comprehensive Environmental Response Compensation and Liability Act (CERCLA) issues. Envirocare and Colorado indicated that meeting the requirement is difficult, if not essentially impossible. Cabot Corp. requested that NRC clarify its concerns on this issue.

The AMC, Colorado, and Cabot Corp. recommended that NRC and the Environmental Protection Agency (EPA) work together to formulate consistent, non-overlapping mixed waste regulations and cooperate on the design and review of mixed waste disposal facilities, so that mixed waste disposal could be allowed in tailings impoundments. Envirocare Inc. recommended that EPA be given the opportunity to comment on the propriety of the disposal of non-11e.(2) byproduct material

and the propriety of relying upon Part 40, Appendix A for the management of the combined waste materials.

Four commenters specifically addressed NRC's guidance in relation to EPA's regulations. Texas requested a list of constituents and their limiting concentrations (and analytical methods) so Resource Conservation and Recovery Act (RCRA) waste could be differentiated from byproduct waste. Texas also stated that the phrase in Part A, Section 6.1 of the FRN, "...containing hazardous constituents regulated under RCRA," is ambiguous and should be replaced by "...containing waste streams classified as hazardous under RCRA." Utah said there must be a sampling protocol for incoming shipments, to ensure that no RCRA wastes were disposed of. The Department of Energy (DOE) was concerned that the tailings impoundment should not be subject to any of EPA's regulations and that there be only one regulator at a site.

A3.3 Discussion and Response to Comments

CERCLA issues: NRC staff realizes that demonstrating that there are no CERCLA issues related to the proposed disposal could be difficult. However, the staff's concern is that sufficient documentation must exist to provide reasonable assurance that CERCLA remedial action will not be mandated later at tailings impoundments. The acceptance of only radioactive non-11e.(2) byproduct material, regulated under AEA, will assist in providing that assurance.

Federal inter-agency cooperation: The NRC staff agrees that more inter-agency coordination with EPA to resolve mixed waste issues is needed, and NRC will continue to work with EPA, as resources permit, to resolve significant issues.

Relation to EPA regulations: The guidance is general and is not intended to provide all implementation details. Guidance exists in other documents regarding concentration limits and procedures for sampling and testing.

The phrase in the staff analysis, "...the staff would not approve co-disposal of non-11e.(2) byproduct material containing hazardous constituents regulated under RCRA," was intended to convey the concept that the staff would not approve co-disposal of non-11e.(2) byproduct material that would bring the tailings impoundment under the purview of RCRA.

NRC staff considers that the tailings impoundments should not be subject to any additional EPA regulation as a result of the co-disposal of non-11e.(2) byproduct material [tailings are already subject to regulation under 40 CFR Part 192 and other EPA standards; in addition, tailings are subject to EPA regulation under Superfund]. Item 4 of the guidance, however, does refer to RCRA regulations or other EPA standards for hazardous or toxic wastes. To further ensure that RCRA hazardous waste is not inadvertently disposed of in mill tailings impoundments, Item 4 has been revised to indicate that the 11e.(2) licensee also must demonstrate, for waste containing source material as defined under the AEA, that the waste does not also contain material classified as hazardous waste according to 40 CFR Part 261 or polychlorinated biphenyl according to 40 CFR Part 761. Thus, source material physically mixed with other constituents, would require the classification in accordance with 40 CFR Part 261, or 40 CFR Part 761. (These provisions would cover material

such as: characteristic hazardous waste; listed hazardous waste; and polychlorinated biphenyls.) The demonstration and testing should follow accepted EPA regulations and protocols.

A3.4 Modifications to the Guidance

Item 4 of the guidance has been revised to provide additional specificity to ensure that no RCRA material is included in the non-11e.(2) byproduct material.

A4.0 Transfer of Title and Custody

A4.1 Commenters

- Don & Hiller for Envirocare of Utah, Inc. (6-2)
- Colorado Department of Health (9-4)
- Office of the Governor, State of Wyoming (11-1)
- American Mining Congress (14-9)
- Washington Department of Health (16-1)
- Utah Department of Environmental Quality (20-6, 21-6)
- Office of Environmental Restoration, U.S. Department of Energy (23-1)

A4.2 Summary of Issues

When a mill tailings site owner has completed reclamation and decommissioning, the licensee must transfer title of the 11e.(2) byproduct material and the disposal site to DOE or the State where the site is located. DOE or the State will then become responsible for the care and maintenance of the site, under the general license in 10 CFR 40.28. Two commenters expressed doubt that DOE had authority to accept title to the non-11e.(2) byproduct material at a disposal site. Envirocare noted that the discussion in the Staff Analysis cited Section 83 of the AEA as the authority for the transfer, but that Section 83 only discusses transfer of 11e.(2) byproduct material. Utah stated that there are no other statutory requirements for the Federal government to take long-term custodial care of non-11e.(2) byproduct material and that doing so may be outside the scope of the AEA.

Two States asked for clarification or guidance on the technical findings that need to be made for DOE to take title to a tailings impoundment in which non-11e.(2) byproduct material has been disposed of. Colorado asked for guidance on elements that need to be addressed, stating that Sections C and D of Paragraph 5, "Previous Staff Guidance," offered no such details. Washington asked for clarification of the statement that there be no groundwater restoration issues and whether this applied only to non-11e.(2) byproduct material disposal, or to previous (11e.(2) byproduct material) disposals at the site.

Two commenters expressed opinions on the mechanism to ensure DOE acceptance, for perpetual custody, of an 11e.(2) byproduct material site in which non-11e.(2) byproduct material has been disposed of. Wyoming proposed that the policy continue the requirement, contained in the previous guidance, that DOE (or the State in which the site is located) agree in advance to accept title to the specific site. Alternatively, Wyoming suggested that the

licensee be required to provide financial surety of the same kind required of an operator of a LLW disposal facility. The AMC stated that providing DOE with an opportunity to comment on each proposed action to allow disposal of non-11e.(2) byproduct material is unnecessary. AMC stated that there are a number of ways of obtaining generic DOE approval and concurrence short of requiring specific approval for each license amendment and suggested that the Chairman of the NRC work out an alternate approach with the Secretary of Energy.

DOE requested 120 days, rather than the 30 days in Item 9 of the policy, to comment on a proposed license amendment to allow disposal of non-11e.(2) byproduct material in an impoundment.

A4.3 Discussion and Response to Comments

Authority for DOE to take title to non-11e.(2) byproduct material: We agree with Envirocare and Utah that the Uranium Mill Tailings Radiation Control Act (UMTRCA) (and Section 83 of the AEA) do not discuss transfer of radioactive material, other than 11e.(2) byproduct material, to DOE. However, UMTRCA does not preclude DOE from accepting an 11e.(2) byproduct material disposal site that also contained other radioactive material. DOE has agreed to accept custody of such sites, provided that NRC makes specific findings, as discussed in the Staff Analysis. Additionally, Section 151 (b) of the Nuclear Waste Policy Act of 1982 authorizes DOE to assume title and custody of low-level radioactive waste and the land on which it is disposed of. Since the non-11e.(2) byproduct material that would be allowed to be disposed of under this policy would be LLW (which is the reason that approval by LLW Compacts is required), DOE does have authority to accept title and custody of an 11e.(2) byproduct material site in which such non-11e.(2) byproduct material has been disposed.

Clarification of technical findings: We agree with Colorado that the discussion in 5. *Previous Staff Guidance* does not offer details on the technical elements that need to be addressed to allow DOE to accept a site with non-11e.(2) byproduct material. Section 6.2, "Custody and Title Transfer" discusses findings that NRC must make to satisfy DOE and concludes that those findings will be satisfied by various technical reviews that are part of an NRC licensing review process. However, the policy and the Staff Analysis paper do not, and are not intended to, actually present guidance on technical elements of those reviews.

The statement related to groundwater restoration issues is in the context of disposal of non-11e.(2) byproduct material in tailings impoundments. However, Appendix A of Part 40 requires licensees to clean up groundwater contamination at 11e.(2) byproduct material disposal sites irrespective of whether non-11e.(2) byproduct material is disposed at the site, so the statement on groundwater restoration issues is valid for all 11e.(2) byproduct material sites transferred to DOE.

DOE/State approval of disposal: The NRC staff agrees with Wyoming that an explicit, advance commitment from DOE or the State, to take title to a tailings impoundment in which non-11e.(2) byproduct material has been disposed of should be required, to preclude future problems of title transfer. The

guidance has been revised to include a concurrence by the State or DOE, within 120 days of the request, to take title to the impoundment after closure.

A4.4 Modifications to the Guidance

Item 9 of the guidance has been modified to include, within 120 days, a concurrence by DOE or the State in which the tailings impoundment is located.

A5.0 Tailings Impoundments as Disposal Sites

A5.1 Commenters

Cabot Corp. (4-8)

Don & Hiller for Envirocare of Utah, Inc. (6-5, 6-6)

American Mining Congress (14-2)

U.S. Representative Wayne Owens, Utah (15-1, 15-2, 15-3)

Utah Department of Environmental Quality (20-2, 20-3, 21-2, 21-3)

A5.2 Summary of Issues

Three commenters expressed opinions on the technical merits of disposing of non-11e.(2) byproduct material in tailings impoundments. Congressman Owens stated that tailings impoundments were never designed for, and are unsuitable for, disposal of radioactive waste. In contrast, the AMC stated that tailings impoundments are among the most attractive places to dispose of radioactive waste materials similar to uranium tailings and that the guidance should point out the advantages of using tailings impoundments for disposal of non-11e.(2) byproduct material. Cabot Corp. recommended a study of the characteristics of 11e.(2) byproduct material in impoundments and a comparison to source material and mixed waste. If the materials are similar, Cabot recommended that NRC and EPA work together to make regulatory and legislative changes to allow mixed waste to be disposed of in tailings impoundments.

Envirocare of Utah raised two concerns related to standards to be applied to impoundments disposing of non-11e.(2) byproduct material. Envirocare stated that licensees should be required to demonstrate that they have the capacity to dispose of all their existing 11e.(2) byproduct material before being authorized to dispose of non-11e.(2) byproduct material. Envirocare also stated that an 11e.(2) byproduct impoundment owner requesting to dispose of non-11e.(2) byproduct material demonstrate that the entire impoundment will comply with the current standards in Part 40, Appendix A. It was Envirocare's opinion that some older impoundments either do not comply with current standards or that NRC has interpreted standards differently for older impoundments.

Congressman Owens expressed general opposition to the use of mill tailings impoundments for disposal of wastes other than tailings generated at the site. He stated that the proposed policy reverses long-standing NRC policy against such disposals at tailings impoundments. He also stated that the House of Representatives incorporated a provision, in H.R. 776, that would prohibit disposal of non-11e.(2) byproduct material at tailings impoundments, unless the governor of the State agrees to such disposal.

Utah asked if a mill in "standby" status would be eligible to receive non-11e.(2) byproduct material. Utah also stated that such disposal in Utah would require compliance with Utah facility-siting and land-disposal laws that may be stricter than uranium regulatory requirements for siting a uranium mill.

A5.3 Discussion and Response to Comments

Suitability of tailings impoundments for disposals: Staff disagrees that tailings sites are unsuitable for disposal of other radioactive wastes. As the Staff Analysis points out, radioactive waste that would be allowed in tailings impoundments under the guidance is similar to 11e.(2) byproduct material in physical characteristics but doesn't meet the legal definition of 11e.(2) byproduct material. The standards that are applied to such disposals, (i.e., Appendix A of Part 40), were specifically written for 11e.(2) byproduct material and are technically valid for other material with the same characteristics. We agree with AMC that there are important advantages in disposing of non-11e.(2) byproduct material in tailings impoundments and discussed some of them in the Staff Analysis. However, the guidance is meant only to guide NRC staff in the review of a licensee request to allow a specific disposal and is therefore not the place for a general statement on the merits of disposing of non-11e.(2) byproduct material in tailings impoundments.

We agree with Cabot Corp. that 11e.(2) byproduct material in tailings impoundments are both radioactive and exhibit hazardous characteristics; the regulations in Appendix A of Part 40 specifically recognize this dual nature of 11e.(2) byproduct material. Further, at least some material currently classified as "mixed waste" is similar in physical and chemical characteristics to 11e.(2) byproduct material and therefore would appear, from a technical standpoint, to be candidate material for disposal in tailings impoundments. However, current legislation prevents such material from being considered for such disposals. EPA and NRC have worked and continue to work on issues related to mixed waste and regulatory difficulties in its disposal.

Standards to be applied: We agree with Envirocare that licensees should be required to demonstrate the capacity to properly dispose of existing 11e.(2) byproduct material. That demonstration would be part of the demonstration required under Item 7 of the proposed guidance, which requires the licensee to show compliance with the reclamation and closure criteria of Appendix A of Part 40. We agree with Envirocare that an impoundment owner show compliance with the current standards in Appendix A of Part 40. Again, that demonstration is required under Item 7. We disagree with Envirocare's statement that older impoundments are held to different standards than newer impoundments. All reclamation plans for tailings impoundments are evaluated using the same criteria (Appendix A). Although methodologies to evaluate compliance with Appendix A criteria have evolved over the years, the Commission has determined that unless significant health, safety, or environmental concerns are identified, it is not necessary to re-evaluate previously-approved reclamation plans.

Reversal of long-standing NRC policy: Staff disagrees that the proposed guidance reverses a long-standing policy against using uranium mill tailings

sites for disposal of radioactive materials other than mill tailings produced at the site. There are two categories of such material; 11e.(2) byproduct material not produced at the disposal site and non-11e.(2) byproduct material. NRC has encouraged the disposal of 11e.(2) byproduct material produced at in-situ mills into tailings impoundments associated with conventional mills, to prevent the proliferation of small disposal sites. Criterion 2 of Part 40, Appendix A specifically addresses this. As for disposal of non-11e.(2) byproduct material in tailings impoundments, the subject of the proposed guidance, NRC has had guidance in place since July 1988. The proposed guidance is an update of the 1988 guidance and can in no way be considered a reversal of that guidance.

H.R. 776: NRC believes that requiring gubernatorial approval for disposal of non-11e.(2) byproduct material in tailings impoundments would be inappropriate because it would be detrimental to the development and implementation of national waste management strategies. NRC staff believes that approval of the disposal of non-11e.(2) byproduct material by regional LLW State compacts, rather than by individual States, would best ensure that neither national nor regional LLW programs are compromised. This provision was considered by Congress and did not survive final passage of the Energy Policy Act of 1992.

Eligibility of mills in standby status: Uranium mills in standby status are prime candidates to receive non-11e.(2) byproduct material, since their standby status allows them to resume processing ore. These sites would need to submit a license amendment request that demonstrated that the site could accommodate the material without significant effect to health, safety, or the environment and the site reclamation plan would need to be revised to address any impacts the additional material could impose.

State requirements for disposal site: We agree with Utah that Utah, or any other Agreement State with LLW licensing authority, could require tailings impoundments to meet State siting and land-disposal laws, before disposing of non-11e.(2) byproduct material. NRC, however, would not enforce State regulations at an NRC licensed site. Additionally, an exemption to LLW disposal requirements (Item 10. of the guidance) would have to be granted by the Agreement State in accordance with its regulations.

A5.4 Modifications to the Guidance

Item 10 of the guidance has been modified to indicate that if the impoundment is located in an Agreement State with LLW licensing authority, the exemption of the non-11e.(2) byproduct material from regulation as LLW must be granted by the State.

A6.0 Other Disposal Topics

A6.1 Commenters

Cabot Corp. (4-9)

Don & Hiller for Envirocare of Utah, Inc. (6-4, 6-9)

Office of Environmental Restoration, U. S. Department of Energy
(23-2, 23-3)

A6.2 Summary of Issues

Cabot Corp. requested clarification on the level of documentation a licensee needs to provide in support of a request to dispose of non-11e.(2) byproduct material in a tailings impoundment. Envirocare was concerned that the guidance was not adequate to address the documentation, required of licensees, to demonstrate that the disposal of non-11e.(2) byproduct material will have no additional effects on health or the environment. Envirocare indicated that a detailed environmental analysis would be required to address the transportation of the non-11e.(2) byproduct materials, and a new or supplemental environmental impact statement (EIS) would be needed for the disposal site. This commenter did not want the guidance to shortcut the National Environmental Policy Act (NEPA) and wanted any license amendment or exemption application to be subject to the environmental protection requirements of 10 CFR Part 51. The commenter also stated that the guidance may result in a proliferation of Part 61 LLW sites and may increase the number of waste transportation corridors.

DOE recommended that the guidance specifically preclude disposal of any materials that would compromise the long-term stability of any Title II site and also pointed out that the guidance should not be applied to Title I sites.

A6.3 Discussion and Response to Comments

Licensee documentation: The proposed policy and accompanying Staff Analysis do not, and are not intended to, provide detailed technical guidance to licensees proposing to dispose of non-11e.(2) byproduct material in tailings impoundments. Items 4 through 8 of the proposed guidance identify demonstrations or documentation that licensees must provide in support of a proposed non-11e.(2) byproduct disposal but do not provide technical details. Section 6 of the Staff Analysis contains general discussions of the demonstrations, but does not actually present guidance on the technical aspects. Detailed technical information is available in various NRC documents, including regulatory guides and technical NUREGs.

Health and environment: The staff agrees that a license amendment to allow disposal of non-11e.(2) byproduct material is subject to environmental review, under Part 51. Any license amendment requires an environmental report from the licensee under 10 CFR 51.61 and, under 10 CFR 51.21, an environmental assessment, unless it meets a criterion for categorical exclusion (10 CFR 51.22). The environmental review process would identify impacts from a proposed non-11e.(2) byproduct disposal, including transportation impacts. Item 6 of the proposed guidance adds an additional constraint in that it

requires that there be no significant environmental impacts from the proposed disposal.

Proliferation of sites: The staff agrees with Envirocare that adoption of the proposed guidance will result in additional sites containing low-level radioactive wastes. However, no new disposal sites would be created as a result of the proposed guidance, since existing tailings impoundments would be used for disposals. In fact, the proposed guidance may result in fewer radioactive waste disposal sites, since material that might have been disposed of in a new site or that would take up valuable space in a LLW disposal facility could be disposed of in an existing tailings impoundment. Transportation effects will be addressed in the environmental review; however, most of the material proposed for disposal in an impoundment would have to be transported away from its present location, in any event.

Long-term stability: The staff agrees with DOE that disposal of non-11e.(2) byproduct material that would compromise the long-term stability of a tailings impoundment should be precluded. Item 7 of the proposed guidance requires compliance with the reclamation and closure criteria of Part 40, Appendix A. Reclamation and closure criteria are contained in Criteria 4 and 6 of Appendix A and include criteria to ensure the stability of the impoundment and control of the radiological hazards for 1000 years, to the extent achievable, and in any case, for at least 200 years.

Title I sites: The staff agrees with DOE that the proposed guidance is only intended to apply to currently licensed mill sites and not the UMTRCA Title I sites, which are, by definition, abandoned, inactive sites designated for remedial action under UMTRCA.

B1.0 Definition of Ore

B1.1 Commenters

- Umetco Minerals Corp. (3-6)
- Cabot Corp. (4-1)
- Fuel Cycle Facilities Forum (5-7)
- Crain, Caton & James for Rhone-Poulenc Inc. (7-2)
- Bureau of Land Management, U. S. Dept. of the Interior (10-1)
- Office of the Governor, State of Wyoming (11-8)
- Allied-Signal Inc. (12-2)
- Rio Algom Mining Corp. (13-4, 13-5)
- American Mining Congress (14-10)
- Utah Department of Environmental Quality (21-10)

B1.2 Summary of Issues

Seven commenters agreed with the definition of ore, as developed in the Part B guidance. Several pointed out that this definition would allow secondary process wastes and other material that contained source material to be recycled. Rio Algom and the American Mining Congress indicated that mine waste treatment sludges and a wide variety of other materials should be allowed to be processed as ore. Cabot Corp. indicated that this policy would decrease the number of disposal sites.

