July 26, 2000

COMMISSION VOTING RECORD

DECISION ITEM: SECY-99-013

TITLE: RECOMMENDATIONS ON WAYS TO IMPROVE THE EFFICIENCY OF NRC REGULATION AT *IN SITU* LEACH URANIUM RECOVERY FACILITIES

The Commission (with Chairman Meserve and Commissioners Dicus and Merrifield agreeing) disapproved the subject paper as recorded in the Staff Requirements Memorandum (SRM) of July 26, 2000. In addition, Commissioner McGaffigan approved in part and disapproved in part and Commissioner Diaz approved the subject paper.

This Record contains a summary of voting on this matter together with the individual vote sheets, views and comments of the Commission.

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Annette L. Vietti-Cook
Secretary of the Commission

Attachments: 1. Voting Summary
2. Commissioner Vote Sheets

cc: Chairman Meserve
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan
Commissioner Merrifield
OGC
EDO
PDR

VOTING SUMMARY - SECY-99-0013

RECORDED VOTES

	APRVD	DISAPRVD	ABSTAIN	NOT PARTICIP	COMMENTS	DATE
CHRM. MESERVE		X			X	6/2/00
COMR. DICUS		X			X	6/3/00
COMR. DIAZ	X				X	4/5/00
COMR. McGAFFIGAN	X	X			X	6/30/00
COMR. MERRIFIELD		X			X	4/25/00

COMMENT RESOLUTION

In their vote sheets, Chairman Meserve and Commissioners Dicus and Merrifield disapproved the subject paper. Commissioner McGaffigan approved in part and disapproved in part and Commissioner Diaz approved the subject paper. Subsequently, the comments of the Commission were incorporated into the guidance to staff as reflected in the SRM issued on July 26, 2000.

Commissioner Comments on SECY-99-0013

Chairman Meserve

For the reasons explained below, I conclude that 11e.(2) byproduct material should be interpreted to encompass the various liquid effluents and associated sludges arising from *in situ* leach (ISL) uranium recovery facilities. As a result, I approve Option 2 presented in SECY-99-013.

In the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), Congress amended the definition of "byproduct material" so that the term would encompass "the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content." 42 U.S.C. 2014(e)(2). Congress clearly intended that the NRC exercise comprehensive regulatory authority over wastes derived from uranium and thorium extraction activities. See Kerr-McGee v. NRC, 903 F2d 1 7-8 (D.C. Cir. 1990). Consistent with this statutory purpose, the D.C. Circuit previously overturned a Commission decision to interpret the definition of byproduct material narrowly. Id. at 8. Accordingly, in order to fulfill its obligations, the Commission should carefully examine the wastes arising from ISL facilities and determine whether they fall within the intended statutory scope.

ISL facilities operate by injection of a solution (termed a "lixiviant") into the ore body through injection wells. The lixiviant serves to dissolve uranium (along with other substances) and is the withdrawn through production wells. The pregnant lixiviant is then processed at surface facilities to remove the uranium and the barren lixiviant is then reinjected into the ore body to start the process again. The relevant waste waters arising from ISL production include production bleed, process effluents, and waters generated during groundwater cleanup.(1) Production bleed consists of groundwater extracted from the aquifer during uranium recovery operations in excess of injected water; it serves, among other purposes, to maintain a groundwater inflow to the uranium extraction zone. Process effluent consists of waste waters arising from uranium-extraction processing. The restoration waters, of course, result from efforts to restore the aquifer to acceptable conditions following the completion of mining operations.

No one disputes that the process bleed must properly be characterized as 11e.(2) byproduct material. It clearly is a waste stream arising from the extraction of uranium from ore. Staff raises a question, however, as to the proper characterization of the production bleed and the groundwater restoration waters. It suggests (in Options 3 and 4) that the Commission conclude that the production bleed and waters produced during groundwater restoration be considered outside the definition of 11e.(2) material on the theory that these waters are generated primarily for the protection of groundwater rather than directly from the processing of ore. SECY-99-013, at 7-8. As a conceptual matter, the distinction suggested by the staff is highly problematical because all these waste streams are incident to and apparently necessary to operations. Under these circumstances it seems highly artificial to seek to distinguish between those waste streams that are somehow "directly" involved in uranium extraction and those that are not. Moreover, on closer examination, the distinction suggested by the staff cannot clearly be drawn, at least for the production bleed. The production bleed serves not only to create a groundwater cone of depression, but also to prevent the buildup of contaminants that could reduce the efficiency of the mining operation.(2) Thus, the production bleed does serve a purpose in addition to the protection of groundwater that is directly related to the extraction of uranium. Moreover, both the production bleed and the restoration waters in some circumstances are typically processed through an ion-exchange column to remove uranium, thus showing that even in the direct sense they are wastes arising from the extraction of uranium.

