



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

**OFFICE of
AIR AND RADIATION**

MEMORANDUM

TO: James Kennedy, U.S. Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards, Division of Waste Management, Uranium Recovery and Low Level Waste Branch

FROM: *Loren Setlow*
Loren Setlow, TENORM Team Leader, Radiation Protection Division, Center For Waste Management

SUBJECT: EPA Comments on Nuclear Regulatory Commission Proposed Changes to Legislation, Regulation and Oversight of In-Situ Uranium Leach Operations, Mill and Mill Tailings Operations

DATE: November 30, 1999

This memorandum is provided in response to your request of the Interagency Steering Committee On Radiation Standards-Naturally Occurring Radioactive Materials (ISCORS-NORM) Subcommittee for comments on a series of questions related to recently proposed changes for NRC's uranium recovery program. We appreciate the opportunity to participate in this review.

The NRC proposals, contained in NRC documents SECY-99-011, SECY-99-012, and SECY-99-013 concern in-situ leach (ISL) mining of uranium and regulation of ISL uranium underground injection and extraction wells, oversight responsibilities over post uranium extraction solar evaporation ponds, processing of non-Atomic Energy Act materials at mills, and the disposal of non-Atomic Energy Act materials in uranium mill tailings impoundments.

In general, most respondents from EPA's Office of Water, Office of Air and Radiation, Office of General Counsel, Office of Enforcement and Compliance Assurance, Office of Solid Waste and Emergency Response, and Regions 6, 7, 8, and 9, indicate that NRC staff would have benefitted from earlier discussions with EPA headquarters and field offices in order to more completely address or analyze a number of significant issues. While we recognize that NRC is responding to mining industry proposals to make uranium mining and processing more profitable and reduce regulatory costs, the proposals create several legal and resource problems for EPA, and could result in undesirable environmental impacts. We urge NRC to work with EPA to more completely analyze and revise the proposals to make them more workable before moving ahead with legislative and regulatory revisions that would face challenges and obstacles in what might otherwise be a cooperative effort.

Attached to this memorandum are the detailed informal comments we compiled to respond to the questions posed by the NRC member of the ISCORS-NORM Subcommittee. The Agency's general conclusions from this review are summarized below.

While no questions were asked of ISCORS-NORM about SECY-99-011, we would agree that NRC should consider modernizing its regulations to describe the procedures for oversight of ISL uranium mines—the principal means of uranium extraction in the U.S.

With respect to SECY-99-012, some EPA commentors felt that paper lacked a clarity of discussion which would have helped to better understand what was being proposed for waste disposal in the tailings impoundments, as well as how the regulatory landscape would function in each of the options being proposed. We believe TENORM wastes (particularly from conventional uranium mining overburden spoils) that are *“physically, chemically, and radiologically similar to materials already in uranium/thorium tailings impoundments,”* may be appropriate for disposal at such sites, provided that the volume of the radioactive materials placed in the tailings impoundment do not result in an exceedence of the NESHAPS radon standard as embodied in 40CFR192.31, as amended. Disposal of materials not physically, chemically, and radiologically similar to the mill tailings in the impoundments (TSCA, RCRA, CERCLA wastes) which NRC staff has in fact advocated, has the potential of presenting a significant problem for EPA or the Agreement or Authorized States. Some commentors noted that the burden and cost of new environmental impact analyses and impact statements for such expanded licenses has not been included in the NRC analysis. Others at EPA point out that no analysis has been performed by NRC on upgrades necessary to individual tailings impoundments to meet EPA and State requirements of environmental protection for these other types of wastes.

The paper SECY-99-013 proposes NRC's withdrawal from the active regulation of ground water at ISL's, leaving this activity to EPA, States, and Tribes. In general, EPA respondents believe that the NRC and EPA regulations governing ISL operation wells are complementary, not duplicative. A unilateral move by NRC to delete its regulatory oversight would leave gaps in coverage, and result in increased program demands on EPA, States, and Tribes which may not necessarily be met by existing resources. Unfortunately, paper SECY-99-013 is silent on the expected distribution of work for NEPA analyses of ISL projects under this revised approach. EPA cannot require a comprehensive assessment of an entire project's impact on groundwater due to lack of authority on extraction wells, and we have no MCL for uranium. These types of protections are critical issues in assessing an ISL for NEPA purposes.