Two commenters disagreed with the definition of ore: Rhone-Poulenc stated that it was too restrictive and did not agree with the recent Kerr-McGee court decision; Utah stated that it was overbroad and that NRC should define ore in a manner that would deter waste disposal.

Wyoming indicated that the proposed definition should be established by rulemaking, to avoid inconsistent definitions being applied.

B1.3 Discussion and Response to Comments

Definition of ore: The NRC staff agrees that, under the definition of ore provided in the guidance, materials such as water treatment sludges containing source material (but not EPA-regulated hazardous constituents) could be used as feed material at a uranium mill. The definition does not restrict rare earth tailings from being processed for uranium or thorium.

On April 27, 1990, the U. S. Court of Appeals (Kerr-McGee Corporation v. NRC, 903 F2d 1 [D.C. Cir. 1990]) ruled that NRC improperly interpreted UMTRCA as requiring extraction of thorium or uranium to be the first, chief, or principal reason for processing ore brought to a mill. NRC had decided that ore processed first for its rare earth content and later for thorium was not 11e.(2) byproduct material, because it had not been processed "primarily for its source material content." The court decision pointed out the legislative history of the definition of 11e.(2) byproduct material and that the word "primarily" has a range of meanings (as does ore). If off site tailings are designated as source material, it implies that they may be categorized as ore. The court concluded that UMTRCA was intended to bring previously unregulated radioactive end products of the source material extraction process within the scope of NRC regulation and to provide for safe stabilization of the mill tailings.

The NRC staff does not agree that the proposed definition of ore is overbroad. The definition is consistent with that generally used in the mineral extraction industry. We agree with Utah that the definition of ore alone would not preclude sham disposal; Item 3 of the proposed guidance, which requires a determination that the processing is primarily for its source material content, is intended to address that concern.

Rulemaking: Section 4 of Part B of the FRN, "Results of Staff Analysis," states that the time and resources required for rulemaking on the definition of ore are not justified, in light of the number of expected requests for processing of alternate feed material. As also stated, the staff will include a definition of ore when amendments to Part 40 are proposed. The staff considers that the promulgation of the guidance itself will prevent the application of inconsistent definitions of ore.

B2.0 Mixed Waste Determination

B2.1 Commenters

Umetco Minerals Corp. (3-7, 3-8, 3-10)
Cabot Corp. (4-2, 4-3)
Fuel Cycle Facilities Forum (5-8, 5-9)
Utah Department of Environmental Quality (21-12)

B2.2 Summary of Issues

Several commenters supported the position that feed materials exhibiting only a characteristic of hazardous waste would not be regulated as hazardous waste because of EPA's exemption for certain recycling activities. However, Utah questioned the NRC analysis of recycling and stated that just because a useable product is extracted from mixed waste does not exempt the remaining waste from RCRA, unless it is the extracted product that initially made it RCRA waste.

Cabot Corp. indicated that the phrase "... containing hazardous constituents, regulated under RCRA ...," in mixed waste determinations, was ambiguous, and asked for clarification, especially regarding heavy metals.

Cabot Corp. also suggested that the policy be broadened to allow disposal of additional classes of secondary materials, such as hazardous sludges and spent materials. Umetco Minerals and the Fuel Cycle Facilities Forum indicated that NRC should have the ability to authorize or deny use of feed material (subject to an environmental impact evaluation) containing a compound listed in 40 CFR 261.33, but not derived from activities listed as waste streams under 261.33(a)-(e).

Umetco Minerals agreed that evaluation of other constituents in alternate feed material is needed.

B2.3 Discussion and Response to Comments

Recycling: NRC disagrees with Utah's conclusion on recycling. The interpretation in the Staff Analysis is based on review of EPA regulations and discussions with EPA staff.

Mixed waste determination: In the Federal regulations, "mixed waste" refers to material containing both hazardous waste and source, special nuclear, or by-product material subject to the AEA. The purpose of Item 2 of the proposed guidance is to ensure that hazardous waste, subject to EPA regulation, is not disposed of in a tailings impoundment as a result of processing alternate feed material. The discussion in the staff analysis is an overview of mixed waste issues, but is not intended to be a detailed technical guidance document. Each proposed request to process alternate feed materials will be evaluated by the staff, who may also consult with EPA or State officials on a specific mixed waste determination. Item 2 of the guidance has been revised to clarify the hazardous waste determination.

Policy considerations: The proposed policy cannot be any broader than existing legislation or regulations will allow nor can NRC expand its authority. The proposed guidance seeks to allow use of alternate feed material, without resulting in a tailings impoundment becoming subject to EPA RCRA regulation.

B2.4 Modifications to the Guidance

Item 2 of the guidance has been revised to clarify the hazardous waste determination.

B3.0 Determination That Processing Is Primarily for Source Material

B3.1 Commenters

- Umetco Minerals Corp. (3-9)
- Cabot Corp. (4-4, 4-5, 4-6)
- Fuel Cycle Facilities Forum (5-10, 5-11)
- Office of the Governor, State of Wyoming (11-3)
- American Mining Congress (14-11, 14-12)
- Utah Department of Environmental Quality (21-9, 21-11, 21-13)

B3.2 Summary of Issues

Several commenters discussed the basis or need for Item 3 of the proposed staff guidance and the related issue of "sham disposal." Cabot Corp. and the Fuel Cycle Facilities Forum argued that "sham recycling" is mostly a false issue, that NRC should not be concerned with the motivation of the mill owner/operator, and should eliminate this from consideration. Umetco Minerals Corp. supported the approach in the proposed guidance. Utah, however, believes that it does not protect against sham disposal.

Several commenters questioned the co-disposal test. Cabot Corp. indicated that the co-disposal test for determining if the ore is being processed primarily for its source-material content is too cumbersome and probably requires the licensee to provide costly documentation and a risk assessment. The commenter also requested that NRC develop more detailed and specific guidance regarding the licensee's documentation in support of a co-disposal arrangement. The AMC indicated that the test is redundant or only minimally helpful.

Several commenters discussed the licensee certification test. Cabot Corp. recommended that the certification be only that the material is being accepted for bona fide reclamation of its uranium or thorium content. Utah stated that the policy should include licensee documentation, using current RCRA testing procedures to demonstrate that a proposed feed material is not a RCRA waste. Utah further indicated that the policy did not adequately address the potential for sham disposal, because any licensee could "certify" that the primary purpose of processing material, once it was received, was to extract uranium. Wyoming indicated that the test must go beyond a licensee's declaration of intent and should address the actual economics of the transaction. Other commenters stated that financial arrangements in the acquisition of feed materials are not relevant. AMC stated that demonstrating

a known market and a willing purchaser for alternative feed is not always possible, but processing is still desirable and should not be considered "sham recycling." The Fuel Cycle Facilities Forum pointed out that some recyclers charge the suppliers of waste to take their material, and this is not sham recycling.

B3.3 Discussion and Response to Comments

"Sham disposal": As discussed in the Staff Analysis, the definition of 11e.(2) byproduct material requires that it be derived from ore processed primarily for its source material content. The determination discussed in Item 3 of the proposed guidance is to address that aspect of the definition. If ore is processed in a uranium mill primarily for its source material content, it is irrelevant whether the ore would have had to have been otherwise disposed of if it were not processed.

Co-disposal test: The NRC staff disagrees that the co-disposal test is redundant or only minimally helpful. The clearest way to show, beyond any doubt, that proposed feed material would be processed primarily for its source material content, is to show that it would be allowed to be disposed of in the tailings impoundment, in any case. Such a demonstration would dispel any accusation of "sham disposal." We agree that it may be cumbersome in some cases and that more detailed guidance would need to be provided to a licensee choosing to apply this test.

Licensee certification test: We agree that the determination of whether proposed feed material is RCRA waste should include demonstrations with documentation. Since Item 2 of the proposed guidance requires that licensee demonstration, the certification with respect to RCRA aspects has been deleted from Item 3. We agree that a licensee certification may not be sufficient to prevent sham disposal, but also agree that the economic aspects may not be able to differentiate between legitimate uranium processing and sham disposal. We therefore have expanded the test to require both a licensee certification and justification. The licensee justification can be based on financial considerations, on the high uranium content of the ore, or on any other grounds that the licensee determines will justify that the proposed processing is primarily for the uranium content of the material and is not sham disposal. The staff determination of whether the test is met will be made on a case-specific basis.

B3.4 Modifications to the Guidance

Item 3 of the guidance has been revised to eliminate licensee certification of RCRA aspects of the proposed feed material and expanded to include licensee justification that the proposed processing is primarily for the source material content of the feed material. The wording of the co-disposal test has been modified to cite the accompanying guidance on disposal of non-11e.(2) byproduct material rather than the 1988 guidance or the SECY document that presented the draft version of the accompanying guidance.

B4.0 Other Topics on Alternate Feed Material

B4.1 Commenters

Umetco Mineral Corp. (3-11)
Office of the Governor, State of Wyoming (11-2, 11-6)
Allied-Signal Inc. (12-1)

B4.2 Summary of Issues

Umetco Minerals indicated that the disposal of wastes from alternate feed material should be permitted on a case-by-case basis and not be subject to LLW Compact approval, while Wyoming stated that approval should be obtained.

Wyoming indicated that the guidance should further discuss post-closure ownership and should require advance commitment from DOE or the State to take title to the impoundment, for waste generated as a result of the processing of alternate feed materials.

Allied-Signal stated that the term "waste" should not be used in describing alternate feed materials, because of the negative connotation associated with that term.

B4.3 Discussion and Response to Comments

LLW Compact approval: LLW Compact approval is not required for disposal of waste, from processing alternate feed material, under the proposed guidance, since such wastes would not be LLW and thus not under the purview of Compacts. The purpose of the proposed guidance is to ensure that processing of alternate feed materials would only be permitted if the resulting wastes meet the definition of 11e.(2) byproduct material. Processing of feed material that would not result in 11e.(2) byproduct material would not be permitted, under the proposed guidance.

Prior commitment to take title: Prior commitment, by DOE or the State in which the tailings impoundment is located, to take title to a disposal site after closure, is not needed. The purpose of the proposed guidance is to ensure that processing of alternate feed materials would only be permitted if the resulting wastes meet the definition of 11e.(2) byproduct material. DOE (or another Federal agency designated by the President) is required, under Section 83 of the AEA, to take title to such a site.

Use of the term "waste": We agree that the term "waste" should not be used to describe alternate feed materials. If material can be used in accordance with the proposed guidance to recover source material, it is not waste. However, some material, from which source material could be recovered, would nevertheless meet the definition of hazardous or mixed waste, under EPA regulations. The proposed guidance would not allow such material to be processed in a licensed mill.

C1.0 Comments Applicable to Parts A and B

C1.1 Commenters

Utah Chapter Sierra Club (8-1)
Office of the Governor, State of Wyoming (11-4)
American Mining Congress (14-1, 14-3)
Utah Department of Environmental Quality (20-1, 21-1, 21-14)
John Darke (22-1)

C1.2 Summary of Issues

Two commenters expressed general views related to both of the guidance documents. The Utah Chapter Sierra Club opposed the use of tailings impoundments as disposal sites for materials imported from other locations. The commenter indicated that the problems found at existing sites should not be increased for the benefit of the mill owner. Utah indicated that rulemaking, rather than issuance of guidance, is the appropriate mechanism to institute the practices discussed in the proposed guidance documents.

John Darke questioned whether the guidance would apply only to future actions or would also be used to exonerate past actions. He also asked what written guidance, in each case, did the NRC use for reviewing and accepting license amendments for such disposal and processing activities.

There were several specific comments directed at both Part A and B of the FRN. Wyoming stated that the guidance should more clearly establish how material is to be characterized and should require independent testing and verification. AMC objected to the "definitional" approach to regulation of radioactive material and stated that NRC should develop broader and more flexible policies, to allow more material to be disposed in tailings impoundments.

Utah stated that DOE should sign off on any change in disposal practices at mills.

C1.3 Discussion and Response to Comments

Use of tailings impoundments: We disagree with the Sierra Club in that most tailings impoundments are excellent sites for disposal of high-volume, low-activity radioactive waste.

Rulemaking: The NRC staff does not consider the proposed guidance, with the possible exception of the definition of ore, to fall within the scope of rulemaking. The proposed guidance provides the staff with procedures for implementing existing regulations. As stated in the Staff Analysis accompanying Part B, the staff concluded that the time and resources required for a separate rulemaking on the definition of ore are not justified, but that the definition will be added when Part 40 is next revised.

Applicability of guidance: Although the guidance is intended to apply to future actions, it draws on, and revises, past and existing NRC policies and practices. Past NRC actions were taken under policies and practices in effect at the time they were taken.

Characterization of material: Both guidance documents require conclusions that are based on required characterization. The presentation of technical implementation criteria and other details related to characterization is beyond the scope of this guidance.

Scope of guidance: The guidance documents address disposal and processing of off site material. The basis for limiting the policy was discussed in the Staff Analyses. NRC must work within the existing legislative mandates and regulatory framework. The Staff Analysis in Part A of the FRN discusses the general position taken by NRC staff.

DOE approval: As noted in Section 6.2 of the Staff Analysis of Part A of the FRN, there was considerable discussion between NRC and DOE during the development of the proposed guidance for disposal of non-11e.(2) byproduct material. Additionally, Item 9 of the guidance has been revised to include a concurrence by the State or DOE, within 120 days.

Prior commitment, by DOE, to take title to a disposal site that has processed alternate feed material, is not needed. DOE (or another Federal agency designated by the President) is required, under Section 83 of the AEA, to take title to such a site.

NUCLEAR REGULATORY COMMISSION

Uranium Mill Facilities, Notice of Two Guidance Documents:
Final Revised Guidance on Disposal of Non-Atomic Energy Act of 1954,
Section 11e.(2) Byproduct Material in Tailings Impoundments;
Final Position and Guidance on the Use of Uranium Mill Feed
Materials Other Than Natural Ores

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of final guidance.

SUMMARY: The U.S. Nuclear Regulatory Commission has finalized two uranium mill licensing guidance documents after consideration of comments received in response to a request for public comment in a Federal Register notice published May 13, 1992 (57 FR 20525). Only minor changes were made to the proposed guidance documents titled, "Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments" and "Position and Guidance on the Use of Uranium Mill Feed Materials Other Than Natural Ores."

ADDRESSES: Copies of the comments and the NRC staff responses, as well as SECY-91-243, can be examined at the Commission's Public Document Room at 2120 L Street NW. (lower level), Washington DC.

FOR FURTHER INFORMATION CONTACT: Myron Fliegel, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555; telephone (301) 415-6629.

SUPPLEMENTARY INFORMATION:

Final Revised 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 (AEA) of 1954, Section 11e.(2) byproduct material [hereafter designated as "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 such material [hereafter designated as "non-11e.(2) byproduct material¹"] should also be done under 10 CFR Part 40.

2. Radioactive material not regulated under the AEA shall not be authorized for disposal in an 11e.(2) byproduct material impoundment.

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

3. 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 approval by the Commission should be prepared.

4. The 11e.(2) licensee must demonstrate that the material is not subject to applicable Resource Conservation and Recovery Act (RCRA) regulations or other U.S. Environmental Protection Agency (EPA) standards for hazardous or toxic wastes prior to disposal. To further ensure that RCRA impoundments, the 11e.(2) licensee also must demonstrate, for waste containing source material, as defined under the AEA, that the waste does not also contain material classified as hazardous waste according to 40 CFR Part 261. In addition, the licensee must demonstrate that the non-11e.(2) material does not contain material regulated under other Federal statutes, such as the Toxic Substances Control Act. Thus, source material physically mixed with other material, would require evaluation in accordance with 40 CFR Part 261, or 40 CFR Part 761. (These provisions would cover material such as: characteristically hazardous waste; listed hazardous waste; and polychlorinated biphenyls.) The demonstration and testing should follow accepted EPA regulations and protocols.

5. The 11e.(2) licensee must demonstrate that there are no Comprehensive Environmental Response, Compensation and Liability Act issues related to the disposal of the non-11e.(2) byproduct material.

6. The 11e.(2) licensee must demonstrate that there will be no significant environmental impact from disposing of this material.

7. 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.

8. 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.

9. The Department of Energy (DOE) and the State in which the tailings impoundment is located, should be informed of the 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.

10. 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 § 61.6, must be granted. (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 § 61.6 exemption should be supported with a staff analysis addressing the issues discussed in this guidance.

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

Staff reviewing licensee requests to process alternate feed material (material other than natural ore) in uranium mills should 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 must 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 §§ 261.30-33 of 40 CFR (or comparable RCRA authorized State regulations), it would be subject to EPA (or State) regulation under RCRA. To avoid the complexities of NRC/EPA dual regulation, such feed material will not be approved for processing at a licensed mill. 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 acceptance of such residues as feed material will depend on their not containing any hazardous or characteristic hazardous waste. Staff may consult with EPA (or the State) before making a determination of whether the feed material contains hazardous waste.

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. There is concern that wastes that would 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 it in the tailings pile as

11e.(2) byproduct material. In determining whether the proposed processing is primarily for the source-material content or for the disposal of waste, either of the following tests can be used:

a. Co-disposal test: Determine if the feed material would be approved for disposal in the tailings impoundment under the "Final Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments," or revisions or replacements to that guidance. If the material would be approved for disposal, it can be concluded that if a mill operator proposes to process it, the processing is primarily for the source-material content. The material would have to be physically and chemically similar to 11e.(2) byproduct material and not be subject to RCRA or other EPA hazardous-waste regulations, as discussed in the guidance.

b. Licensee certification and justification test: The licensee must certify under oath or affirmation that the feed material is to be processed primarily for the recovery of uranium and for no other primary purpose. The licensee must also justify, with reasonable documentation, the certification. The justification can be based on financial considerations, the high uranium content of the feed material, or other grounds. The determination that the proposed processing is primarily for the source material content must be made on a case-specific basis.

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, and that the primary purpose of its processing is for its source-material content, the request can be approved.

Dated at Rockville, Maryland, this ___th day of August 1995.
For the Nuclear Regulatory Commission.

Joseph J. Holonich, Chief
High-Level Waste and Uranium Recovery
Projects Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 19, 1998

MEMORANDUM TO: Joseph J. Holonich, Chief
Uranium Recovery Branch
Division of Waste Management, NMSS

FROM: Myron Fliegel 
Senior Project Manager
Uranium Recovery Branch
Division of Waste Management, NMSS

SUBJECT: DIFFERING PROFESSIONAL VIEW ON COMMISSION PAPER TITLED:
USE OF 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

Please find attached my Differing Professional View (DPV) on the subject Commission Paper. I request that the DPV be attached to the Commission Paper.

Attachment: DPV

November 19, 1998

DIFFERING PROFESSIONAL VIEW ON COMMISSION PAPER TITLED:
"USE OF 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"

Myron Fliegel
Senior Project Manager
Uranium Recovery Branch, DWM, NMSS

I have reviewed the Commission Paper that this Differing Professional View is attached to and I disagree with some of the conclusions and recommendations in that paper. Furthermore, I believe that the Commission Paper does not adequately document the history of these issues, including the considerable controversy involved and the resulting difficulty the staff and the Commission had in developing the current guidance. The guidance attempted to balance the desire to allow disposal of material other than 11e.(2) byproduct material and processing of alternate feed material with the legitimate concerns of all interested parties, including those outside the milling community.