Concerning the issue of what liquid wastes in solar evaporation ponds should be classified once an ISL facility is no longer extracting uranium (i.e., during ground-water restoration activities), our review of the AEA and supporting court decisions leads us to continue to believe that they should be classified as “mine waste waters” - not byproduct materials. The principal advantage of options one and three in the paper is that they are consistent with the NRC's AEA obligations and the plain language of Section 11e.(2).

The NRC staff is soliciting views and comments from the ISCORS NORM Subcommittee on the proposed changes in NRC's Uranium Recovery Program as described in the Commission Papers SECY-99-011, SECY-99-012, and SECY-99-013. Specifically, the staff is interested in receiving comments to the following questions:

1. *What additional concerns, if any, do you have with disposal of any material in licensed mill tailings impoundments that is physically, chemically, and radiologically similar to materials already in uranium/thorium tailings impoundments (does not include fission and activation products, or special nuclear materials and transuranic wastes) (SECY-99-012)? What additional information or views might NRC find useful that is not contained in SECY-99-012?*

This proposal may help to clean up many sites that otherwise would not have a good waste disposal location or option.

2. *What approach do you favor for addressing any potential dual jurisdiction concerns among Federal and State agencies, if the proposal in Question 1 is implemented (SECY-99-012)?*

Any of the proposals which results in increased consistency between the State and Federal agencies' regulations or oversight of these operations could be supported.

3. *What are your views on deferring active regulation of ground-water protection at in situ leach uranium recovery facilities in favor of relying on EPA's existing UIC program, as administered by EPA-authorized States (SECY-99-013)?*

There should be an examination in the proposal, and for any operation, on the need to reclaim ground water to Safe Drinking Water Act standards. The standards may not apply in all cases, but there is insufficient analysis in the paper of the impacts on Tribal lands and how boundary issues will be treated.

4. *What are your views or concerns on NRC's classification of all liquid effluents as byproduct material under the Atomic Energy Act of 1954, as amended, regardless of whether the liquids are generated from wellfield restoration or process waste waters (SECY-99-013)?*

I have no position on this matter. It will have to be left up to the legal counsels to decide.

5. *What issues or concerns, if any, would be created if NRC classified the ISL production bleed and wellfield restoration waste water as materials not covered by NRC regulations (SECY-99-013)? NRC would continue to regulate other liquid effluents downstream of the ion exchange columns as byproduct material.*

I have no comments on this matter.

The following comments reflect views of Environmental Protection Agency (EPA) regional and headquarters offices and are provided to the Interagency Steering Committee on Radiation Standards, Naturally Occurring Radioactive Materials (ISCORS-NORM) Subcommittee, regarding certain Nuclear Regulatory Commission (NRC) staff proposals for revising its program, legislation, and regulations.

The EPA comments obtained are reflected in responses to the questions posed to the ISCORS-NORM Subcommittee by the NRC staff.

1. *What additional concerns, if any, do you have with disposal of any material in licensed mill tailings impoundments that is physically, chemically, and radiologically similar to materials already in uranium/thorium tailings impoundments (does not include fission and activation products, or special nuclear materials and transuranic wastes) (SECY-99-012)? What additional information or views might NRC find useful that is not contained in SECY-99-012?*

Overall, SECY-99-012 would have benefitted significantly from a focus on increasing clarity. It is difficult to tell what waste streams NRC would consider appropriate for this type of disposal, and some discussion is confusing and appears contradictory. With respect to Option 2, TENORM wastes (particularly from conventional uranium mining overburden spoils) that are *"physically, chemically, and radiologically similar to materials already in uranium/thorium tailings impoundments"*, may be appropriate for disposal at such sites, provided that the volume of the radioactive materials placed in the tailings impoundment do not result in an exceedence of the National Emission Standards for Hazardous Air Pollutants (NESHAPS) radon standard as embodied in 40CFR192.31, as amended. Disposal of materials not physically, chemically, and radiologically similar to the mill tailings in the impoundments--Toxic Substances Control Act (TSCA), Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) wastes-- as NRC staff has in fact advocated, has the potential of presenting a significant problem for EPA or the Agreement or Authorized States.

Clarity of Discussion

As an example of the lack of clarity in the discussion of Option 2 (revision to existing guidance) in SECY-99-012, there is a statement that "the prohibition against the disposal of special nuclear material and 11e.(1) byproduct material without compelling reasons to the contrary would remain." Special nuclear material and 11e(1) byproduct material are (or can be) low-level waste (LLW). The next paragraph states that "staff would issue a generic exemption to the requirements of 10 CFR Part 61" to accommodate the tailings sites accepting "non-AEA material and materials regulated under RCRA, TSCA, and CERCLA." Part 61 regulates the disposal of low-level waste. Why, if the policy regarding special nuclear and 11e.(1) material will not be changed, does there need to be a generic exemption to Part 61? Part 61 applies to "low-level radioactive wastes containing source, special nuclear, or byproduct material that are acceptable

for disposal in a land disposal facility." So perhaps source material is the issue. But "the existing guidance...allow(s) for the disposal of soils contaminated with source material and progeny." Is the citation of part 61 in error, and part 40 really what is meant? However, the last paragraph explicitly states that "the material that would be disposed of meets the definition of LLW", so this would require the regional compacts to be involved. The definition of LLW in the Nuclear Waste Policy Act includes 11e.(1) material, but also can include other materials the Commission wants to define as LLW. So LLW would be going to these sites according to this reasoning. The staff recommendation should be more precise on what kinds of radioactive wastes are being advocated for disposal.

Tailing Impoundments Requirements

Another problem which is not discussed in detail in the SECY paper is that tailings impoundments are not all constructed to the same protective standards and there is no analysis in the current document which demonstrates the capability of each of these sites to accept hazardous wastes regulated under TSCA, CERCLA, or RCRA. Assuming an eventual or potential failure of containment cells, there are no risk assessments on the combination or resultant affects of mixing these different types of wastes with uranium/thorium byproduct/tailings materials and impacts on ground water. Siting and approvals of mill tailing impoundments were made based on their usage for a specific type of radioactive waste; the expansion of the facility to incorporate other types of hazardous wastes may go well beyond community and State agreements. The burden and cost of new environmental impact analyses and impact statements for such licensing has not been included in the NRC analysis.

The application of the NESHAPS radon standard for impoundments could have a significant effect on the type and amount of radioactive materials that could be placed in a facility, and this analysis was not included in the NRC paper. A review of the closure schedules and MOU between EPA, NRC and Agreement States for radon releases from uranium mill tailings might be triggered depending on the radioactive materials planned for disposal.

The technical criteria for tailings impoundments are currently found in Appendix A of 10 CFR part 40, which incorporates a fair amount of 40 CFR part 192. Many of the criteria are comparable in intent to those found in 40 CFR part 264 for RCRA Subtitle C landfills. For example, both regulations contain provisions related to siting, liners, covers, monitoring, corrective action, inspections, financial assurances, etc. It would not be difficult to harmonize most of them at a facility, but some facilities may be significantly below State standards. However, consistent with the general difference between technology-based and performance-based requirements, the RCRA regulations are much more explicit regarding the construction of the facility.

In its discussion of Option 2 (revising the current guidance), NRC states that "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." Option 2 would leave it to the long-term custodian of the site to work out agreements with relevant regulatory agencies, and

NRC would not get involved in that process. The example provided is of a TSCA disposal cell, in which DOE and the site licensee negotiated the requirements with EPA (reference to an EPA permit for the new disposal cell). This would indicate that other sites wishing to dispose of hazardous material might be required to upgrade the disposal areas to meet the relevant design requirements. This would include those outside of Appendix A of 10 CFR part 40, such as:

- requirements for two liners (including geosynthetic and a 3-foot clay layer) and a leachate collection system in 40 CFR part 268;
- requirements on disposal cell cap construction in 40 CFR part 268;
- requirements for treatment of hazardous waste to meet Land Disposal Restrictions in 40 CFR part 268;
- requirements for monitoring at the edge of the disposal cell in 40 CFR part 264;
- prohibitions on disposal of liquids in both 40 CFR part 268 and 10 CFR part 61;
- requirements for packaging and stability in 10 CFR part 61;
- requirements for facility performance assessment in 10 CFR part 61 (not clear whether part 40 requires dose assessments for the off-site public - most of the discussion focuses on radon emissions and exposures from activities at the site itself);
- requirements for intrusion protection in 10 CFR part 61; and
- requirements for manifesting of shipments in both 40 CFR part 268 and 10 CFR part 61.

Parts of Option 2, and certainly Option 3, give no assurance that such considerations would be fully addressed. The primary concern appears to be avoiding regulation by other entities and allowing the owners of tailings impoundments to expand their sites to include hazardous wastes, providing a new source of revenue to compete with other commercial facilities—much like the proposal of the Dawn mill site in Washington State. Whether Congress would allow disposal of hazardous materials unpermitted by EPA without ensuring that the appropriate technical assurance requirements were imposed is not clear, but it seems likely that the public and most likely some of the States might oppose such a measure.