Development of NRC Guidance documents

SECY-91-243, August 7, 1991, was the result of several years of staff effort to develop guidance on the issue of allowing the disposal of waste other than 11e.(2) byproduct material in tailings impoundments. In developing the guidance, the staff consulted and corresponded with the U.S. Department of Energy (DOE) over the course of several years to obtain its views on the acceptability of various types of wastes that could be disposed of in uranium tailings impoundments. The guidance proposed in SECY-91-243 was consistent with DOE's views, as documented in DOE letters dated November 16, 1990, December 24, 1990, and January 23, 1991. The guidance was developed in part because of the staffs' belief that it would be in the nation's interest to allow the use of mill tailings impoundments for the disposal of non-11e.(2) wastes.

The September 20, 1991 SRM required the staff to revise the guidance to 1) require explicit approval of low-level waste (LLW) Compacts, and 2) address the need for an exemption from Part 61. The Commission directed the staff to publish the revised guidance in the *Federal Register* for public comment. By memorandum dated October 24, 1991, the staff provided the Commission with its revised guidance and its proposed *Federal Register* notice.

Secy-91-347, October 25, 1991, requested Commission approval of proposed guidance to allow processing in a licensed mill of material other than natural ore. The December 3, 1991 SRM approved publishing the guidance for comment and directed the staff to prepare a single *Federal Register* notice containing both guidance documents.

By memorandum dated March 27, 1992, the staff transmitted its proposed *Federal Register* notice to the Commission. COMSECY-92-007, April 30, 1992, approved the *Federal Register* notice, with minor revisions. The guidance was published in the *Federal Register* on May 13,

1992. Twenty-four letters of comment were received on the guidance. In addition to comments from industry and environmental groups, comments were received from the Wyoming Governor's office, State agencies in Colorado, Texas, Utah, and Washington, and a U.S. Congressman.

The comments that were received varied significantly in the views expressed. Several commenters indicated that the guidance provided too much flexibility, while others believed it was too restrictive. Some commenters supported the guidance, while others thought it needed major modifications. The staff analyzed all the comments and revised the guidance. SECY-95-211, August 15, 1995 requested Commission approval of the revised guidance. The September 1, 1995 SRM approved the guidance, which was then published in the *Federal Register* on September 22, 1995.

One of the reasons for briefly summarizing the history of the non-11e.(2) byproduct material disposal and alternate feed material guidance documents is to emphasize the considerable effort that went into developing and finalizing the guidance. The issues involved are complex and the divergent views of all the interested parties need to be considered. I believe that before revising the guidance because of comments from one interest group, much more analysis of the issues and possible consequences of revisions, are needed. In the sections that follow, I have tried to identify some of the concerns and issues that need to be considered. A more thorough analysis than I was able to perform in the limited time available to me would likely identify more issues.

Excluded Material

The guidance on non-11e.(2) disposal precludes disposal of several categories of material, including material regulated under the Solid Waste Disposal Act, the Toxic Substance Control Act, and the Comprehensive Environmental Response, Compensation, and Liability Act, and radioactive material not regulated under the Atomic Energy Act (AEA) of 1954. The Commission Paper states that the basis for the prohibitions is the ability of the long-term custodian to accept the site upon license termination. The major concern identified is that of dual regulation of the site after license termination. The Commission Paper argues that NRC need not be concerned with allowing these materials into tailings impoundments, and the resulting dual regulation issues, if the long-term custodian will agree to accept the site. Since the guidance requires an acceptance by the long-term custodian, it is argued that the specific prohibitions are not needed.

There are, however, several problems with this approach:

- * DOE's position on acceptable material was documented in correspondence to NRC and the guidance was written to be consistent with that. DOE formulated its position after several years of consideration. Before considering revisions to the guidance, NRC should elicit DOE's views. However, it should be recognized that DOE will incur costs just to reconsider this issue. DOE staff involved in the earlier dialogues with NRC may no longer be available or may have to spend time to refamiliarize themselves with the issues. DOE staff that did not participate in that earlier dialogue would have to review the old material before beginning to reconsider the earlier DOE position. Once

appropriate DOE staff have familiarized themselves with the issues involved, the process of reconsidering the earlier DOE positions could be initiated. That process, leading to either new DOE positions or affirmation of previous positions, could involve considerable DOE effort. I therefore suggest that, before NRC even considers this approach, discussion with DOE be initiated.

- * If, after reconsidering the issue, DOE were to decide that it will continue to preclude material that could result in dual regulation, removing items 2, 4, and 5 from the NRC guidance would not help licensees. Instead of having to deal only with NRC on requests for disposal of non-11e.(2) material, licensees would also have to obtain approval from DOE. Furthermore, DOE would have to prepare its own guidance to its staff to deal with requests from NRC licensees.
- * The approach proposed in the Commission Paper puts a significant burden on DOE to review specific applications for disposal and determine if it will accept the material proposed. Even if DOE were to determine that it should continue to preclude the disposal of the types of material precluded in the current guidance, it would still have to review applications to ensure that the material proposed for disposal does not contain prohibited material. Under the current guidance, NRC performs that review, which is appropriate for a regulatory agency. The concurrence required under item 9 of the current guidance does not require DOE to perform a detailed review of licensee information. It is there for two reasons: 1) for NRC to ensure that the long-term custodian is aware of the specific non-11e.(2) disposal and agrees to accept the tailings impoundment after closure, and 2) to allow the long-term custodian the opportunity to reject the proposed disposal. The review that DOE would perform to provide that concurrence could rely on the NRC staff review and documentation and need not be at the level of detail of NRC's review.
- * Regardless of the long-term custodian's position on accepting a site subject to dual regulation, there are reasons why NRC should not accept such a situation if at all possible. One reason is that there is likely to be a need to expend additional NRC resources on a tailings site subject to dual regulation. Staff experience with tailings sites in Wyoming and Utah on issues related to ground water contamination and cleanup, which are subject to concurrent jurisdiction, is that considerable staff resources can be spent interacting with State agencies. It is unlikely that issues related to disposal of the materials proposed will involve less staff resources interacting with appropriate State and Federal agencies. Additionally, the Commission Paper acknowledges that NRC would have the additional burden of determining, with the help of the long-term custodian, what additional funds would need to be added to the long-term care fund for material regulated by others.
- * The potential for conflicts between requirements for 11e.(2) disposal and disposal of materials currently excluded by the guidance needs to be considered. The current guidance (in item 10) directs the staff to issue an exemption, under 10 CFR 61.6, to the requirements in Part 61 to preclude such conflicts between 11e.(2) byproduct material and LLW disposal requirements. Conflicts between regulatory requirements for 11e.(2) byproduct material disposal and other waste disposal, regulated by other agencies, may

not be so easily resolved. Furthermore, even if it were determined that there are no conflicts under current regulations, there is a potential for such conflicts in the future, as regulations are revised. As an example, a State could try to circumvent an NRC decision on a tailings site containing material not regulated by the Federal government, by writing or revising its regulations governing that material.

Approval by LLW Compacts

The guidance on non-11e.(2) disposal requires the licensee to obtain approval of the LLW Compact in whose jurisdiction the waste originates as well as the Compact in whose jurisdiction the disposal site is located. The Compact approval requirement was not originally proposed by the staff in SECY-91-243, but was added to the guidance at direction of the Commission. However, staff recognized that it was appropriate because of the legal status of the waste (i.e., as LLW) that the guidance would apply to.

Even if LLW Compacts are not currently functioning well, the legal status of the material has not changed, nor has jurisdiction been taken from the Compacts. Additionally, at a public meeting held in August 1998 in Denver, the Executive Director of the Rocky Mountain Low-Level Radioactive Waste Compact Board emphasized that Compact's jurisdiction with regard to LLW disposal and stated its strong support for the requirement, in the guidance, of LLW Compact approval.

Notwithstanding the industry's desire to avoid having to get Compact approval for disposal of LLW in tailings impoundments, the Commission may not have the legal authority to allow such disposals under current law. For these reasons, I conclude that the requirement for Compact approval should remain in the guidance.

Alternate Feed

In preparing the guidance on the use of alternate feed material, the staff was attempting to balance two potentially conflicting goals. On the one hand, the staff wanted to allow licensees the ability to process any material that had reasonably recoverable quantities of uranium. On the other hand, the staff realized the potential for abuse of a policy that allowed material that would otherwise have to be disposed of as radioactive waste and at considerable expense, to be processed for uranium, with the bulk of the material going into the tailings impoundment as 11e.(2) byproduct material. This potential abuse has been referred to as "sham disposal" or, probably more accurately, as "sham processing." As almost any earthen material will contain some uranium, if licensees were allowed to process any material "for its uranium" there would be no way to preclude what essentially could become a LLW disposal facility.

The staff guidance attempted to prevent sham processing in the following way. The definition of 11e.(2) byproduct material requires that the ore be processed "primarily for its source material content." Licensees would not engage in sham processing if the remaining wastes could not be disposed of in the tailings impoundment as 11e.(2) byproduct material. However, Part 40 does not contain a definition of "ore" as used in the definition of 11e.(2) byproduct material. The staff guidance therefore provided a very broad definition of ore that could be applied to virtually any material brought to a mill for processing. It attempted to prevent sham processing by

considering whether the material was being processed primarily for its source material content. The guidance identified two methods for a licensee to show that the processing was primarily for the source material content of the alternate feed material, thus allowing the waste to be disposed of in the tailings impoundment as 11e.(2) byproduct material. The licensee could propose either method.

The first method, the "Co-disposal test," essentially stated that if the material would be allowed to be directly disposed of in the tailings impoundment, then the licensee's request to process it for uranium was clear evidence, in and of itself, that the licensee was processing for the source material content.

The second method is the "Licensee certification and justification test." This method requires a certification under oath that the feed material is to be processed primarily for the recovery of uranium and documentation to justify the certification. The method of justification is left to the licensee and does not necessarily have to be based on financial considerations. In some instances, the justification can be relatively straightforward. For example, there have been some requests to process material with uranium concentrations of over 3 percent, with some of the material ranging up to 65 percent uranium. Natural ore that has been processed in American mills typically contained only a few tenths of a percent of uranium. The high uranium content of the material can be used to justify that the processing is primarily for the source material.

A justification, based on financial considerations can easily be made if the licensee pays for the alternate feed material. However, if the mill operator is to be paid to accept the material, if the material would otherwise have to be disposed of at considerable expense, and if the material contains only low concentrations of uranium, a legitimate concern is that the processing is being proposed to skirt LLW disposal requirements, i.e., it is sham processing. The justification requirement in the guidance forces the licensee to address this concern.

The Commission Paper recommends that the staff be allowed to remove considerations of economics currently in the guidance and that the Commission vacate the April 12, 1993 Presiding Officer's decision in LBP-93-7. As discussed above, the guidance does not require a financial test. What the Commission Paper apparently is attempting to do is to remove the requirement that a licensee justify that material proposed for processing is to be processed primarily for its source material. If the Commission removes the justification requirement it will, in effect, be sanctioning sham processing. I therefore recommend that the Commission direct the staff to retain the justification requirement in the guidance.

Proposed Resolution

Although I have presented a differing view on the industry's request to revise the two guidance documents discussed in the Commission Paper, it is my opinion that uranium mill tailings impoundments are excellent places to dispose of low activity radioactive material. Most of the staff involved in developing the guidance shared the view that it would be in the best interest of the nation to allow use of the excess disposal capacity in tailings impoundments for other radioactive earthen waste. In developing the guidance we tried to accomplish that objective. However, it became apparent to us that the conflicting laws, regulations, and jurisdictional

authorities of various programs prevented us from doing anything more than the current guidance allows. At that time we concluded that we could not allow other material to be disposed of in tailings impoundments nor simplify the process without new legislation. I continue to hold that view. However, the legislation that would be needed to allow disposal of a far greater variety of non-11e.(2) material in tailings impoundments need not be very complex nor lengthy. As an example, an addition to the AEA along the following lines may be all that is needed:

Earthen material and building and construction debris, including hazardous material that would otherwise be regulated under the Solid Waste Disposal Act, contaminated with radionuclides of the uranium or thorium decay chain and of comparable activity to that already in the tailings pile, can be disposed of at a licensed uranium mill tailings impoundment; provided that the requirements promulgated in conformance with Sec. 84 of the AEA are met. Material disposed of in uranium mill tailings impoundments under this provision shall be deemed to be byproduct material, as defined in Sec. 11e.(2) of the AEA.

Such legislation would allow NRC to approve disposal of much of the radiologically contaminated earthen material currently presenting disposal problems, without the need for approvals by DOE, Compacts, or States. Furthermore, the problem of dual regulation would be eliminated. Finally, the concern regarding licensee justification that alternate feed material will be processed primarily for its source material should be resolved, since most candidate feed material could be disposed of directly into the tailings pile, thus meeting the "co-disposal test."

I therefore suggest that NRC propose legislation, along the lines identified above, to address this problem. If Congress is indeed interested in solving this problem, the solution it is not very difficult.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

September 20, 1991

OFFICE OF THE
SECRETARY

MEMORANDUM FOR: James M. Taylor
Executive Director for Operations

Harold R. Denton, Director
Office of Governmental and Public Affairs

FROM: John C. Hoyle, Acting Secretary

SUBJECT: SECY-91-243 - DISPOSAL OF MATERIAL OTHER
THAN ATOMIC ENERGY ACT OF 1954, AS AMENDED,
SECTION 11e.(2) BYPRODUCT MATERIAL INTO
URANIUM MILL TAILINGS IMPOUNDMENTS

This is to advise you that the Commission (with all Commissioners agreeing) has approved the following actions in regard to the revised guidelines proposed in SECY-91-243:

One issue not addressed in the policy guidance is the role of the Regional LLW compacts. Inasmuch as the kind of material under consideration is within the purview of the States under the Low Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPA), the explicit approval of both the originating and the receiving Compact should be obtained if the waste is going anywhere but a designated Regional facility. Although this is not specifically a health and safety issue, it is an issue that could cause problems for the licensee and perhaps interfere with ultimate reclamation of the tailings. The policy should be revised to include a requirement that the licensee's submittal provide evidence of the Compact's approval of the proposed disposal.

In view of the fact that low-level waste containing source material is classified as Class A waste under 10 CFR Part 61, staff's conclusion that licensing the disposal of such material received from others under the mill operator's Part 40 license without justifying and granting an exemption from Part 61 needs to be explained. Specifically, the discussion in Section 6.4 of Enclosure 4 should be expanded to include the explanation. Because of the current sensitivity of this

SECY NOTE: DUE TO A PENDING DECISION RELATED TO THIS MATTER
IN THE STATE OF WASHINGTON, SECY WILL MAKE THIS
SRM AND SECY-91-243 PUBLICLY AVAILABLE WHEN THE
FINAL SRM IS ISSUED

issue and the importance of the precedent being set to the national low-level waste efforts, the Commission would like to see the explanation and modifications to Section 6.4 before publication.

After making the revisions indicated above and after Commission review of Section 6.4, the staff should publish the revised policy guidance and staff analysis in the Federal Register notice for public comment.

(EDO)

(SECY Suspense: 10/11/91)

The staff should seek the comments of the Agreement States and LLW compacts on the FRN once published.

After receiving public comment the staff should provide the Commission with an analysis of the comments and any recommended modifications to the guidance.

(EDO)

(SECY Suspense: 3/1/92)

cc: The Chairman
Commissioner Rogers
Commissioner Curtiss
Commissioner Remick
OGC
OIG
ACNW

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 material¹) 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

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

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.

Presiding Officer designated to adjudicate the controversy.²

I. BACKGROUND

On January 18, 1989, UMETCO submitted a license amendment application to perform plant processing tests on approximately 600 wet tons of feed material at the Mill. The stated purpose of the testing was to determine if UMETCO could economically process the material for its uranium content with tailings resulting from the process to be disposed in the Mill's impoundment. The feed material, obtained from the Teledyne Wah Chang Albany Company (TWCA), originated from the processing of ore to recover zirconium at TWCA's facilities in Albany, Oregon.³

Prior to the filing of UMETCO's application, the State of Utah, an Agreement State, had been consulting with NRC officials concerning the disposal of contaminated wastes in uranium mill tailings ponds at active mills, and had notified UMETCO of its apprehension.⁴ The State's major concern involves the possibility that UMETCO, instead of

²B. Paul Cotter, Chief Administrative Judge, ASLBP, Designation of Presiding Officer: (July 20, 1992); see also Presiding Officer, Memorandum and Order (August 5, 1992).

³UMETCO's application noted the 600 tons as being less than 10% of the source material still available from TWCA for processing. Hearing File, Attachment 1.

⁴Hearing File, Attachments 3 and 4.

pursuing its avowed purpose of reprocessing for uranium, is actually engaging in the disposal of low-level radioactive waste. Under its agreement, the State has regulatory jurisdiction over all low-level radioactive waste materials or other wastes going into such facilities.⁵

From January 1989 to April 1992, NRC Staff personnel at Region IV and Headquarters wrestled with UMETCO's license application and the policy questions raised by a State of Utah claim of possible jurisdiction over the material. The critical issue in the Staff's view was whether tailings resulting from UMETCO's processed material could qualify as byproduct material under Section 11e(2) of the Atomic Energy Act of 1954, as amended (AEA). See Hearing File, Attachment 8, at 2. In the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), the AEA was amended, adding a new category to the definition of byproduct material, to cover the tailings or wastes produced from ore processed primarily for its source material content.⁶ If the tailings from the

⁵Id., Attachment 2.

⁶Certain terms have important special meanings in the context of UMTRCA considerations:

"11e. The term byproduct material means ... (2) 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 term "source material" has two definitions under NRC regulations. Care must be taken not to confuse them. As defined in 10 C.F.R. § 40.4, "source material" means:

material in question here are byproduct material, NRC's jurisdiction is clear under the Atomic Energy Act and it could authorize the materials tailings to be placed in the mill's impoundment. To resolve any uncertainties, the Staff brought the matter before the Commission and issued new proposed licensing guidance for public comment.⁷

The Commission notified the Staff it had no objection to the UMETCO license amendment provided the amendment met the proposed guidance criteria. The Staff, determining the criteria had been met, issued the license amendment and authorized UMETCO's plant testing of the material.⁸ The State then filed its hearing request.

Pursuant to 10 C.F.R. § 2.1231, a hearing file has been made available by the Staff, a prehearing conference and site visit to view the White Mesa Mill facility and material

(1) Uranium or thorium, or any combination thereof, in any physical or chemical form or (2) ores which contain by weight one-twentieth of one percent (0.05%) or more of: (i) Uranium, (ii) thorium or (iii) any combination thereof. Source material does not include special nuclear material.

Thus, in this case, "source material" could mean both the ore (containing at least 0.05% uranium) from which UMETCO plans to extract uranium and the uranium itself. To avoid confusion, in this decision, the term "source material ore" means the former.

⁷Hearing File, Attachment 8, Taylor to Commission (April 16, 1992); 57 Fed. Reg. 20525, 20530 (May 13, 1992).