2. *What approach do you favor for addressing any potential dual jurisdiction concerns among Federal and State agencies, if the proposal in Question 1 is implemented (SECY-99-012)?*

EPA would be generally opposed to a unilateral change in NRC's regulations to allow of disposal of RCRA, TSCA, and CERCLA wastes in all tailings impoundments. In EPA's opinion, Option 2 of SECY-99-012, with some modification, would appear to be the preferable alternative of the three proposed. It would increase the flexibility of the disposal sites in accepting alternative material, but might not lessen the ability of other agencies to regulate the sites as appropriate. In order to address dual regulation concerns, we believe it would be appropriate for EPA, NRC, and affected States to review the regulatory regime to determine where potential overlaps could occur and to what extent they are duplicative, not complementary. One of EPA's regional offices felt generally comfortable with disposal of other similar radioactive materials in the tailings impoundments where the State had assumed regulatory jurisdiction—recognizing that the NRC effort would acknowledge a practice which has already occurred at some mills.

We expect that the approval for emplacement of hazardous materials at any tailings impoundment other than what was licensed for disposal would be considered a major federal action under NEPA. The issue of preparation of new environmental impact statements to cover the change in character of the waste disposal sites is important and has not been evaluated by NRC.

3. *What are your views on deferring active regulation of ground-water protection at in-situ leach uranium recovery facilities in favor of relying on EPA's existing Underground Injection Control (UIC) program, as administered by EPA-authorized States (SECY-99-013)?*

In general, EPA staff believe that the NRC and EPA regulations governing ISL operation wells are complementary, not duplicative. A unilateral move by NRC to delete its regulatory oversight would leave gaps in coverage, and result in increased program demands on EPA, States, and Tribes which may not necessarily be met by existing resources.

Based on a review of regional and headquarters EPA comments, the following concerns and issues were raised. Many may reflect incomplete information provided in the NRC issue paper SECY-99-013. There is a need for additional clarification by NRC of what "deferring active regulation" entails. Does it mean that the NEPA requirements for ground water will no longer be the responsibility of NRC? If this is the case, EPA and at least one authorized UIC state would have significant problems.

1. How will NRC continue to address its responsibility to Indian Tribes to protect Tribal lands and resources?
2. Can NRC divest responsibilities for aquifer restoration when the Federal UIC program does not require restoration, but only protection of adjacent Underground Sources of Drinking Waters (USDWs)? How is this related to NRC's statutory and regulatory responsibilities?
3. EPA uses the information provided in the NRC's EIS to verify permit application data submitted by the operator. The UIC funding will remain the same or will be reduced in the next budget periods. Will NRC supplement funding for those States and EPA Regional Direct Implementation programs?
4. Technically, EPA does not have jurisdiction over extraction wells. We realize that since the operation of the wells in an ISL project change from injectors to extractors and vice-versa, most wells will eventually be covered. However, there is the possibility that an extractor well may not have proper Mechanical Integrity Test or that it may not be properly plugged and abandoned, opening the door for adverse legal findings. How would NRC safeguard against this possibility?
5. How would NRC assure that there is enough protection at boundary areas? For example, if a storage or other impoundment leaks, and pollutes ground water, how will the UIC

program enforce a clean-up? There are other cross media issues that would have to be resolved and other EPA programs, outside UIC, may have to be brought in.

6. The UIC program does not take into account non-injection related issues such as ground water utilization rights. Does NRC intend to continue this jurisdiction?
7. It is arguable that the Safe Drinking Water Act (SDWA) provides for emergency action under UIC for spills that can pollute ground water (§1431). This is not possible just by using the permit conditions. How will NRC assure that there would be some mechanism for restoration if needed?
8. EPA does not have the authority to charge fees like the States do. All additional work that would be necessary is at the present unfunded. Will NRC provide for resources to accomplish this additional work by EPA?
9. NRC believes Memoranda of Agreement with the delegated States and the EPA would completely cover their divestiture. At least two EPA regions are concerned that this does not appear possible. The NRC must seek out the approved applicable UIC program, be it State or Direct Implementation (DI) program, and determine if that program has groundwater remediation authority and responsibilities at ISL sites commensurate with that of the NRC. It is not clear that all applicable UIC programs (those approved programs with current or potential future ISL uranium sites) have the authorities, responsibilities, and desire to take over NRC's activities.