⁸Id., Attachment 9, Chilk to Taylor (May 13, 1992); Attachment 10, Hall to UMETCO (June 2, 1992).

was conducted by the Presiding Officer, and presentations by the parties have been timely filed.⁹

II. DISCUSSION

1. The State of Utah argues that a proper analysis of the feed material is fundamental to determine which governmental entity has regulatory jurisdiction. Asserting the State's regulatory control over solid or mixed waste as well as low level radioactive waste and naturally occurring radioactive material (NARM), Utah claims NRC only retains jurisdiction over the processing of source material ore. The Resource Conservation and Recovery Act (RCRA) places regulatory authority over solid waste (to include hazardous waste) in the Environmental Protection Agency (EPA).¹⁰ Hazardous waste is solid waste as defined by EPA in 40 C.F.R. Part 261, Subpart A, § 261.3. If hazardous waste, regulated by EPA, is mixed with radioactive waste regulated by the NRC, the combination would have to be disposed in a mixed waste facility. See 57 Fed. Reg. at 20532. However,

⁹Presiding Officer, Memorandum and Order, November 6, 1992. As the Staff notes (Staff Brief at 3), the Presiding Officer provided the State an opportunity of rebuttal to the other party presentations. This is an informal proceeding and the offer was intended to expedite the development of the record. The burden of proof was not changed thereby and neither the Staff or Licensee requested an opportunity for surrebuttal.

¹⁰The administration and enforcement of the RCRA program in Utah has been delegated by the EPA to the Utah Department of Environmental Quality. State Brief at 7.

specifically excluded from the definition of solid waste in RCRA is byproduct material as defined in Section 11e.(2) of the Atomic Energy Act of 1954, as amended.¹¹

The State argues that since it has jurisdiction over the processing of RCRA waste and the disposal of solid waste within its borders, NRC regulations should contain specific procedures and requirements to insure that any material received by NRC licensees is not hazardous.

The State also contends that the relevant parts of an alternative optional testing procedure in the new guidance, a Co-disposal test, should be included in NRC's license amendment decision.¹²

The State claims that by following its new guidance in granting the UMETCO license amendment, the NRC committed multiple errors in first, utilizing a new and unreasonably expansive definition of ore; second, by placing undue reliance on UMETCO's certification that the TWCA material contains no hazardous waste; and third, by accepting, without an independent review, UMETCO's certification that its primary purpose for receiving and processing the material was the recovery of uranium.¹³

In setting forth its new guidance, the NRC expanded the meaning of the term ore, as used in Section 11e.(2) of the

¹¹42 U.S.C.A. 6903(27).

¹²State Brief at 16.

¹³Id. at 11.

Atomic Energy Act of 1954, as amended. This was to permit, like the present case, feed material other than natural ore to be used by licensed mills to extract source material.

The State contends that, with the new definition, the NRC has broadened the class of materials considered as ore to such an unreasonable length that it does not conform to UMTRCA's mandate and policy. In support of its position, the State submitted a list of various definitions of "ore" compiled by the U.S. Bureau of Mines, none of which are compatible with NRC's definition.¹⁴

In order to qualify material as Section 11e.(2) byproduct material under the new guidance, a certification is required that the primary purpose for receiving the ore is the extraction of uranium.¹⁵ The NRC received such a certification from UMETCO. The State contends there is an obligation on the part of the Staff to look behind the required certification, where, as in circumstances such as here, UMETCO was being paid to receive the material and where the possibly unprofitable economics of processing for uranium raises questions concerning the factual objective of the transaction. The State submitted evidence to indicate that UMETCO faced difficulties in realizing any profit from

¹⁴State Brief at 19-21 and n.46.

¹⁵7 Fed. Reg. at 20511.

extracting uranium from the TWCA material; also that it may have benefitted TWCA financially to compensate UMETCO to receive the material rather than having to pay higher disposal costs for it as mixed or low level radioactive waste.¹⁶

Finally, it is the State's position that this transaction, based on NRC's new definition of ore, may jeopardize the ultimate transfer of the material to the Department of Energy (DOE). For the long term protection of the public's health, the Atomic Energy Act requires that, prior to license termination, land and byproduct material on it must be transferred to either the Department of Energy or the State where it is located.¹⁷

The State contends that a successful Court challenge to the Staff's new definition of byproduct material could result in DOE being relieved of the obligation to assume future long-term custody and title to the land and material involved here. In support of this concern, the State references commentary in the new guidance that portends some reluctance on the part of DOE to handle commingled materials.¹⁸ The State concludes by requesting license

¹⁶State Brief at 21-26.

¹⁷42 U.S.C.A. §§ 2113(a)(2), (b)(2).

¹⁸57 Fed. Reg. at 20528.

amendment changes to (1) require submittal of information on the transaction arrangements between UMETCO and TWCA and also economic processing information on uranium recovery from UMETCO so the NRC Staff can independently determine whether UMETCO's purpose was for uranium processing or waste disposal; (2) require UMETCO to develop protocols in its current processing to determine whether future materials it processes contain RCRA hazardous waste; and (3) require the Staff to follow its own procedures on consultation with the DOE that are set forth in its new guidance on the transfer of non-11e(2) byproduct material.¹⁹

2. In UMETCO's Brief, the Licensee informs that the process treatment sludge from TWCA has a grade of 0.18% uranium, a proportion comparing favorably with concentrations in other material processed at the White Mesa Mill. The Licensee further responds that its testing demonstrates that the material is not a hazardous waste.²⁰ Accordingly, in its view, the material does not come under EPA or the State of Utah's regulatory framework. Pursuant to NRC's Staff request, as previously indicated, the Licensee filed a certification that the material was not RCRA hazardous waste and that the primary purpose for processing the material was the recovery of uranium.²¹ The

¹⁹State Brief at 29-31.

²⁰UMETCO Brief at 4.

²¹Id. at 5.

Licensee also responded to an inquiry, from the Utah Solid and Hazardous Waste Control Board, that its non-hazardous waste determinations had been confirmed using a new EPA Toxicity Characteristic Leaching Procedure (TCLP) test method.²² The Licensee contends it has performed all required testing under appropriate EPA and RCRA protocols to prove the materials are not hazardous wastes.²³

UMETCO terms the State's argument misdirected in the latter's assertions that the NRC has to review the economic particulars of the TWCA-UMETCO transaction to determine whether the transfer is, in reality, a sham disposal. Without a regulatory requirement, in Licensee's view, this is a challenge to NRC's licensing guidelines. Citing Union of Concerned Scientists v. AEC, 499 F.2d 1069 (D.C. Cir. 1974), the Licensee contends the NRC hearing here is an inappropriate forum to challenge policies prescribed by Commission regulation.²⁴ UMETCO argues further that if serious evaluation were to be provided to the State's "economic" argument, EPA's regulatory considerations for determining sham recycling or disposal has more relevant criteria.²⁵ According to UMETCO, financial consideration is only one of six factors considered by EPA and then only

²²Id. at 6.

²³Id. at 17.

²⁴Id. at 7-10.

²⁵50 Fed. Reg. 614, 637-638 (January 4, 1985).

where the potential for sham disposal is high. In the Licensee's view, the UMETCO-TWCA transaction would have no difficulty passing muster using EPA's testing procedure.²⁶

In referring to the State's allegation that the new NRC definition of ore is too broad, the Licensee argues that this contention also basically challenges the regulatory guidance, and is improperly raised in the present forum. UMETCO also cites case authority in support of NRC's new definition of ore.²⁷

To the State's argument that UMETCO should be required to meet the Co-disposal test contained in the new guidance requirements for disposal of non-11e(2) byproduct materials, the Licensee alleges the TWCA material meets the "key substantive elements" of that test.²⁸

In responding to the State's call that the Staff require UMETCO to develop additional protocols for testing further shipments of TWCA waste, the Licensee states it has no basic objections in future amendments to the development of appropriate hazardous waste determination protocols.²⁹

Finally, the Licensee indicates the State also calls for different licensing guidance than is applicable here, in claiming there should be a license requirement to ensure

²⁶UMETCO Brief at 10-15.

²⁷Id. at 15-16.

²⁸Id.

²⁹Id. at 16-18.

that DOE will either take title to the material at issue, or as a minimum, follow the procedures outlined in NRC guidance for non-11e(2) byproduct material. UMETCO contends that the NRC has regulatory license control over the mill tailings and wastes in controversy and there is no evidence that the DOE would refuse to exercise its responsibilities under the law.²⁰

3. The Staff's Brief alleges that Utah's arguments fail to address four of the five issues admitted for adjudication in this proceeding and raises five new issues instead. In the Staff's view, "it appears that Utah no longer challenges the contents of the material on site, or the (license) amendment before the Presiding Officer." Although the Staff response addresses all the issues raised by the State, it submits the Utah brief should be rejected without further consideration. The Staff further points to Utah's neglect in not detailing deficiencies or omissions in the license application as required by 10 C.F.R. § 2.1233(c).²¹

In support of its licensing action, the Staff alleges that the material received by UMETCO, after testing and evaluation, was determined to be uranium ore and not hazardous or mixed waste. The Staff references evaluations or testing performed by the Oak Ridge National Laboratory,

²⁰Id. at 18-20.

²¹Staff Brief at 4-7.

UMETCO, TWCA, and the Oregon Department of Environmental Quality. Referring to Utah's request for safeguards in license amendments for TWCA materials in future shipments, the Staff indicates that consideration of those activities would have to meet the same standards but such issues are outside the jurisdiction of the present proceeding.²²

The Staff's brief provides a lengthy commentary on the Commission's proposed new guidance.²³ It states the guidance was developed to meet a clarification of the statutory definition of byproduct material, as enunciated in a Federal Court of Appeals decision. The clarification was necessitated by previous NRC definitions which categorized such materials according to their initial use rather than their mineral and chemical characteristics. The decision (Kerr-McGee v. U.S. Nuclear Regulatory Commission, 903 F.2d 1 (D.C. Cir. 1990)) held that in applying the definition of byproduct material in the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), the NRC provided too narrow an interpretation of ore processed primarily for its source material content. The Court held that NRC's action frustrated the purposes for which UMTRCA was enacted -- "to bring previously unregulated radioactive end products of ... source material extraction ... within the scope of NRC

²²Id. at 7-9.

²³57 Fed. Reg. 20525, et seq.

In connection with the jurisdictional issue raised by the State, the Staff asserts that even though delegation of regulatory control over some materials was made to Utah as an Agreement State, the NRC retained jurisdiction over the processing of source materials and Section 11e(2) byproduct material.³⁹ On Utah's claim that the NRC has an obligation to determine whether TWCA's purpose in shipping the material to UMETCO is waste disposal, the Staff responds that TWCA's motive is irrelevant and neither UMTRCA nor the Court in Kerr-McGee refer in any way to the intent of the supplier of ore material.⁴⁰

In responding to the State's argument concerning the potentially uncertain role of the DOE in this transaction, the Staff states there is no requirement in the law that DOE certify its willingness to take ultimate jurisdiction over the materials involved in this controversy. Since the material is Section 11e(2) byproduct material, unless the State retains custody, the DOE is obligated under UMTRCA to assume control of it.⁴¹ On the State's claim that the Staff should be required to use the Commission's guidance on disposal of non-Section 11e(2) waste material at NRC licensed tailing sites, the Staff replies the claim raises a

³⁹Staff Brief at 16.

⁴⁰Id. at 16-17.

⁴¹Id. at 17-18.

new issue, and no reasoning being supplied, the matter must be dismissed.⁴²

The Staff also argues it has no authority to review the economics of the TWCA-UMETCO transaction. The area is outside the zone of interests protected by the Atomic Energy Act according to the Staff, and economic concerns are not reviewed in license amendment applications. Consequently, this claim also requires dismissal.⁴³

4. In a response brief, the State claims (1) it has the right in this proceeding to challenge NRC's new guidance; (2) it had not raised issues outside the scope of the proceeding; and (3) the NRC's reliance on the guidance led to deficiencies and material omissions in the UMETCO license amendment.⁴⁴

The State contends the license amendment disputed herein was issued at a time when the new guidance was open procedurally for public comments. Accordingly, the guidance has not reached the status of a substantive rule and the Staff's actions based on it and the guidance itself are within the scope of the present proceeding.⁴⁵

The State alleges that the overriding issue raised in its request for hearings is whether UMETCO is engaged in

⁴²Id. 18-19.

⁴³Id. at 19.

⁴⁴State Brief at 1-11.

⁴⁵Id. at 1-4.

waste disposal or reprocessing. If engaged in waste disposal, the State, not the NRC, has jurisdiction. As a consequence, characterization of the materials and the jurisdiction issue are basic matters within the scope of the proceeding and the State's arguments are directed at either or both of those questions; these issues are also involved in ascertaining DOE's obligation to take title to the materials.⁴⁶

The State contends the new definition of "ore" in the guidance is too broad and therefore the NRC must analyze independently whether the material is waste material. Not having done so, the license amendment is deficient.⁴⁷

The State proclaims it is NRC's basic responsibility to determine whether UMETCO is engaging in reprocessing or waste disposal. And to rely on the Licensee's certification alone is an abdication of NRC's obligation to ascertain objectively whether the material is being received to avoid low level radioactive waste disposal requirements. The State contends the substance of the transaction can only be determined by reviewing related processing and economic information. And finally, the State reiterates that a mischaracterization of the materials by the NRC will place

⁴⁶Id. at 4-5.

⁴⁷Id. at 6-7.

in jeopardy DOE's legal responsibility for their long-term custody.⁴⁸

III. ANALYSIS

A. Legal Issues

A number of issues have been joined in this proceeding raising basic questions on the applicability of NRC's proposed guidance.⁴⁹ The major issues are first, whether the criteria that hazardous or mixed waste are not to be included in NRC's licensed 11e(2) byproduct material facilities are satisfied in this case; second, whether the Licensee's certification that feed material is to be processed primarily to recover source material is adequate to assure that waste disposal is not intended; and third, whether the proposed definition of ore, as used by the Staff in this case, is within the regulatory authority of the NRC. Prior to treatment of these issues, other controverted matters can be briefly resolved.

⁴⁸Id. at 7-11.

⁴⁹The Staff has noted at several points, that the Commission itself approved the issuance of this license amendment provided it met the guidance. See NRC Staff Brief at 20-21 and NRC Staff Response to Questions at 2. At the time of its approval (in the form of a "no objection"), the Commission did not have before it the particular arguments raised by the State of Utah in this proceeding.

(1) Minor Issues

UMETCO argues that much of the State's contentions are inappropriate in the present proceeding as they constitute a challenge to NRC's licensing guidelines. It is settled procedure, however, that guidelines, let alone proposed guidelines as involved here, are not protected from confrontation. Unlike regulations, they merely present acceptable methods of meeting regulatory requirements and are subject to questioning in adjudicatory hearings.⁵⁰

The Staff contends that no consideration should be provided the State's Brief since it fails to address most of the issues admitted for adjudication, raises new issues in its place, and neglects to detail deficiencies or omissions in the license application as required by 10 C.F.R. § 2.1233(c). Although propounded in an extended manner, the State basically raises questions in this proceeding on jurisdictional authority, claims of errors in NRC reliance on the new guidance with its expanded definition of ore, concerns about the responsibility of the Department of Energy to assume long-term custody of tailing ponds and byproduct materials, and proposals that the NRC obtain and evaluate Licensee's processing and economic information.⁵¹

⁵⁰Metropolitan Edison Company (Three Mile Island Nuclear Station, Unit No. 1), ALAB-698, 16 NRC 1290, 1299 (1982).

⁵¹State Brief at 6-26.

The discussion of these matters does in fact trace to the issues admitted in this proceeding.⁵² With respect to failure to detail deficiencies or omissions in the license application, as required by 10 C.F.R. § 2.1233(c), the Staff's concern is not well-founded. The State's case is directed at alleged deficiencies in NRC's processing and approval of the Licensee's application and not the application itself.⁵³

Both the Licensee and Staff argue a lack of merit in the State's claim that the license approval should contain some assurance that the Department of Energy (DOE) will take long-term custody and control of the UMETCO property. No statutory or regulatory requirement demands that Agency's prior concurrence, agreement or approval of impoundments of byproduct materials. The statutory responsibility of the DOE is clear once waste material or mill tailings comes within the NRC's license purview as byproduct material. A different view would be tantamount to an absurdity that agencies of the Federal Government should certify to the performance of their duties and intent to carry out the law. The Staff analysis in the proposed guidance, which discloses the uncertainty of DOE regarding its responsibilities for long-term custody, only refers to the disposal of non-11e(2)

⁵²Presiding Officer, Memorandum and Order at 2 (November 6, 1992).

⁵³State Brief at 30.

byproduct material.⁵⁴ No basis has been provided leading to a conclusion that DOE will not live up to its responsibilities concerning the disposition of byproduct material.

The Licensee and Staff each comment adversely on the State's claim that the Licensee should be required to develop protocols for future shipments of TWCA material.⁵⁵ Although UMETCO indicates it has no objection to future appropriately imposed requirements concerning hazardous waste determinations, the Staff's argument that the question has no place in the instant proceeding has merit. The issue here is the propriety of UMETCO's license amendment granted by the NRC.⁵⁶ Additional shipments of the TWCA material to UMETCO are not matters that can be considered for adjudication in this proceeding. If pursued, these only become subjects for future license amendment consideration.⁵⁷ Due to the substantive nature of this contention, however, a recommendation on it is included hereafter.

⁵⁴57 Fed. Reg. at 20528.

⁵⁵Staff Brief at 8-9; UMETCO Brief at 16-17.

⁵⁶Hearing File, Attachment 10.

⁵⁷Presiding Officer, Memorandum and Order at 2 (November 6, 1992); see also Prehearing Conference Transcript (Tr.) at 37 (October 29, 1992); see also Carolina Power and Light Company (Shearon Harris Nuclear Power Plant, Units 1, 2, 3 and 4), CLI-80-12, 11 NRC 514, 516-517 (1980).

The Staff indicates the State raises a new issue in suggesting that, for the TWCA material, the NRC use the co-disposal test in the proposed guidance procedures for disposal of non-Section 11e(2) wastes.⁵⁸ Although the State does not provide explanations for the "relevant portions" of the test that should be used, its proposal appears to relate again to the State's concern that DOE will ultimately refuse to accept custody of these materials.⁵⁹ The conclusions provided heretofore concerning DOE's acceptance of its statutory responsibility for byproduct material suffices to reject this issue as well. The State does not, except for the DOE issue, provide explanations to justify the application of other provisions of the Co-disposal test.

(2) (Major Issues)

1. The first major issue (which involves the jurisdiction question) is whether the evaluation of the TWCA materials demonstrates that hazardous or mixed waste are not included.

All parties in the case agree that uranium mill feed materials should not be mixed waste, i.e., a mixture of

⁵⁸Staff Brief at 18-19.

⁵⁹State Brief at 16 and 31.

hazardous chemical waste and radioactive material.⁶⁰ If the feed material is found to be mixed waste, the tailings resulting from the processing of that material for its source material content may be hazardous and subject the tailings to a complicated dual regulation by NRC and EPA.⁶¹

⁶⁰Hazardous waste means those wastes designated as hazardous by EPA regulations in 40 C.F.R. Part 261.

⁶¹Uranium Mill Facilities, Request for Public Comments on Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments and Position Guidance on the Use of Uranium Mill Feed Materials Other Than Natural Ores, 57 Fed. Reg. 20525, May 13, 1992 (Guidance).

The Staff's guidance for the use of feed materials other than natural ores has instructive background.

The Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA) amended the Atomic Energy Act (AEA) to specifically include uranium and thorium mill tailings and other wastes from the process as radioactive material to be licensed by NRC. Specifically, the definition of byproduct material was revised in Section 11e.(2) of the AEA to include "... the tailings or waste produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content."

The definition of byproduct material in Section 11e.(2) of the AEA includes all the wastes resulting from the milling process, not just the radioactive components. In addition, Title II of UMTRCA amended the AEA to explicitly exclude the requirements for the Environmental Protection Agency (EPA) to permit 11e.(2) byproduct material under the Resource Conservation and Recovery Act (RCRA). The designation of 11e.(2) byproduct material contrasts significantly with the situation for source material and other radioactive materials controlled under the authority of the AEA. This possibility for dual regulation by both the NRC and EPA can become an issue when dealing with mixed hazardous wastes.

And if the feed material is found to be a mixed waste, jurisdiction for regulating it falls with EPA. Thus if the material received by UMETCO is determined to be hazardous waste, EPA has jurisdiction.

As previously indicated, the EPA has delegated administration and enforcement of the Federal RCRA program to Utah.⁶² Accordingly, the State of Utah, under its authority from EPA for the handling of RCRA materials or under its agreement authority from the NRC for the disposal of low level radioactive waste, regulates mixed waste within the State.⁶³

In its request for a hearing, the State expressed a belief that UMETCO had not independently characterized the materials and was relying instead on an outdated RCRA test, conducted by TWCA in 1987, to verify the feed materials did not contain RCRA constituents.⁶⁴ The State complains that the NRC relied on Licensee certification under NRC's new

As a result of UMTRCA, NRC amended 10 C.F.R. Part 40 to regulate the uranium and thorium tailings and wastes from the milling process. Thus, under normal operation, all the tailings and wastes in an NRC or Agreement State licensed mill producing uranium or thorium are classified as "11e.(2) byproduct material" and are disposed of in tailings piles regulated under Part 40. They are not subject to EPA regulation under RCRA. 57 Fed. Reg. at 20531.

⁶²Supra, note 10.

⁶³Supra, note 5.

⁶⁴Supra, note 1.

guidance to determine that the TWCA material is not an RCRA mixed or hazardous waste.⁶⁵ The State does not offer evidence in its brief that it considers the 600 tons of TWCA material currently at UMETCO's White Mesa Mill to be a mixed waste. In contrast, UMETCO and the Staff offer convincing evidence that the TWCA material does not contain characteristic or listed hazardous waste subject to regulation under RCRA or the State. UMETCO submitted, in response to Staff requests during the license amendment review, an analysis by TWCA of the material existing in the V-2 pond located at the TWCA site. This analysis, performed in June 1987, established that on the basis of the then existing EP Toxicity Test, the material did not fail any of the tests. At that time, TWCA anticipated the now existing EPA protocol, the Toxicity Characteristic Leaching Procedure (TCLP), and tested six compounds found to be present in the TWCA material which were part of the TCLP. When these six compounds were tested, they were not found in the extract, thus confirming they would not be considered hazardous by the existing EPA TCLP rule. The 1987 tests performed by TWCA confirmed that the material is not ignitable, not corrosive, not reactive, does not exhibit characteristics of EP toxicity, and does not contain 40 C.F.R. Part 261 listed hazardous waste.⁶⁶

⁶⁵State Brief at 6, 7.

⁶⁶UMETCO Brief, Appendix at 4-23 (December 18, 1992).

In September 1989, the Oregon Department of Environmental Quality reviewed and concurred with the TWCA determination that the V-2 materials were not hazardous waste as defined by 40 C.F.R. Part 261 or the Oregon regulations.⁶⁷ Finally, in June 1992, UMETCO had the TWCA material currently on-site at the White Mesa Mill retested using the current EPA TCLP. The results of this test confirmed that RCRA materials are not present in concentrations close to regulatory limits and that the feed material is not considered a RCRA hazardous material.⁶⁸

In January 1989, the NRC conducted an unannounced radiation safety inspection at UMETCO White Mesa Mill. The NRC collected samples of the TWCA material on site and forwarded the samples for analysis to Oak Ridge National Laboratory. ORNL identified several hazardous constituents in the material, but did not classify the material as hazardous waste as defined by 40 C.F.R. Part 261.⁶⁹ On the basis of this inspection, the Staff requested the Licensee to verify that the identified hazardous constituents did not result in classifying the material as a hazardous waste as defined by EPA under 40 C.F.R. Part 261.⁷⁰ The licensee

⁶⁷Id., Appendix at 3.

⁶⁸Letter, R. A. Van Horn, UMETCO to Ramon E. Hall, Director, URFO, NRC (July 21, 1992).

⁶⁹Hearing File, Attachment 6, NRC Inspection Report 40-8681/89-01 (May 8, 1989).

⁷⁰Id., Attachment 5 (April 10, 1989).

submitted information to the Staff and the Staff found that the feed material met the criteria of the new draft guidance.⁷¹ A finding that the TWCA material was not hazardous, was later reconfirmed by the Oregon Department of Environmental Quality.⁷² On the basis of UMETCO's and the Staff's filings, it must be concluded that the feed material received from TWCA is not a mixed waste.

The NRC Staff reviewing the license (amendment) request has been given the new guidance, as previously mentioned, to determine if the feed material is mixed waste.⁷³ Under the guidance, proposed feed material would not be approved for processing at a licensed mill if the material were hazardous or mixed waste. The guidance requires the licensee to show that materials proposed for processing are not hazardous or mixed waste.⁷⁴ The guidance also provides the option for the licensee to certify under oath or affirmation that the feed material does not contain hazardous waste.⁷⁵

The State does not argue in this case that the material is hazardous.⁷⁶ The State claims that the license

⁷¹Id., Attachment 11, Memo to Docket File No. 40-8681, Pete J. Garcia (June 2, 1992).

⁷²Letter from William H. Dana, ODEQ to Ramon E. Hall, URFO, NRC (July 1, 1992).

⁷³57 Fed. Reg. at 20530.

⁷⁴Id.

⁷⁵Id. at 20531.

⁷⁶Utah Brief at 7-10.

certification that the material does not contain RCRA hazardous waste is inadequate and that the new guidance should contain relevant portions of the Co-disposal Test.⁷⁷ UMETCO believes, as indicated, that it has performed all the required testing under appropriate EPA RCRA protocols, and has demonstrated that the material is not an RCRA hazardous waste. Any testing requirements would be for future license amendments and are not appropriate for discussion in this proceeding.⁷⁸ Utah's concern with the NRC's basis for accepting the material seeks a requirement for the Staff to follow a different procedure in its review of amendment applications, thus challenging the Staff's review activities and future amendments.⁷⁹

It must be stated that the Staff's new guidance for determining whether feed material is a mixed waste appears confusing. Part B, paragraph 2 of the Guidance entitled "Determination of whether the feed material is Mixed Waste" states in part:

If the licensee can show that the proposed feed material would not be a hazardous or mixed waste, if not proposed for processing at the mill, this issue is resolved.^[80] (Emphasis added)

⁷⁷Id. at 15-17.

⁷⁸UMETCO Answer Brief at 16-17.

⁷⁹Staff Brief at 6.

⁸⁰57 Fed. Reg. at 20532.

It then goes on to enumerate certain specifics defining hazardous waste. However, paragraph 3 of the guidance entitled "Determination of whether the ore is being processed primarily for its source-material content," contains the following:

- b. Licensee Certification test. If the licensee certifies under oath or affirmation that the feed material:
(1) is being reclaimed or recycled in accordance with RCRA, or does not contain RCRA hazardous waste. . . .

The guidance, accordingly, appears to provide two approaches to assuring that the feed material does not contain hazardous constituents. Had the Staff not used its traditional approach to assuring compliance with its requirements, the use of only a certification without knowing the underlying basis to assure that the feed material was not a mixed waste may not have been adequate. As found above, however, in this case the NRC and the Licensee went beyond mere license certification to determine that the feed material was not a mixed waste.

Based on the information in the Hearing File reviewed above, it has to be concluded that the TWCA material on-site at the UMETCO White Mesa Mill does not possess the appropriate characteristics to be considered hazardous waste. Although the finding here must be that the feed material at the White Mesa Mill is not a "mixed waste," it is suggested that specific protocols in future UMETCO license amendments to determine if alternative feed

materials contain hazardous components might be reassuring.

2. The second basic consideration is whether certification, under oath or affirmation by the Licensee, that the feed material is to be processed primarily for the recovery of uranium and for no other primary purpose, is determinative on the issue that the process is not for the disposal of waste.

A fundamental argument of the State centers on a requirement in NRC's new guidance that a licensee certify its primary purpose in processing the feed materials to be the recovery of uranium. The State's argument focuses on the circumstances in this case wherein the Licensee mill processor or "buyer" is being paid to receive the material. It is the State's view, in the light of this circumstance, that where, as may be the case here, the market for uranium is depressed, costs of waste disposal are high, and the close proximity of competitive natural ore for processing uranium substantially would reduce transportation costs, an obligation rests on the NRC to do something other than merely accept Licensee's certification. And here, that other, the State contends, is to search the financial considerations and processing costs to determine the transaction's authentic purpose. In the State's view, a mere certification doesn't do it.⁸¹

⁸¹State Brief at 22-26.

The Staff's response, buttressed by case precedent, is that the financial reviews suggested by the State are outside the health and safety zone of interests protected by the Atomic Energy Act. No requirement exists in NRC regulations on uranium mill licenses for obtaining information on costs of purchase or processing of feed materials.⁸²

It is the Staff's position that profit arrangements in materials transactions are irrelevant to the licensing process as long as there is an affirmation that the primary purpose is to recover uranium.⁸³ The determination of whether ore is being processed primarily for its source material content, according to the Staff, is to be based solely on

the licensee's certification under oath or affirmation that the feed material . . . (2) is to be processed primarily for the recovery of uranium and for no other primary purpose.⁸⁴

No question has been raised that the Licensee in the instant case has not complied with these guidance prerequisites. The challenge is to an alleged inadequacy in those requirements to meet the circumstances of the present case.

The basis for the Staff's contention that economic and

⁸²Staff Brief at 19.

⁸³Staff Response to Questions from Presiding Officer at 4-5 (March 2, 1993).

⁸⁴Id. at 6.

processing considerations involved in the UMETCO materials acquisition are outside its purview is not relevant here. In the cases cited in the Staff's Brief, economic issues were rejected as matters for litigation since they are generally considered outside the health and safety domains which constitute the normal regulatory arena for the NRC. Here, however, the matter is one of casting light on the raison d'etre of the transaction itself. Without more substantive reasoning, the State's claim for having the transaction walls pierced cannot be easily dismissed. Reviewing some of the particulars of economic matters involved in license transactions is simply one means by which a licensee's intention for obtaining material can be determined. Arguably, this can become a valid area for questioning where a licensee is being paid to receive TWCA's processed waste tailings.

Although not required for a resolution in this case, the reasonableness of the State's proposed criteria against the standard used for this license amendment requires some consideration to determine whether a review of economic factors should be made part of NRC's guidance in a proper case. In the Staff's view, the certification provision "eliminates the need" for any other resort to the licensee's motives or intention concerning the proposed processing. Citing the Court's edict in Kerr-McGee, the Staff asserts that "tailings from ore substantially processed for source

material (is) Section 11e.(2) byproduct material".⁸⁵ (Emphasis added). However, this assertion appears to have an "after the fact" or retroactive aspect somewhat dissimilar to the prospective outlook contemplated by a certification. Apparently, the only means by which the genuineness of a licensee's intention can be tested is provided by the regulations concerning false statements which, in the Staff's view, would "be evident if uranium were not extracted or if the material were disposed without processing."⁸⁶ NRC regulations require that licensees maintain records of byproduct material, provide opportunities for inspections, and make records of such materials available to the NRC.⁸⁷ An opportunity, therefore, to retroactively police compliance with the certification requirement may be seemingly provided. However, neither the regulations nor guidance speak to reviewing any specific amount or quantities of uranium to be extracted. It appears credible under existing procedures, for mill operators, intent on disposing of waste material in mills tailings ponds, to merely process minimum extractions of uranium. Consequently, the question arises whether a certification, without more, would adequately protect against ulterior motives to dispose of waste.

⁸⁵Id.

⁸⁶Id.

⁸⁷10 C.F.R. §§ 40.61(a), 40.62(a)(b).

Having raised that possibility, however, it is unnecessary for a resolution of this case, that we need be concerned by such other considerations. UMETCO has requested and been granted an amendment to perform plant tests of the 600 wet tons of TWCA material on its premises in order to determine whether it can process the recovery of uranium economically. It is authorized to do that and nothing more. As the Staff testimony reflects, future shipments of material from TWCA in Oregon will be subject to the licensing amendment process.⁸⁸

It is not evident from the filings that the State's principal concern is focused on the specific license amendment involved in this proceeding -- that authorizing UMETCO to test the alternative feed materials. In early correspondence, the State cautioned UMETCO that, unless authorized by the NRC or the State, the Licensee was not to "continue to receive (TWCA) material in Utah." Emphasis supplied.⁸⁹ The State's principal interest appeared (and appears) to be the future shipments of TWCA materials from the State of Oregon. Its requests for relief can reasonably be construed as only directed at such future shipments:

- the test amendment should be used not only by UMETCO to plant test the TWCA material but also by the NRC to require submittal of data so that it can make an adequate determination about the TWCA

⁸⁸Tr. 37 (October 29, 1992).

⁸⁹Hearing File, Attachment 3.

material. The NRC will then be in a position to judge the merits of any future amendment requests by UMETCO to receive TWCA materials.^[90]

- condition the license amendment to UMETCO to include a requirement that UMETCO report arrangements it has with TWCA and that UMETCO supply processing information to the NRC so that the NRC may make a complete independent analysis of the facts surrounding the TWCA material instead of relying on an unrealistic definition of ore and license certification.^[91]
- NRC must use this process test amendment to have UMETCO develop protocols to determine whether any material it processes contain(s) RCRA hazardous waste.^[92] (Emphasis added).

None of the foregoing nor any other statement addresses the testing of the TWCA material located at UMETCO's mill. In requesting responses from the State suggesting specific wording for an unacceptable license amendment in this case, the Presiding Officer was advised the following would be adequate:

- A.
- B. Before the licensee may receive industrial process streams for secondary recovery of source material, the licensee shall: (1) Develop and receive approval from the NRC of a materials testing program; and (2) On a case-by case basis, receive approval from the NRC for receipt of such material where the NRC has concluded that the primary

⁹⁰State Brief at 2.

⁹¹Id. at 30.

⁹²Id.

purpose of processing is not waste disposal.

Here again, the State's concern appears to be the future shipments of TWCA material for processing instead of the testing operations approved by the NRC.⁹³

In evaluating UMETCO's request for the license amendment, the Staff complied with the Commission directive in determining that the License amendment met the guidance.⁹⁴ As of the issuance of this decision, the new guidance has not been approved or revised by the Commission and the circumstances herein may have some impact on its future formulation. In order to assure, prior to processing rather than after, that disposal of waste is not involved in the handling of previously processed ore, the Staff may want to consider some of the State's suggested criteria to assist in resolving uncertain or ambiguous cases.⁹⁵

In summary, although the circumstances of this particular transfer of materials raises legitimate questions for the NRC to consider in its review processes, it cannot be concluded that the issuance of the license amendment here was erroneously granted on the basis of a sham transaction. However, since there is no indication that the Staff intends

⁹³State of Utah's Answer to Questions at 1-2 (March 2, 1993).

⁹⁴Staff Requirements Memorandum (May 13, 1992); Letter, Hall to UMETCO (June 2, 1992).

⁹⁵See UMETCO Brief at 11-15.

to inspect the testing operations of UMETCO, during or after its commencement and to assure that UMETCO's testing operations are implemented to carry out their stated purpose, Staff inspections of UMETCO's testing procedures and operations should be implemented.

The conclusion to uphold the licensing amendment has been reached to this point on the merits of the testing that was carried out during NRC Staff review, and other tests not required by the agency's guidance. As indicated, the Licensee offered tests conducted by TWCA, the Oregon Department of Environmental Quality, and UMETCO itself as proof that the feedstock material did not contain hazardous waste. With this consideration eliminated, there is no further uneasiness that the issuance of the license amendment would impose dual regulation on the source material ore, or the tailings from the processing of that source material. This was a concern of Congress and the NRC during the passage of UMTRCA, and was one of the principal reasons for the issuance of the agency's guidance statement with regard to alternative feedstock.⁹⁶

3. The third fundamental issue is whether the new definition of ore in the proposed guidance, and as applied in this case, is beyond the regulatory authority of the NRC.

⁹⁶"To avoid the complexities of NRC/EPA dual regulation, such feed material [containing RCRA wastes] will not be approved for processing at a licensed mill." 57 Fed. Reg. at 20530.

This issue raises the question of whether the Staff acted reasonably in issuing a license amendment to test process alternative feedstock which does not include RCRA regulated wastes. Nothing is found in UMTRCA or the AEA expressly authorizing the NRC to do such, but again, the merits of the testing conducted on this material in this case finds no reason for excluding the issuance of a license amendment limited to the testing of the material and nothing more. The Staff went beyond the Licensee's certification that the TWCA material did not include hazardous or mixed waste before it issued the license amendment. The Staff not only conducted its own test through Oak Ridge National Laboratory on samples collected by NRC inspectors but required proof of a comparison of the concentrations of hazardous constituents in the source material with the normal tailings which are disposed at the site; required an assessment of the potential impact from disposal of the material on the site's ability to meet the requirements of Criterion 5 of Appendix A to 10 C.F.R. Part 40; and required an assessment of the health and industrial hygiene hazards associated with the possession and processing of the source material.⁹ These tests, although not challenged or examined in this hearing, are evidence that the Staff has analyzed the TWCA material in such a manner to demonstrate that the processing and introduction of the byproduct

⁹Hearing File, Attachment 5.

materials into the waste impoundment will do nothing to threaten the health and safety of the general public beyond that which is already allowable at the site under NRC licensing practices.

The NRC's "Guidance on the Use of Uranium Mill Feed Materials Other Than Natural Ores" was issued in May of 1992.⁹⁸ It was issued because the NRC had been receiving requests from licensed uranium mills to process feedstock that could not be considered natural ore. According to the guidance statement, "[u]ranium mills were designed and operated to process natural uranium bearing rock (ore).... There usually was no question of other feed material or what constituted ore."⁹⁹ However, with the advent of requests to process what is now called "alternative feedstock," and the Commission's decision to allow such material to be processed in licensed uranium mills, the Staff was faced with a new problem involving the NRC's interpretation of the term "byproduct material."

The wastes and tailings produced in a uranium mill processing uranium-bearing rock from nearby mines would meet the definition of 11e.(2) byproduct material. However, it is not obvious, from the definition alone, whether wastes produced from processing feed material that is something other than rock mine [sic] from the earth meets the definition of 11e.(2) material.¹⁰⁰

⁹⁸57 Fed. Reg. 20525 (May 13, 1992).

⁹⁹Id. at 20532.

¹⁰⁰Id.

For the purposes of regulation under the AEA, Section 11(e)(2) byproduct material is defined 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."¹⁰¹ Since current NRC regulations only recognize ore as being naturally occurring,¹⁰² the Staff chose to create a new definition of "ore" in order to facilitate the inclusion of the wastes and tailings from the processing of alternative feedstocks within the definition of 11(e)(2) byproduct material. The operative phrase which effectively includes the wastes and tailings from the processing of alternative feedstock within the definition of 11(e)(2) byproduct material is highlighted herein:

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.

The new definition of ore was made part of the agency's guidance statement, and, the Staff is directed to make a determination "of whether the feed material is ore" using the new definition.¹⁰³ It is with this definition that the State of Utah has taken exception.

In the process of making its case against the UMETCO license amendment, the State argues, correctly, that until

¹⁰¹42 U.S.C. § 2014(e)(2).

¹⁰²10 C.F.R. § 40.4 (1992).