Bleed off and aquifer restoration wells

Bleed off wells are currently classified as Class V under the UIC program. Under the UIC regulations, the only requirements are non-endangerment and inventory requirements. While the Authorized States regulate these wells as Class I wells that are subject to full treatment under UIC, in DI States EPA cannot regulate them fully without cause (endangerment). EPA has proposed regulating these type of wells that inject below the bottom-most USDW as Class I (full regulation), but these regulations are not final. Also, if there is an underlying USDW, these wells would remain as Class V wells with very little regulatory leverage by EPA. EPA cannot duplicate the level of protection to ground water, in some instances, that the current dual involvement (NRC and EPA) provides. How will NRC address this issue?

Aquifer restoration

EPA's UIC regulations don't require the restoration of the mined aquifer. Because of the nature of the aquifer exemption process necessary to issue a permit for ISL in a USDW, the affected aquifer portion is no longer protected and subject to remediation. The Federal regulations do require the corrective action in the aquifer to assure that the fluid at the interface, that may impact the adjacent USDW, not be polluted. We are concerned that EPA's UIC program does not have

the authority (without highly unlikely additional regulation), to duplicate NRC's responsibility.

There is a difference between corrective action (or cleanup) which is preventative in nature and remediation or restoration which is focused on restoring a contaminated aquifer for continued or future use of the aquifer as a USDW. As an example, EPA can exert authority over the cleanup (corrective action) taken at an ISL mining site[146.10(d)]. As a corrective action (a preventative measure) the cleanup threshold levels can be different than those required for a total restoration. A cleanup and a restoration effort have two significantly different targets. The cleanup must ensure only that the plume will not eventually cause contamination of USDWs offsite. A restoration must meet much more stringent standards and ultimately attempt to make the mined aquifer, for all intents and purposes, a USDW again.

NEPA Analyses

NRC issues licenses to companies which operate ISL's, and is also responsible for assessing and addressing environmental impacts through the NEPA process. The major environmental resource ISL's impact is ground water. NRC charges the applicant for the cost of the environmental documentation associated with license application. Under the current process, EPA's involvement with ISL's is largely restricted to issuing UIC permits for the injection wells used in this process and to NEPA reviews of the NRC license application. ISL's are generally confined to the western States, primarily in Regions 6, 8 and 9. States or Tribes with primacy under SDWA for Class III wells issue the UIC permit rather than EPA. Region 9 issues the UIC permits in California, Arizona, and on Tribal Lands.

NRC proposes to withdraw from the active regulation of ground water at ISL's based on industry arguments that NRC's regulation of ground water is duplicative of EPA/delegated States. Unfortunately, paper SECY-99-013 is silent on the expected distribution of work for NEPA analyses of ISL projects under this revised approach. EPA cannot require a comprehensive assessment of an entire project's impact on groundwater due to lack of authority on extraction wells, and we have no MCL for uranium. These types of protections are critical issues in assessing an ISL for NEPA purposes. We are concerned that an NRC NEPA document might not provide a full analysis of the environmental effects of an entire project if NRC did not see the need to analyze areas they have deferred to other agencies. While primacy States such as Texas and Wyoming have broader authorities than EPA to address these areas in their UIC programs, in EPA's Region 9, for example, the responsibility would fall under EPA's limited authorities.

If NRC's regulations are changed, how would NRC's NEPA process continue to ensure adequate protection of the ground water during facility operation and the return of the ground water to its original condition once operations cease? In Region 9, at least, EPA relies on the ground water assessment and data in NRC's EA/EIS for UIC permit development as well as the NEPA review. EPA's Water and NEPA programs are concerned that if NRC no longer required the applicant to supply this data (or to reimburse NRC for obtaining it), EPA or the State would bare the burden of collecting and assessing the information. Both public disclosure of impacts and the NEPA process for addressing/mitigating these could be compromised.

The term "deferring active regulation" raises several questions on NRC's intentions in the NEPA process. What exactly is being deferred? Who would be responsible for collecting and disclosing all the necessary information regarding impacts to groundwater from proposed ISL facilities? For example, would injection and extraction well designs and waste pond designs be described in the EIS? Would NRC have the authority to require certain design specifications in its license? Would the potential impacts of these facilities to groundwater be discussed? Would monitoring plans, spill prevention and countermeasure plans, mitigation and contingency measures be included in the EIS? Would NRC have jurisdiction over these measures and have the ability to address them by incorporating provisions in the NRC license to address them all? EPA's UIC program doesn't have jurisdiction over this issue, so who would, and how would we get provisions into an enforceable permit/license?