¹⁰³57 Fed. Reg. at 20530.

the issuance of the guidance statement, ore was understood to be naturally occurring matter. When the Staff changed the definition of ore to include "any matter from which source material is extracted," the new definition apparently has no limits. According to the State, since the definition of ore underlies the scope of the statutory definition of 11(e)(2) byproduct material, "reliance on the draft guidance definition of ore has created a different and broader definition of 11(e)(2) byproduct material than [that found in the Atomic Energy Act]."¹⁰⁴

To treat 11(e)(2) byproduct material expansively for the purpose of determining whether certain radioactive wastes should be subject to UMTRA's (sic) remedial requirements is an entirely different inquiry to that involving the TWCA material. The issue the State is challenging is the breadth of the materials that may be used for processing to create 11(e)(2) byproduct material.

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 The question here is whether the NRC should develop an expanded definition of 11(e)(2) byproduct material so as to expand the nuclear fuels cycle to include materials like the TWCA material [¹⁰⁵]

A major thrust of the Staff's legal justification for its definition of ore comes from the Kerr-McGee decision interpreting those portions of the legislative history of UMTRCA which dealt with the change in the definition of

¹⁰⁴State Brief at 12.

¹⁰⁵Id. at 13-15.

byproduct material.¹⁰⁶ According to the Staff's analysis of this case, "[a]s explained by the Court in Kerr-McGee, . . . (UMTRCA) is to be construed to define 'ore' as any material used for the production of source material regardless of prior processing of the material."¹⁰⁷ If this was the conclusion actually reached by the Court, it would appear that the Staff's position is supported in law. And indeed, some of the language from that case appears to fit perfectly.

However, a review of the legislative history of the UMTRCA and the Kerr-McGee decision raises doubts that the Kerr-McGee decision provides as strong an endorsement of the Staff's position. This conclusion is based on several factors: First, at the time of the passage of the UMTRCA, Congress was addressing the regulation of the end products of uranium processing and it never faced the issue of alternative feedstocks entering the nuclear fuel cycle. As the Staff indicates, uranium processing had been

¹⁰⁶It is important to note the factual similarities between the Kerr-McGee case and the case at bar. Both the Kerr-McGee and TWCA feedstocks contain[ed] at least 0.05% uranium or thorium and both are "source material" as that term is defined by NRC regulation. Also, both feedstocks had been milled previously for the extraction of elements other than source material. Indeed, the "orphaned" feedstock in the Kerr-McGee case fits the Staff's description of alternative feedstock, or ore as that term is defined in the agency's guidance statement.

¹⁰⁷Staff Response to Questions from the Presiding Officer at 2 (March 2, 1993), citing NRC Staff's Brief and Evidence on Issues Raised by the State of Utah at 9-12 (January 6, 1993).

traditionally concerned with natural ores until recent requests were made to process alternative feedstocks.¹⁰⁸ The statements made in the legislative history of the passage of the UMTRCA were not made with this narrow issue in mind and they cannot be said to demonstrate Congressional intent.¹⁰⁹ It is therefore difficult to rationalize that the Kerr-McGee Court construed the UMTRCA to define ore as any material used for the production of source material regardless of prior processing of the material.¹¹⁰

Second, the Kerr-McGee Court's statements concerning ore are arguably dicta.¹¹¹ Moreover, the Court's example from Section 101 of UMTRCA that "implicitly" finds the Kerr-McGee processed ore to be ore as that term is defined in byproduct material is difficult to understand and does not

¹⁰⁸57 Fed. Reg. at 20532.

¹⁰⁹Chevron v. NRDG, 467 U.S. 837, 862 (1984, citing Jewell Ridge Coal Corp. v. Mine Workers, 325 U.S. 161, 168-169 (1945)).

¹¹⁰At the time of UMTRCA's passage, Congress never faced the issue of feedstocks containing hazardous waste. Congress did not want dual regulation of wastes and mill tailings, and it seems unlikely that it wanted dual regulation of feedstock ores. See colloquy between Congressman Dingell and NRC Chairman Hendrie as set forth in Kerr-McGee, 903 F.2d at 6. The Staff indicates its definition of ore can include hazardous waste. See Staff Response to Questions from the Presiding Officer at 3. It is reasonable to expect Congress to be precise in defining critical jurisdictional terms going to the very power of an agency to regulate, such as it did when it removed byproduct material from RCRA regulation. See, e.g., ACLU v. FCC, 823 F.2d 1554, 1567 n.32 (D.C. Cir. 1987).

¹¹¹903 F.2d at 7.

provide strong guidance when Section 101 is read in its full context. That provision makes reference to subparagraph (A)(ii) which does not seem to provide support for the Staff's justification. Nor does the Court do any analysis to demonstrate that the provisions it cites even apply to the Kerr-McGee feedstock in question.

Finally, the factual surroundings of the Kerr-McGee case obscure the extent of the reach of the opinion. All of the Kerr-McGee material had been processed for its source material by the time the case reached the Court. The Court was addressing NRC's refusal to take regulatory control over a portion of the material even though it was the clear intent of the UMTRCA for NRC to have regulatory control over all wastes and mill tailings from the processing of source material ore. This raises the specter of a different conclusion if some of the material, like the TWCA material in this case, had not already been processed for its source material content.

Regardless of the Staff's reliance on the Kerr-McGee decision, however, we do not have to reach the question of whether or not its definition of ore will survive critical legal analysis.

In reviewing this case, a less complicated process under the Atomic Energy Act can be utilized to support the issuance of a license to test (or even process) alternative feedstock containing source material. As the Courts have

said, "The Commission's licensing decisions are generally entitled to the highest judicial deference because of the unusually broad authority that Congress delegated to the agency under the Atomic Energy Act."¹¹²

The Atomic Energy Act of 1954 is hallmarked by the amount of discretion granted the Commission in working to achieve the statute's ends. The Act's regulatory scheme "is virucally unique in the degree to which broad responsibility is reposed in the administering agency, free of close prescription in its charter as to how it shall proceed in achieving the statutory objective."^[113]

There are broad statutory objectives enumerated in the Atomic Energy Act and they include references to processing of source material ore, the regulation of atomic energy and facilities used in connection therewith in the national interest, and programs to institute these Congressional goals.¹¹⁴

It does not appear necessary, therefore, for the Staff to rely on a new definition of "ore" so that the tailings from the extraction of source material from alternative feedstock can fit within the meaning of "byproduct

¹¹²Commonwealth of Massachusetts v. NRC, 924 F.2d 311 (D.C. Cir. 1991), citing Carstens v. NRC, 742 F.2d 1546, 1551 (D.C. Cir. 1984), cert. denied 471 U.S. 1136, 105 S. Ct. 2675, 86 L. Ed. 2d 694 (1985).

¹¹³Public Service Company of New Hampshire v. NRC, 582 F.2d 77, 82 (1st Cir. 1978), quoting Siegal v. AEC, 400 F.2d 778, 783 (D.C. Cir. 1968), cert. denied 439 U.S. 1046, 99 S. Ct. 721, 58 L. Ed. 2d 705 (1978).

¹¹⁴42 U.S.C. 2012, 2013. See also 42 U.S.C. 2201(b), setting forth the Commission's general authority.

material." The NRC can instead press on with its obligation to regulate source material ore as it has for nearly 40 years.¹¹⁵ As long as the Staff, on a case-by-case basis, has addressed Congress's aversion to dual regulation by denying the processing of RCRA regulated materials and has made a finding of reasonable assurance that the material will not threaten the health and safety of the public, there appears no reason not to regulate alternative feedstocks any more than naturally occurring ores.¹¹⁶

IV. CONCLUSIONS OF LAW

Although substantial questions have been raised herein in those provisions of the proposed guidance relating to the certification of waste, the certification of a primary purpose and the definition of ore, no fundamental impediment has been found to negate the Staff's action. On the basis of the Staff findings that the material is not hazardous and the NRC's inherent authority to regulate the processing of

¹¹⁵Moreover, "source material" is defined as "ores which contain by weight one-twentieth of one percent (0.05%) or more of: (i) Uranium, (ii) thorium, or (iii) any combination thereof." See 10 C.F.R. § 40.4. Since the TWCA material has been found to contain at least 0.05% uranium by weight, it would appear that it is already defined as "ore" under this definition.

¹¹⁶As noted before, the AEA does not define ore. However, this has not hampered NRC regulation of feedstock ores used in the processing of source material. There appears to be no legal requirement for creating a new definition of ore for alternative feedstocks or a new category of ores just because they are previously processed.

source material under the Atomic Energy Act, the issuance of the license amendment can be supported herein.

It is the Presiding Officer's opinion that this controversy was capable of being settled, but efforts of the parties to this end were unavailing.¹¹⁷ There is nothing revealed in the record of this proceeding to indicate that the Licensee intends to dispose of the material sitting at its White Mesa Mill as waste material, that such material is hazardous or that the material does not contain uranium that will be tested to see if it can be processed for economic recovery.

Here, the Staff went beyond the guidance requirements, conducted its own test of the materials and obtained from the Licensee comparisons of the concentrations of hazardous constituents in the source material with the normal tailings disposed at the site. It also required assessments of the impacts from the proposed activity to meet Criterion 5 of Appendix A to 10 C.F.R. Part 40 and the health and industrial hygiene hazards associated with the source material. These tests demonstrate that the proposed testing and impoundment will not threaten the public health and safety beyond what was already allowable at the site under NRC licensing practices. The testing of the existing

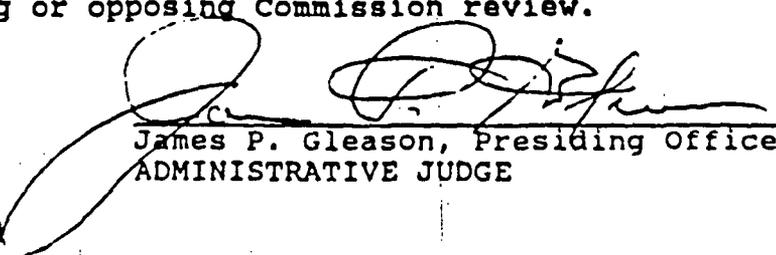
¹¹⁷Staff Response to Questions from Presiding Officer at 7-8.

material is permitted and any additional processing requires subsequent NRC authority.

V. ORDER

On the basis of the presentations and evidence submitted, and in consideration of the opinions and conclusions set forth herein, it is ORDERED that,

1. The issuance of Amendment No. 30 to UMETCO License SUA-1358 is sustained.
2. Staff inspections, of UMETCO's testing procedures and operations authorized by the amendment, should be implemented.
3. In accordance with 10 C.F.R. § 2.1251, this Initial Decision will constitute the final action of the Commission within thirty (30) days after the date of issuance, unless any party petitions for Commission review in accordance with 10 C.F.R. § 2.786, or the Commission takes review sua sponte. Any other party to the proceeding may file within ten (10) days after service of a petition for review, an answer supporting or opposing Commission review.


James P. Gleason, Presiding Officer
ADMINISTRATIVE JUDGE

Bethesda, Maryland
April 12, 1993

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of

UMETCO MINERALS CORPORATION

(Source Materials License
No. SUA-1358)

Docket No.(s) 40-8681-MLA

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing LB INITIAL DECISION (LBP-93-7) have been served upon the following persons by U.S. mail, first class, except as otherwise noted and in accordance with the requirements of 10 CFR Sec. 2.712.

Office of Commission Appellate
Adjudication
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Administrative Judge
James P. Gleason
Presiding Officer
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Administrative Judge
Thomas D. Murphy
Special Assistant
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Salt Lake City, UT 84114

Docket No.(s)40-8681-MLA
LB INITIAL DECISION (LBP-93-7)

Denise Chancellor
Assistant Attorney General
4120 State Office Building
4th Floor, P. O. Box 140811
Salt Lake City, UT 84114

Dated at Rockville, Md. this
12 day of April 1993

Kris Carter
Office of the Secretary of the Commission

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before Administrative Judges:
Peter B. Bloch, Presiding Officer
Richard F. Cole, Special Assistant

In the matter of

INTERNATIONAL URANIUM (USA)
CORPORATION

(Receipt of Material from
Tonawanda, New York)

Docket No. 40-8681-MLA-4

Re: Material License Amendment

ASLBP No. 98-748-03-MLA

INITIAL DECISION
(Denying the Relief Requested by the State of Utah)

The State of Utah's Written Presentation pursuant to 10 C.F.R. § 2.1233 is titled, "Brief in Opposition to International Uranium (USA) Corporation's Source Material License Amendment," December 7, 1998 (Brief). This Brief and the responses to it¹ form the basis for the determination of whether the State's concerns should be sustained or dismissed.

The license amendment Utah complains of, Amendment 6, allows the International Uranium (USA) Corporation (IUSA) to process as an alternate feedstock at its Mill certain uranium-bearing material from the Ashland 2 site located in Tonawanda, New York. The

¹The International Uranium (USA) Corporation's (IUSA) Reply was filed on January 19, 1999 and the Staff of the U.S. Nuclear Regulatory Commission's (Staff) Reply was filed on January 29, 1999.

Ashland 2 site is administered by the Army Corps of Engineers ("USACE") under the Department of Energy's ("DOE's") Formerly Utilized Sites Remedial Action Program (FUSRAP).²

The State's principal argument is that the Amendment does not comply with Commission Guidance because the material is not byproduct material and must therefore be disposed of at an appropriate facility rather than being subject to "sham disposal." It maintains that "11e.(2) byproduct material requires that the ore be 'processed **** primarily for its source material content' and thus would not permit . . . sham disposals." [Emphasis in original.] Brief at 4-5, citing Proposed Position and Guidance on the Use of Uranium Mill Feed Material Other Than Natural Ores, 57 Fed. Reg. 20,525, 20,533 (1992)("Proposed Guidance").

I conclude that the State misconstrues the Atomic Energy Act, which defines as byproduct materials "the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content." Atomic Energy Act of 1954 as amended, 42 U.S.C. § 2014e(2).

The State interprets "processed primarily for" to require a test of motive or purpose. It argues that the International Uranium (IUC) Corporation (IUSA) is processing this material primarily for the fee it is being paid for *receiving* the material and it attempts to show that the

² The FUSRAP program was established by the Atomic Energy Commission ("AEC") in 1974, to clean up and control radioactive contamination at sites associated with activities that were previously carried out on behalf of the Manhattan Engineering District, it succeeds the AEC and other related entities during the early days of the nation's nuclear program. See generally U.S. Department of Energy, *The Formerly Utilized Sites Remedial Action Program (FUSRAP): Building Stakeholder Partnerships to Achieve Effective Cleanup*, DOE/EM-0233 (April 1995).

fee exceeds the amount of money that will be recovered by extracting uranium from the material.

While the State's argument has some superficial appeal, the phrase "processed primarily for its source material content" should be given its natural meaning. The adverb "primarily" modifies the verb, "processed." Therefore, ore is processed primarily for its source material content when the the extraction of source material is the principal reason for *processing* the ore. Under those circumstances, the material falls within the NRC's jurisdiction over the uranium fuel cycle.³ Accordingly, when the extraction of uranium is the principal reason that ore is processed, it meets the test of this section and is byproduct material.⁴ If, on the other hand, the material were processed primarily to remove some other substances (vanadium, titanium, coal, etc.) and the extraction of uranium was incidental, then the processing would not fall within the statutory test and it would not be byproduct material within the meaning of the Atomic Energy Act. That is, the adverb, "primarily," applies to what is removed from the material by the process and not to the motivation for undertaking the process.

This reading is consistent with the Uranium Mill Tailings Radiation and Control Act of 1978, as amended (UMTRCA), 42 U.S.C. § 7901, 2.(b)(2), which states that a purpose of that Act is

³See Chairman Hendrie's remarks on page 3, below.

⁴There are two reasons to remove uranium: the value of the material that is removed and the reduced expense of disposing of the material. Ordinarily, material processed at a nuclear fuel cycle facility would be considered to be processed primarily to remove uranium.

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.

Moreover, the legislative history of the definition of byproduct material incorporated into Section 11e.(2) of the Atomic Energy Act shows that it was intended to focus on the nuclear fuel cycle. NRC Chairman, Joseph M. Hendrie, testified:

[T]he intent of the language is to keep NRC's regulatory authority primarily in the field of the nuclear fuel cycle. Not to extend this out into such things as phosphate mining and perhaps even limestone mining, which are operations that do disturb the radium-bearing crust of the Earth and produce some exposures, but those activities are not connected with the nuclear fuel cycle. . . .

Uranium Mill Tailings Radiation Control Act of 1978 Hearings at 343-44.

This definition of byproduct material reaches a sound practical result in this case. The State of Utah describes the transaction in this case, on pp. 6-8 of its brief, as follows:

The Ashland 2 material is located on a U. S. Army Corps of Engineer's ("USACE" or "Corps") Formerly Utilized Site Remedial Action Program ("FUSRAP") site at Tonawanda, New York. ICF Kaiser is the Corps' prime contractor for the cleanup of the FUSRAP Tonawanda site. As discussed in Mr. Herbert's Testimony, the State obtained a copy of ICF Kaiser's request, price analysis, and summary of waste disposal alternatives submitted to the Corps in support of the award of a contract to IUSA "for material handling and disposal services" for the Ashland 2 material. See Exhibit 3 attached to Mr. Herbert's testimony.⁵ According to ICF Kaiser's Price Analysis, ICF Kaiser conducted a market survey to "determine the firms who regularly provide material handling and waste disposal services." All the firms

⁵The State has independently obtained a copy of the signed contract between IUSA and ICF Kaiser. IUSA has asserted to the State that this contract should be treated as confidential. As the information in the contract is not inconsistent with the information that ICF Kaiser presented to the Corps, the State will forego, for now, introducing the IUSA-ICF Kaiser contract into evidence in this proceeding. However, IUSA has itself disclosed contract cost information to NRC in the Ashland 2 license amendment request. See attachment 3 thereto (USACE Value Engineering Proposal for Ashland 1 and Ashland 2).

identified, with the exception of IUSA, are permitted as waste disposal facilities (*i.e.*, Envirocare, EnviroSAFE, Laidlaw, and Waste Control Specialists).

Under the contract, ICF Kaiser will pay transportation costs to deliver the Ashland 2 material to the White Mesa mill. IUSA will collect a material handling and disposal fee of \$90/cubic yard of Ashland 2 material received at the mill. IUSA initially estimated that the Ashland 2 material would contain a maximum of 25,000 dry tons. However, IUSA has now informed the State that the amount of Ashland 2 material it will receive will be as much as 45,000 cubic yards. Herbert Testimony at 6. Based on this latest estimate of the amount of material IUSA will receive, the material handling and disposal fees total \$4,050,000. Herbert Testimony at 9. Additionally, Mr. Herbert used the current market price of yellowcake and various estimates of Ashland 2's uranium concentration to calculate possible value of uranium that could be processed from the Ashland 2 material. Without waste-specific density data, Mr. Herbert used the assumption that the density of the Ashland 2 material ranges from 80 to 100 lbs/cubic foot. Herbert Testimony at 6.

The range of potential uranium values, based on weight percent of uranium-238 listed in Tonawanda FUSRAP documents, is as follows:

<u>Value</u>	<u>Density</u>	<u>Uranium Content</u>
\$ 68,040	80 lbs/cubic foot	0.008 percent
\$ 85,050	100 lbs/cubic foot	0.008 percent
\$221,130	80 lbs/cubic foot	0.026 percent
\$276,413	100 lbs/cubic foot	0.026 percent
\$493,290	80 lbs/cubic foot	0.058 percent
\$616,613	100 lbs/cubic foot	0.058 percent

Herbert Testimony at 8. Thus, the gross value from uranium extraction--which does not take into account the costs of extracting the material--ranges from \$68,000 to a little more than \$600,000 depending on the actual density of the material and its total uranium content. Id.

I conclude that the scenario presented by the State of Utah is a good practical argument for *permitting* the milling of uranium contained in the Ashland 2 materials. First, IUSA produced the lowest bid for recycling these materials. Why? As the State of Utah has explained, IUSA would remove some uranium from the materials and would make at least a small profit on that activity. Second, from an environmental standpoint, it is preferable to

extract uranium before burying waste materials that contained it. Third, even the State of Utah projects a net profit from the milling activity. Hence, it is reasonable to predict that the milling will actually occur. Since the milling will occur, it is not a "sham" as the State has argued. It is real.⁶

Here is the way that IUSA expressed this same point on page 55 of its Reply:

IUSA will be recycling substantial quantities of a valuable material. As already discussed, even based on the conservative numbers calculated by the State, IUSA is likely to recover between 8,000 to 70,000 pounds of uranium from its processing of the Ashland 2 material. In all likelihood, if IUSA were not processing the Ashland 2 material this substantial quantity of valuable uranium would be lost to disposal. Recovering and recycling such a substantial quantity of valuable uranium is an important benefit, and provides an additional justification for IUSA's certification.⁷ This was perceived to be a benefit by USACE, the agency administering remediation of the Ashland 2 site, which is one of the reasons why IUSA was chosen by USACE and committed contractually to process the Ashland 2 materials for the recovery of uranium;⁸

⁶It seems to me that the only "sham" that stops material from being byproduct material is if it is not actually milled. If it is milled, then it is not a sham.

⁷Indeed, as EPA has noted, recycling can be legitimate and beneficial even if it is not profitable. *See generally*, 63 Fed. Reg. at 28,556.

⁸ Thus, in its value engineering proposal for disposition of the Ashland 2 material, the USACE specifically listed among the advantages associated with IUSA's processing of the material:

ADVANTAGES

1. Conforms to Congressional and regulatory mandates which encourage use of recycling.
2. Reduces radioactivity of the material to be disposed of.
3. Recycles uranium and other minerals.

...

7. Actual cost savings for treatment and disposal versus cost of direct disposal can only be greater than projected in this proposal, depending upon the actual content of recoverable

Second, by recovering uranium from the Ashland 2 material, IUSA's processing makes the material less radioactive, thereby reducing the hazards associated with its ultimate disposition and, in effect, making it safer for disposal. This was also perceived to be a benefit by the USACE and hence is another reason that IUSA was chosen to and contractually committed to process the Ashland 2 materials for the recovery of uranium;

Third, recycling the Ashland 2 material provides a benefit to the government, and therefore to the public at large, by allowing the FUSRAP program to reduce its inventories of unwanted materials and accomplish environment clean-up in a manner that is environmentally sound, that is cost efficient, and that allows for the recovery of a valuable product that would otherwise be disposed;

Fourth, the Ashland 2 materials are 11e.(2) byproduct materials that originated from conventional ores and are therefore chemically, radiologically and physically similar to the existing Mill tailings and should be expected to be able to be processed for the recovery of uranium at the Mill; and,

Finally, IUSA has a history of successfully extracting uranium from alternate feed materials and has developed credibility with the NRC, not only for being technically competent, but also for fulfilling its proposals to recover uranium from alternate feeds.

The Alternate Feed Guidance is not supportive of the position, taken by the State of Utah, that material is to be considered byproduct only if the primary economic motivation is to remove uranium rather than to dispose of waste. For example, on page 4 of its brief, the State quotes the following out of context:

the potential of converting material that would have to be disposed of as [Low Level Radioactive Waste ("LLW")] or mixed waste into ore, for processing and disposal as 11e.(2) byproduct material. The possibility of converting such wastes to 11e.(2) byproduct material can be very attractive to owners of such material. . . . An owner of such material could pay a mill operator substantially less to process it for its uranium content and dispose of the resulting 11e.(2) byproduct material than to dispose of the material as waste at an appropriate facility.

Proposed Position and Guidance on the Use of Uranium Mill Feed Material Other Than

uranium or other minerals found in the waste stream.

See USACE, Value Engineering Proposal, Proposal No. C-11, originally included with IUSA's license amendment application, by letter from Michelle R. Rehmann to Joseph J. Holonich (May 8, 1998). [See IUSA Response at Exhibit 7.]

Natural Ores, 57 Fed. Reg. 20,525, 20,533 (1992) ("Alternate Feed Guidance").

I find the interpretation of the State of Utah to be misleading because this same Alternate Feed Guidance, at pp. 20,532-3, makes it clear that if source material is extracted from a material at a licensed uranium mill, then the material is considered to be "ore," providing that it does not contain hazardous waste⁹ and that it is processed so that a useable product, uranium, is extracted from it. Accordingly, I conclude that IUSA meets the requirements of statute and guidance. It is not involved in a sham. It is milling ore and its license was appropriately granted to it.¹⁰

ORDER

For all the foregoing reasons and upon consideration of the entire record in this matter, it is this 9th day of February, 1999, ORDERED, that:

1. The relief requested by the State of Utah in its December 7, 1998 "Brief in Opposition to International Uranium (USA) Corporation's Source Material License Amendment" is *denied*.

⁹The State of Utah has satisfied itself that the Ashland 2 material does not contain hazardous waste. Utah Brief at 3. The adequacy of the Staff's safety review is irrelevant. *University of Missouri*, CLI-95-1, 41 NRC at 121.

¹⁰The State has failed to show any material respect in which the Staff's environmental review of this license amendment was deficient. The assertion that the State's regulations may be more stringent than the NRC's does not demonstrate the inadequacy of the environmental review.

2. This decision is reviewable under 10 C.F.R. §2.1253, pursuant to the procedures set forth in 10 C.F.R. § § 2.786 and 2.763. The petition for review must be filed within 15 days of the service of this decision..

Peter B. Bloch, Administrative Judge
Presiding Officer

Rockville, Maryland



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 15, 1999

MEMORANDUM TO: Carl J. Paperiello, Director
Office of Nuclear Material Safety
and Safeguards

FROM: C. William Reamer, Chairman
Differing Professional View Panel

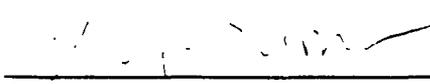
SUBJECT: DIFFERING PROFESSIONAL VIEW

In response to your November 30, 1998, memorandum on this subject, I hereby forward to you the attached report of an ad hoc panel convened to review the Differing Professional View on "Use of Mill Tailings Impoundments for Disposal of Waste other than 11e.(2) Byproduct Material and Reviews of Applications to Process Material other than Natural Uranium Ores."

Attachment: Ad Hoc Panel Report on DPV

cc: M. Fliegel
J. Greeves
J. Holonich
K. Stablein

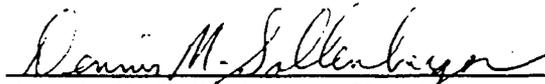
REPORT OF AN AD HOC PANEL
CONVENED TO REVIEW THE DIFFERING PROFESSIONAL VIEW ON
"USE OF MILL TAILINGS IMPOUNDMENTS FOR DISPOSAL OF WASTE
OTHER THAN 11e.(2) BYPRODUCT MATERIAL AND
REVIEWS OF APPLICATIONS TO PROCESS MATERIAL
OTHER THAN NATURAL URANIUM ORES"



C. William Reamer, Chairman



Paul H. Lohaus, Member



Dennis M. Sollenberger, Member

Date: January 15, 1999

REPORT OF AN AD HOC PANEL
CONVENED TO REVIEW THE DIFFERING PROFESSIONAL VIEW ON
"USE OF MILL TAILINGS IMPOUNDMENTS FOR DISPOSAL OF WASTE
OTHER THAN 11e.(2) BYPRODUCT MATERIAL AND
REVIEWS OF APPLICATIONS TO PROCESS MATERIAL
OTHER THAN NATURAL URANIUM ORES"

I. Introduction and Summary

This is the report of an ad hoc panel, established under Nuclear Regulatory Commission (NRC) Management Directive 10.159,¹ to review the Differing Professional View (DPV) entitled "Use of 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" (Appendix A). Under the Management Directive, the panel is to review the differing view in the DPV and the prevailing NRC staff view, and to make recommendations to NRC management.

The prevailing staff view is embodied in an NRC staff draft Commission paper² which would modify two NRC guidance documents issued in 1995.³ First, the draft Commission paper would modify NRC guidance on use of uranium mill tailings impoundments for disposal of "non-11e.(2) material," that is, material that is not byproduct material under Section 11e.(2) of the Atomic Energy Act. This modification addresses claims that existing NRC guidance is overly restrictive because its exclusion of material subject to dual regulation by another Federal or State regulatory agency essentially precludes disposal of non-11e.(2) material in tailings impoundments. Second, the draft Commission paper proposes modification of NRC guidance on licensee requests to use uranium mills to process "alternate feed material," that is, material other than natural uranium ore, to recover source material. This second modification addresses claims that NRC exceeded its statutory authority by including an economic analysis in existing NRC guidance to show that alternate feed is being processed primarily for the recovery of uranium and for no other primary purpose. The NRC guidance reflects a concern that the

¹ NRC Manual Directive 10.159, "Differing Professional Views or Opinions" (April 10, 1997). See Appendix A.

² The NRC staff draft Commission paper is entitled "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." The panel reviewed various versions of the draft Commission paper. The panel provided copies of the drafts it reviewed to the submitter of the DPV. The latest version is attached as Appendix C.

³ The two guidance documents are "Final Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments" and "Final Position and Guidance on the Use of Uranium Mill Feed Material other than Natural Ores" (60 FR 49296). See Appendix C, Attachment (1).

uranium mill not be used to process matter for the purpose of converting its classification to byproduct material.⁴

The DPV sets forth a differing view on each guidance modification proposed in the draft Commission paper. First, the DPV contends that disposal of non-11e.(2) material involves complex considerations of "dual regulation," not adequately discussed in the draft Commission paper, and resolvable only by enactment of new legislation. The DPV predicts that dual regulation will thwart any beneficial effects of modified NRC guidance, by creating regulatory uncertainties that prevent disposal of non-11e.(2) material, or by burdening the NRC staff with the role of resolving conflicting regulatory requirements to avoid impeding reclamation of impoundments or termination of licenses. Second, the DPV asserts that the draft Commission paper is unclear on how it proposes to change the existing NRC guidance on alternate feed. This lack of clarity, according to the DPV, obscures how the modified guidance addresses the concern that matter not be brought into the uranium mill for the purpose of qualifying it for disposal in the tailings pile.

This report contains the results of the panel's review of the DPV. Part II summarizes the establishment of the panel, its activities and the information it reviewed. Part III contains a discussion of the issues raised by the DPV and the panel's conclusions on those issues. The panel's recommendations are set forth in Part IV.

II. Background

By memorandum dated November 30, 1998, Carl J. Paperiello, Director of the Office of Nuclear Material Safety and Safeguards, initiated establishment of the ad hoc review panel to review the DPV (Appendix A). The memorandum appointed William Reamer, Acting Chief, Engineering & Geosciences Branch, Division of Waste Management, and Paul Lohaus, Deputy Director, Office of State Programs, respectively, as chair and panel member. A third panel member, Dennis Sollenberger, Office of State Programs, was selected by the panel chairman on December 11, 1998, from a list of candidates proposed by the submitter of the DPV (Appendix B). The memorandum requested the panel to complete its review and provide recommendations to the Director.⁵

In accordance with the Director's memorandum, the panel reviewed the DPV as well as the NRC staff draft Commission paper on which the DPV is based. The draft Commission paper

⁴ Natural ore or other matter processed in the mill primarily for its source material content becomes byproduct material suitable for disposal in the tailings impoundment. Ore or matter processed in the mill for some purpose other than primarily for its source material content is not byproduct material.

⁵ The DPV process is governed by Management Directive 10.159, "Differing Professional Views or Opinions." Once members are selected, the panel is to review the DPV within 7 calendar days to determine whether additional information is needed for the review. Once the panel receives the necessary information, it is to complete its review and make its recommendations within 30 calendar days.

contains eight attachments which the panel also reviewed [Appendix C, Attachments (1)-(8)]. The panel also reviewed relevant excerpts from an industry White Paper (Appendix D).⁶ The panel interviewed the submitter of the DPV on January 7, 1999 at which time the submitter provided additional information in support of the DPV (Appendix E).⁷ The panel also interviewed the Acting Deputy Director, Division of Waste Management. At no time during its review did the panel identify an immediate or significant health and safety concern requiring the immediate attention of NRC management.

III. Discussion

A. Disposal of Non-11e.(2) Material

The draft NRC staff Commission paper, the industry White Paper, and the DPV are in general agreement that mill tailings impoundments could reasonably be used for disposal of other material. Impoundments are used for disposal of 11e.(2) byproduct material. They could also be used for disposal of other, non-11e.(2) material that is physically, chemically and radiologically similar to 11e.(2) material, without adverse environmental or human health and safety impacts.⁸

⁶ Recommendations for a Coordinated Approach to Regulating the Uranium Recovery Industry: A White Paper Presented by the National Mining Association. See Appendix D.

⁷ The interview addressed whether the panel correctly understood the DPV concerns, whether any of the concerns had been eliminated or new DPV concerns raised by the redrafting of the Commission paper, panel questions on the DPV, and any additional information the panel needed or the submitter desired to provide in support of the DPV. The material provided to the panel during the interview is entitled "Notes for DPV Meeting, Non-11e.2 and Alternate Feed Commission Paper." See Appendix E.

⁸ The industry White Paper (pp. 133-35) (Appendix D) offers several examples of waste streams that involve non-11e.(2) material physically, chemically and radiologically similar to 11e.(2) byproduct material and that might, therefore, be disposed of in mill tailings impoundments. They include:

- Secondary process wastes from *side-stream* recovery of uranium not regarded as 11e.(2) material because they result from ores not processed primarily for their source material.
- Sludges or residues from treatment of mine water containing source material.
- Naturally occurring radioactive material (NORM), such as contaminated resins from Class IX well-water purification or construction scrap.
- Other high-volume, low-level radioactive waste that is physically, chemically and radiologically similar to mill tailings (e.g., contaminated soils and rubble).

Significantly, however, the non-11e.(2) material might be subject to regulation by EPA or the States under the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the Toxic Substance Control Act (TSCA) or other Federal or State regulatory statutes. Material subject to regulation by EPA or States under statutes other than the Atomic Energy Act is not authorized for disposal in mill tailings impoundments under the existing NRC Final Guidance (referred to hereafter as the "Final Guidance").⁹ The exclusion of such material is not based on health and safety considerations.¹⁰ Rather, the Final Guidance reflects a concern that disposal of the material could subject the entire mill tailings impoundment to potentially duplicative or conflicting regulatory requirements.¹¹

Nonetheless, the draft Commission paper, industry White Paper and the DPV generally agree that disposal of non-11e.(2) material in tailings impoundments should be permitted.¹² Disagreement arises, however, over what legal or policy changes are needed to address the potential for dual regulation of the impoundment.

⁹ Final Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments, Criteria 2, 4 and 5. See Appendix C, Attachment (2).

¹⁰ The draft Commission paper (p. 3) indicates that "[t]he 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." See Appendix C.

¹¹ For example, if non-11e.(2) material contains RCRA hazardous waste, the entire impoundment could be subject to EPA regulation under RCRA. Similarly, a jurisdictional overlap might occur if the non-11e.(2) material contains NORM subject to State regulation. Disposal of non-11e.(2) material in the impoundment could impede license termination and transfer of custody to DOE which is not under any UMTRCA duty to accept such custody. (DOE has the authority -- but not the duty -- to accept custody of a low-level waste (LLW) disposal site under section 151(b) of the Nuclear Waste Policy Act.) It might lead to a licensee having to make changes to an NRC-approved final tailings stabilization and remediation plan to meet State requirements that differed from NRC requirements in 10 CFR Part 40. In addition, the draft Commission paper indicates that dual State regulation might create problems for DOE (or the State agency) tasked with the long-term surveillance and care of the stabilized and remediated tailings impoundment on license termination. The draft Commission paper (p. 3), however, does not identify the type of problems that might arise.

¹² The Commission's Staff Requirements Memorandum (SRM) on DSI-9, "Decommissioning -- Non-Reactor Facilities," supports development of regulatory frameworks for lower cost decommissioning waste disposal (Option 7). See Appendix C, Attachment (2). By permitting use of mill tailings impoundments for disposal of other materials that are similar to 11e.(2) byproduct material and produced by decommissioning activities, DSI-9 would arguably be furthered.

The Final Guidance implicitly considers dual regulation a problem that should be avoided, even if it means foregoing the potential benefits of using impoundments for disposal of other material. As noted, the Final Guidance would not permit the staff to approve a disposal that subjects the impoundment to dual regulation, even if DOE, the likely long-term custodian of the impoundment, agrees to accept dual regulation. The industry White Paper considers the Final Guidance to be overly restrictive because its exclusion of material subject to dual regulation essentially precludes use of impoundments for disposal of non-11e.(2) material.¹³

The draft Commission paper, on the other hand, in recommending revisions to the Final Guidance, would permit disposal of material subject to dual regulation, provided all other participants agree.¹⁴ This arguably 180-degree change of position, on paper, would permit use of tailings impoundments for disposal of other material. However, the DPV points out that it is unclear whether the revised guidance will, in fact, work. In particular, the DPV argues that:

- DOE might decide to continue to preclude disposal of material that could result in dual regulation of the impoundment, thereby continuing the status quo and eliminating any benefit from NRC's permitting the disposal.
- The NRC staff should engage in prior consultation with DOE before proposing the revised guidance. (The DPV contends the revised guidance burdens DOE with the need to prepare its own guidance and conduct its own review for each specific application to dispose of other material and determine whether to accept it.)
- Licensees would be faced with the added burden of obtaining a separate approval of any disposal of other material from DOE (and possibly others).

The DPV also questions the draft Commission paper's apparent premise that dual regulation is acceptable if all other participants agree. Specifically, even if DOE were to agree to accept the site, the DPV asserts that NRC should remain concerned with allowing non-11e.(2) materials into the pile because:

- New burdens on the NRC staff will result from the separate, dual regulation of the tailings pile by EPA or the State (e.g., the burdens of additional interactions with the State on issues related to the disposal and of determining necessary additions to the long-term care fund).

¹³ The draft Commission paper (p. 8) indicates no applications for disposal of non-11e.(2) material have ever been received from licensees under the Final Guidance.

¹⁴ Criterion 4 of the staff's revised guidance [Appendix C, Attachment (7)] provides that disposal of other material would be approved by NRC if the long-term custodian (most likely, DOE) agrees to accept the impoundment with the other material in it. Further, disposal in the impoundment may require approval of EPA or the State exercising regulatory authority under other statutes.

- Adequate consideration has not been given to addressing potential conflicts between NRC disposal requirements for 11e.(2) disposals and EPA or State disposal requirements (both existing and future regulations) for disposals of other materials (e.g., the DPV notes a State might try to circumvent an NRC decision by revising State requirements).
- A criterion should be retained for obtaining LLW compact commission approvals because they are either legally required or are otherwise appropriate.

According to the DPV, the only viable approach to allow disposal of non-11e.(2) material is enactment of new legislation, eliminating the need for approvals by DOE, EPA, the compacts or the States and also eliminating dual regulation. The DPV thus adheres to the implicit consideration underlying the Final Guidance, that avoidance of dual regulation outweighs the potential benefits of using impoundments for disposal of other material.