4. *What are your views or concerns on NRC's classification of all liquid effluents as byproduct material under the Atomic Energy Act of 1954, as amended, regardless of whether the liquids are generated from wellfield restoration or process waste waters (SECY-99-013)?*

As noted by the D.C. Circuit in Kerr McGee, Title II of UMTRCA brought mill tailings and mining wastes within the NRC's licensing authority by adding a new category to the AEA's definition of byproduct material, namely, "the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content. [AEA] § 201, 92 Stat. at 3033 (codified at 42 U.S.C. § 2014(e)(2))." Kerr-McGee v. NRC, 903 F.2d 1, 3 (D.C. Cir. 1990) (vacating NRC conclusion resulting in misinterpretation of the definition of "byproduct material"). A plain language interpretation of "tailings or waste produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content" would hold that this category of byproduct material must be tailings or wastes derived from the extraction or concentration of uranium or thorium. SECY-99-013 indicates that NRC's 1995 guidance on effluent disposal at uranium recovery facilities differentiated between ISL wastewaters "on the basis of their origin and whether uranium was extracted for its source material content during that phase of the operation. Waste waters and the associated solids produced during the uranium extraction phase of site operations, called 'production bleed' were classified as AEA section 11e.(2) byproduct material and therefore subject to regulation by NRC. Conversely, waste waters and the resulting solids produced after uranium extraction (i.e., during ground-water restoration activities) are classified as mine waste waters" - not byproduct materials. SECY-99-013 does not provide any legal rationale as to why NRC should revise this position.

The paper presents four options for future NRC regulation of these materials. Under Option one - maintain the current distinction between waste waters - it states that the principal advantage of this option is that it is "more consistent with how EPA views such waste under 40 CFR 440," and then lists a number of disadvantages all related to licensee operations. We disagree. The principal advantage of option one is that it is consistent with the NRC's AEA obligations and the plain language of Section 11e.(2). SECY-99-013 discusses option 2 - classify all liquid effluents as 11e.(2) byproduct material - without any discussion of Section 11e.(2) or how such classification

might be accomplished in a manner that is consistent with the plain language of the statute. The earlier discussion of the ISL process makes clear that the mine waste waters are "produced after uranium extraction (i.e., during ground-water restoration)." If these wastes are produced after uranium extraction, it is a fair question to ask how are they to be construed as "wastes produced by the extraction or concentration of uranium or thorium".

Similar in approach to Option 1, Option 3 would have NRC regulate only discrete surface wastes and effluents resulting from the production of yellowcake occurring after the ion-exchange (IX) portion of the uranium extraction process at the resin elution column, and at the precipitation tanks. All other waste waters generated throughout the life of ISL operations would be classified as "mine waste waters." They would be outside NRC's authority, and therefore not subject to NRC regulation. The other waste waters generated to protect ground water during uranium extraction and those produced during ground-water restoration activities after uranium extraction would not be subject to NRC regulation. Wastes generated from "mine waste waters" would be regulated by EPA or the States. As discussed above, we believe Option 3 could be viewed as consistent with the legislative language of the AEA which ends NRC's oversight responsibility over materials not generated for the purpose of extracting source materials.

Option 4 would establish the definitions of byproduct 11e.(2) material through discussions with Congress and the Agreement States. We would welcome an opportunity to further discuss these proposals with NRC prior to its seeking legislative guidance.

5. What issues or concerns, if any, would be created if NRC classified the ISL production bleed and wellfield restoration waste water as materials not covered by NRC regulations (SECY-99-013)? NRC would continue to regulate other liquid effluents downstream of the ion exchange columns as byproduct material

While it is possible that disposal of evaporation pond TENORM could potentially occur in tailings impoundments due to similarities in physical and chemical properties, we have not conducted a detailed analysis of the evaporite to determine if this may create additional long term problems at the impoundments due to the mixed waste characteristics, or if the nature of some environmental protection schemes at impoundments would prohibit the practice. The potential that some of the evaporite could be disposed of in landfills does exist given current oversight by the States, and at least one EPA region would find disposal in tailings impoundments preferable.

However, our response to question 4 on the legal aspects of declaring the ponds to hold mining waste and TENORM rather than by-product would still hold. We believe that the AEA does not allow the NRC to declare this material as uranium/thorium production ion by-product. Consequently, jurisdiction should remain with EPA and the States.