The industry White Paper, while criticizing the Final Guidance as too restrictive, supports and encourages NRC efforts to address dual regulation through possible legislation and State/interagency agreements [i.e., Memorandums of Understanding (MOUs)] with co-regulators. The White Paper, in encouraging cooperative efforts to make progress, asserts that concerns about inconsistent requirements from dual regulation under CERCLA and RCRA should be resolvable because 11e.(2) disposal sites are already regulated under 10 CFR Part 40, Appendix A, which incorporates RCRA standards for non-radiological hazards. The industry White Paper suggests the following considerations:

- NRC should be able to enter into MOUs with EPA, DOE, and States to resolve duplicative jurisdictional concerns that result from disposing of *mixed* wastes in tailings impoundments.
- DOE has the authority (but not the duty), under section 151(b) of the Nuclear Waste Policy Act (NWPA), to accept custody of non-11e.(2) material under conditions comparable to those that would be met for tailings disposal sites transferred to DOE.
- NRC should consider MOUs with State agencies to satisfy dual regulation concerns for disposal of NORM.
- NRC can issue a generic exemption under Part 61 in lieu of the current case-by-case consideration.

B. Panel Conclusions on Disposal of Non-11e.(2) Material

With respect to the DPV concern that revisions of the Final Guidance should not be considered before consultation with DOE, the panel believes both the DPV and the draft Commission paper have merit.

- The DPV is correct that DOE needs to be consulted, inasmuch as DOE will need to agree to accept material that could result in dual regulation, in order for the

revised NRC guidance to have its intended beneficial result with respect to use of mill tailings impoundments for non-11e.(2) material.

- The draft Commission paper acknowledges DOE's potential concern about perpetual dual regulation by EPA (or a State) and NRC, and it indicates staff will consult with DOE before proposing to modify and publish revised guidance for comment; this should give DOE the opportunity to be informed of possible guidance revisions and NRC the opportunity to consider DOE comments in guidance revisions.
- In light of the Commission's interest (as reflected in DSI-9) and the fact that industry has raised related concerns directly with the Commission, the staff reasonably concluded it should consult with the Commission, first, on its planned approach, before consulting with DOE.
- The DPV is correct that DOE's disagreement would prevent NRC approval of a licensee's request to dispose of non-11e.(2) material and could thereby lead to continuation of the status quo on use of mill tailings impoundments, notwithstanding publication of revised guidance, thus depriving the staff's revised guidance of much of its intended effect.
- Therefore, the panel believes that, at the conclusion of consultations with DOE, the NRC staff should inform the Commission of DOE's position on the staff revisions to the guidance and, in particular, DOE's willingness to accept a site that could be subject to dual regulation.

With respect to the DPV concern that revisions of the Final Guidance could inappropriately burden DOE and licensees if DOE, after reconsidering the issue, decides to preclude disposal of material that could result in dual regulation, the panel does not want to prejudge the outcome of NRC's consultation with DOE.

- The panel agrees that the revised guidance -- by increasing the number of requests to put non-11e.(2) material into the impoundment -- would increase the level of effort required of licensees and other government agencies, respectively, to prepare and approve such requests.
- The panel notes that if DOE indicates it will not accept sites subject to dual regulation, and if the NRC thereafter proceeds to issue the revised guidance, DOE (and licensees) could be burdened by DOE's need to do a case-by-case evaluation of requests to dispose of non-11e.(2) material.
- In part because the draft Commission paper lacks a strategy for addressing dual regulation or mitigating its effects, the panel is uncertain whether the paper's recommended approach can achieve the desired results -- i.e., successfully

address use of mill tailings impoundments for disposal of other material. However, the draft Commission paper appears to recognize this uncertainty.¹⁵

- By proposing to publish guidance revisions for comment, the draft Commission paper offers a reasonable process for learning and subsequently addressing whether the revisions could inappropriately burden licensees by, for example, insisting they obtain a separate DOE approval before disposal of non-11e.(2) material.

With respect to the DPV concern that revisions to the Final Guidance will create new and unacceptable burdens for the NRC staff (i.e., the burdens of dual regulation including additional interactions with the State on issues related to the disposal and of determining necessary additions to the long-term care fund), the panel disagrees.

- The DPV does not give an adequate basis to conclude that any new burdens on the staff are unacceptable.
- The draft Commission paper acknowledges that additional NRC staff burden may result. (The panel notes the draft Commission paper does not provide detail or estimate the magnitude of the burden.)
- The draft Commission paper describes a "model" experience in which DOE and the licensee, with little NRC involvement, worked to resolve issues related to disposal of 11e.(2) material contaminated with PCBs regulated under TSCA. The panel is uncertain whether this experience is a valid model for disposal of non-

¹⁵ In discussing Option 2 to modify NRC guidance to allow disposal, the draft Commission paper (p. 5) includes the following statement:

As a result, the potential for non-11e.(2) byproduct material to be disposed of in mill tailings impoundments could be increased depending on the willingness of licensee and the long-term custodian to accept dual or multiple regulation. (Emphasis added).

The DPV (Appendix E) faults the staff's discussion of Option 2 (i.e. the preferred option) for failing to explain the possible ramifications and giving superficial discussion to complex issues. The panel believes the draft Commission paper and its attachments, extensively documenting the prolonged history of this issue, contain the necessary explanation and discussion.

11e.(2) material.¹⁶ Nonetheless, staff's proposal to consult with DOE and publish revised guidance for comment should help to air this issue.

With regard to the DPV concern that the draft Commission paper does not adequately consider how to address potential conflicts between NRC disposal requirements for 11e.(2) disposals and EPA or State disposal requirements (both existing and future regulations) for disposals of non-11e.(2) materials, the panel agrees.

- The draft Commission paper (p. 4) does not analyze the potential for conflicts between NRC disposal requirements and the disposal requirements of EPA or the State. Rather, it leaves to DOE and the licensee the task of working out "the particulars . . . with any other regulatory agency involved," while noting that regulation by other Federal and/or State regulatory agencies could "decrease the viability of this approach [i.e., the recommended revision to guidance]."
- Given the draft Commission paper's recognition that revised guidance could be adversely impacted by dual regulation, the basis for the paper's recommended approach could be improved if the staff articulated its strategy for dealing with the contingencies presented by dual regulation (e.g., how to mitigate conflicting disposal requirements) when it publishes revised guidance for comment. A strategy for mitigating the impacts of dual regulation could also serve as a partial response to potential concerns, alluded to in the draft Commission paper, that disposal of non-11e.(2) material is inconsistent with UMTRCA.¹⁷
- Cooperative efforts, involving NRC, EPA, and State regulatory agencies, could be addressed when the staff articulates its strategy for dealing with the contingencies presented by dual regulation. The industry White Paper supports and encourages NRC cooperative efforts to address dual regulation such as State/interagency agreements (i.e., MOUs) with co-regulators. The draft

¹⁶ DOE might view TSCA disposal requirements as less stringent than, and, therefore, different from, RCRA regulations for hazardous waste disposal. In addition, the approach used for disposal of the TSCA waste -- i.e., placement of the TSCA waste in a separate cell, according to the draft Commission paper -- may not always work for disposal of non-11e.(2) material in mill tailings impoundments. Further, disposal of the TSCA waste, which was apparently generated onsite and for which alternative disposal capacity may not have been available, is factually different from disposing of non-11e.(2) material generated offsite.

¹⁷ The draft Commission paper (p. 4) includes the following statement: "The staff would emphasize, however, that this approach [i.e., the recommended 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."

Commission paper, however, does not specify or evaluate cooperative efforts, although it is focused on addressing industry concerns.¹⁸

- A strategy for dealing with dual regulation could also include possible legal arguments, if such arguments are viable, on preemption of State regulatory requirements that conflict with or stand as an obstacle to fulfillment of UMTRCA.
- The strategy could clarify staff's intention with respect to issuing a generic exemption from Part 61 in a future rulemaking.¹⁹

With respect to the DPV concern that a criterion should be retained for obtaining LLW compact commission approvals because they are legally required or otherwise appropriate, the panel believes that both the DPV and the draft Commission paper have merit.

- To the extent compact consent is a legal requirement, the DPV is correct in that the Commission does not have the authority to permit licensees to dispose of material without the licensee obtaining such consent.
- The draft Commission paper adequately describes the background of this criterion and the related policy considerations; further, the NRC can reasonably expect that licensees will obtain any legally required consent, and NRC is not obligated to enforce compact requirements.
- To the extent compact approval is legally required, staff should acknowledge that it cannot and does not purport to change such a legal requirement.

With regard to the DPV concern that legislation -- specifically, legislation eliminating dual regulation -- is the only viable approach to allow use of mill tailings impoundments for disposal of non-11e.(2) material, the panel disagrees.

- Cooperative efforts such as State/interagency agreements (i.e., MOUs) have not been explored, and the DPV does not provide a basis to conclude they would necessarily fail; moreover, until they are evaluated, cooperative efforts may be argued to be an alternative that should be pursued before legislation.
- On the other hand, legislation is a possible way to address dual regulation and could be considered, at the appropriate time, as an element of the staff's strategy for dealing with dual regulation. Although not specifically addressed in the draft

¹⁸ The draft Commission paper generally indicates staff will need to expend resources in dealings with other Federal and/or State regulatory agencies, but does not specify the anticipated staff activities.

¹⁹ Based on the panel's interview with the Acting Deputy Director, the panel understands the staff intends to replace the case-by-case exemption process under the Final Guidance (i.e., Criterion 10) with a generic exemption by rule.

Commission paper, the staff already submitted a draft legislative package proposing that material disposed of in a mill tailings impoundment shall be excluded from regulation under the Solid Waste Disposal Act. The staff also drafted authorization committee testimony recommending legislation.

C. Alternate Feed

A licensed uranium mill can be used to process not only natural or native ore but also "any other matter from which source material is extracted," and the wastes from processing can be disposed of in the tailings impoundment, provided the ore or other matter is "processed primarily for its source material content." The Atomic Energy Act defines "byproduct material" to include tailings or wastes produced by the extraction or concentration of uranium (or thorium) "from any ore processed primarily for its source material content."²⁰ The term "ore" is interpreted by the Commission to include:

natural or native matter that may be mined and treated for extraction, . . . or any other matter from which source material is extracted in a licensed uranium or thorium mill.²¹

A determination is made as to whether the natural ore or other matter is "processed primarily for its source material content" under the existing NRC Final Position and Guidance [Appendix C, Attachment (1)] (referred to hereafter as the "Final Position").

The Final Position, in addressing the determination for a mill's processing of matter, otherwise classified as low-level radioactive waste or mixed radioactive waste, establishes two alternative tests for whether the matter is being processed "primarily for its source material content." First, it can be concluded that the matter (including matter otherwise classified as "waste") is being processed primarily for source material if the matter would be approved for disposal in the tailings impoundment without processing in the mill. The Final Position refers to this as the "co-disposal test." Second, it can be concluded that the matter (including matter otherwise classified as "waste") is being processed primarily for its source material if the licensee so certifies and justifies its certification with reasonable documentation, "based on financial considerations, the high uranium content of the feed material, or on other grounds." See Appendix C, Attachment (1).

The draft Commission paper proposes to revise the second test in the Final Position to eliminate any discussion of economics and develop another method to assess whether material is being processed primarily for its source material content. However, the uranium mill licensee would still need a justification to demonstrate it was processing other matter primarily for its source material content in order to ensure that wastes from processing can be classified as "11e.(2) byproduct material." The draft Commission paper also permits a licensee to process material

²⁰ Atomic Energy Act of 1954, as amended, § 11e.(2).

²¹ Final Position and Guidance on the Use of Uranium Mill Feed Material other than Natural Ores. See Appendix C, Attachment (1).

without obtaining prior NRC approval, provided the licensee retains documentation for NRC inspection.

The DPV, addressing an earlier version of the draft Commission paper, contends the paper is attempting to remove the requirement that a licensee justify that material proposed for processing is to be processed primarily for its source material. The DPV also contends that, because the revised guidance would remove the justification requirement, the Commission will be put in the unacceptable position of, in effect, sanctioning sham processing (i.e., the processing of material for the purpose of changing its classification to allow disposal in the tailings impoundment rather than for the purpose of recovering source material).

The DPV further contends that concern over licensee justification that alternate feed will be processed primarily for its source material should be resolved by legislation. Specifically, if legislation were enacted to allow the disposal of non-11e.(2) material in tailings impoundments, as the DPV recommends, then the licensee's decision to process the material to recover uranium would itself be sufficient justification under the "co-disposal test." If material can be disposed of directly in the impoundment, the licensee's determination to process it for uranium is clear evidence, in and of itself, that the licensee is processing the material primarily for its source material content.

During the panel's interview, the DPV submitter said the draft Commission paper had been revised subsequent to the DPV and asserted that the draft Commission paper, as revised, was unclear in its proposed revision of the Final Position. While the draft Commission paper proposes to provide other means to show a licensee is processing matter primarily for source material, it also implies use of the same criteria as in the Final Position but would allow performance-based licensing.

The industry White Paper urges the Commission to reject the premise it needs to prevent uranium mill licensees from processing material through their mills to recover source material when recovery of the source material content would not be economically viable.²² Rather, the Commission should adopt a presumption that, if licensees are processing other matter to extract source material, then the material is being processed primarily for its source material content. Alternatively, the White Paper recommends the NRC refocus the "co-disposal test" on health, safety, and environmental considerations and eliminate the "licensee certification and justification test," which is unnecessarily restrictive.²³

²² White Paper at 152 (Appendix D).

²³ White Paper at 157 (Appendix D). The White Paper argues the Commission has gone beyond the statutory requirement that material must be "processed primarily for its source material content" by the additional words "and for no other primary purpose" in the Final Position.

b. Panel's Conclusions on Alternate Feed

With respect to the DPV concern that the draft Commission paper would remove the requirement that a licensee justify that material is to be processed primarily for its source material content, the panel disagrees

- The panel's reading is that a licensee must develop a justification that material is being processed primarily for its source material content in order to ensure that the residuals from processing can be classified as "11e.(2) byproduct material." The staff needs to clarify the draft Commission paper if the panel's reading is incorrect.
- However, the panel agrees the staff's proposed guidance revision could be more clear and believes the staff should clarify, when publishing revised guidance for comment, that no substantive change is intended and licensees must still justify, with reasonable documentation, that other matter is being processed primarily for its source material, and that the justification may be based on any reasonable grounds, including financial considerations.
- Further, the staff should clarify that licensees will be issued a performance-based license amendment authorizing use of alternate feed material that the licensee determines to process primarily for its source material, so that the justification requirement is enforceable.²⁴

With respect to the DPV concern that the revised guidance would remove the justification requirement and thereby put the Commission in the position of sanctioning sham processing, the panel disagrees.

- As noted, the panel's reading is that a justification must be developed by the licensee; the panel, therefore, disagrees with the DPV's premise.

With respect to the DPV concern that legislation should be used to resolve the issue of licensee justification for processing alternate feed primarily for its source material, the panel agrees that legislation is one possible approach but disagrees that it is the only approach.

- The staff agrees that legislation is a potential solution, as reflected in its draft legislative package and draft authorization committee testimony.
- While legislation would resolve the issue, and is, therefore, a sufficient approach, it is not necessary.

²⁴ Based on its interview with the Acting Deputy Director, the panel understands the staff intends that licensees obtain a performance-based license amendment to ensure that the revised guidance includes an adequate basis for enforcement.

- As noted earlier, cooperative efforts such as State/interagency agreements (i.e., MOUs) have not been explored and, until they are evaluated, they may be argued to be an alternative that should be pursued before legislation

IV. Recommendations

A. Disposal of Non-11e.(2) Material

Based on its review of the DPV, the draft Commission paper and other relevant information, the panel recommends that the NRC staff:

- (1) indicate it will inform the Commission, at the end of NRC/DOE consultations, of DOE's position on staff's proposed guidance revisions and, in particular, DOE's willingness to accept a site that could be subject to dual regulation;
- (2) articulate its strategy for dealing with the contingencies presented by dual regulation (e.g., how to mitigate conflicting disposal requirements) when it publishes revised guidance for comment;
- (3) address cooperative efforts, involving NRC, EPA, and State regulatory agencies, when it articulates its strategy for dealing with the contingencies presented by dual regulation;
- (4) clarify in the strategy the extent to which the conditions for DOE's acceptance of a site under section 151(b) of the NWPA parallel the conditions for license termination and transfer of custody to DOE under UMTRCA;
- (5) consider including in its strategy for dealing with dual regulation possible legal arguments on preemption of State regulatory requirements that conflict with or stand as an obstacle to fulfillment of UMTRCA;
- (6) address legislation as an element of the strategy for dealing with dual regulation;
- (7) clarify, in any revised guidance which removes the compact consent criterion, that, to the extent compact approval may be legally required, the NRC cannot and does not purport to change such a legal requirement; and
- (8) clarify that NRC intends to issue a generic exemption from the licensing requirements in 10 CFR Part 61 for any disposal of non-11e.(2) material in a mill tailings impoundment.

B. Alternate Feed

Based on its review of the DPV, the draft Commission paper, and other relevant information, the panel recommends that the staff:

- (1) clarify, when publishing revised guidance for comment, that no substantive change is intended and licensees must still justify, with reasonable documentation, that other matter is being processed primarily for its source material, and that the justification may be based on any reasonable grounds, including financial considerations
- (2) include in the clarification that licensees will be issued performance-based license amendments authorizing use of alternative feed material which the licensee determines to process primarily for source material; and
- (3) note that if revised guidance is approved, permitting disposal of non-11e.(2) material in mill tailings impoundments, material that could be disposed of directly in the impoundment could be processed to recover source material, as alternate feed, under the "co-disposal test."

APPENDICES

- A. Memorandum to William C. Reamer, Acting Chief from Carl J. Paperiello Director, Subj. Differing Professional View Panel: Dated, November 30, 1998 w/Attachments.
(1) DPV
(2) DPV Manual Directive and Handbook 10.159.
- B. Documents pertaining to establishment of panel.
- C. NRC staff Draft Commission Paper: Subj: 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; w/Attachments:
(1) Final Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments and Final Position and Guidance on the Use of Uranium Mill Feed Material other than Natural Ore; dated September 13, 1995 (60 FR 49296).
(2) Staff Requirements Memorandum, dated March 31, 1997; subj: Staff Requirements - COMSECY-96-058 - Decommissioning - Non Reactor Facilities, (DSI 9).
(3) SECY-91-243; Subj: Disposal of Material other than Atomic Energy Act of 1954, as Amended, Section 11e.(2) Byproduct Material into Uranium Mill Tailings Impoundments; dated August 7, 1991.
(4) SECY-95-211; Subj: Final "Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments," and Final "Position and Guidance on the Use of Uranium Mill Fee Materials other than Natural Ores."
(5) Differing Professional View; dated November 19, 1998 [omitted].
(6) Staff Requirements Memorandum; Subj: SECY-91-243 - Disposal of Material other than Atomic Energy Act of 1954, as Amended, Section 11e.(2) Byproduct Material into Uranium Mill Tailings Impoundments.
(7) Draft Revised "Guidance on Disposal of Atomic Energy Act Non-Section 11e.(2) Byproduct Material in Tailings Impoundments" if Staff Recommendations are Approved.
(8) UMETCO Minerals Corporation (Source Materials License No. SUA-1358), Docket No. 40-08681-MLA, Initial Decision, ASLBP No. 92-666-01-MLA (April 12, 1993).
- D. Excerpts from "Recommendations for a Coordinated Approach to Regulating the Uranium Recovery Industry: A White Paper Presented by the National Mining Association;" PDR date: April 22, 1998.
- E. Documents pertaining to January 7, 1999, interview with DPV Submitter.