I conclude that the various liquid effluents and resulting sludges arising from ISL production and ground-water restoration should properly be viewed as 11e.(2) byproduct material. It follows that the revision to Part 41 should reflect this approach. Moreover, the final SRP for ISL facility license applications, which reflects a more narrow view of NRC jurisdiction, should not be published.

The staff notes that ISL leach facilities also are regulated through programs administered by the U.S. Environmental Protection Agency EXIT and EPA-authorized States pursuant of the Underground Injection Control (UIC) program of the Safe Drinking Water Act. As a result, the EPA and State programs overlap in some respects with the NRC's program. Under these circumstances, it is appropriate in the context of the development of the new Part 41 to pursue the development of a Memorandum of Understanding (MOU) with EPA and the relevant States in an effort to avoid needless duplication. The Commission's decision as to whether to defer to EPA regulation in appropriate cases should await the development of a draft MOU for Commission consideration.

Finally, I commend the two staff members who submitted differing professional views on the issues raised in SECY-99-013. The insights provided in their differing views were of considerable value to me.

Commissioner Dicus

With respect to the variety and complexity of 11 e.(2) byproduct material and jurisdictional issues related to uranium concentration and extraction operations at in situ leach (ISL) uranium recovery facilities, I commend staff for the quality assessment and thoroughness of the options presented in this paper and in attempting to envelop industry's issues and concerns. As you are aware, a number of additional issues and concerns have been presented to the Commission since the original submittal of SECYs 99-011 , 99-012, and 99-013. Examples of these additions include SECY 99-277, IUSA Order, Addendum to the original NMA White Paper, FUSRAP inquiries further addressing the pre-1978 and post-1978 issues, OGC's re-examination and support of the Executive Legal Directors 1980 analysis and conclusions, etc.

1. RECOMMENDATIONS ON WAYS TO IMPROVE THE EFFICIENCY OF NRC REGULATION AT ISL URANIUM RECOVERY FACILITIES

With respect to the aforementioned, giving consideration to these issues was important and essential order to draw conclusions for this SECY paper. **With that in mind, my vote disapproves staffs preferred Option 3 and/or 4 and approves Option 2, "Classify All Liquid Effluents as 1le.(2) Byproduct Material."** Under **Option 2,** the NRC would implement its pre-1995 position, that any waste water generated during or after the uranium extraction phase and all evaporation pond sludges derived from such waste waters, would be classified as 11e.(2) byproduct material. Staff would make no legal distinction among the waste water produced at different stages in the ISL life-cycle, **which is supported by the conclusions drawn in the Executive Legal Directors 1980 decision**). The principal advantage of this option is that NRC's regulatory authority over various aspects and phases of ISL extraction and post-extraction operations would be unambiguous. All radioactively contaminated materials generated at ISL facilities would be classified as 11e.(2) byproduct material and therefore, under NRC jurisdiction. Additionally, all radioactively contaminated materials would be transported

for off-site disposal, as conditionally required by Criterion 2 of 10 CFR Part 40, Appendix A. This would include evaporation pond sludges, well-field piping, and central facility storage and processing tanks, therefore, previous NRC conclusions in Environmental Assessments and Impact Statements concerning off-site disposal of radioactive material would remain unchanged.

I believe that the Option 3/4 recommendation, **"Classify Only Post-Ion Exchange Wastes as 11e.(2) Byproduct Material,"** further fragments the ISL regulatory and oversight process by reclassifying "production bleed" from 11e.(2) byproduct material to "mining waste water," and places licensees in an even more vulnerable regulatory position. By implementing such a reclassification, I also believe that the NRC would be placing itself in a very sensitive and compromising position. Since uranium is concentrated and extracted from the production bleed process, then by definition, it meets the AEA 11e.(2) definition. Removing the production bleed 11e.(2) designation, essentially places the NRC in position of randomly redefining the 11 e.(2) definition **(the tailings or waste produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content)** without a sound technical and/or legal basis.

As staff identified, if Option 3/4 is preferred, then ground-water regulation at ISL facilities would be deferred to the EPA or EPA authorized States. NRC's current communications with the EPA in trying to negotiate and establish an acceptable baseline for taking over active ground-water regulation at ISLs has not been successful. Specifically, the EPA does not agree with staff's deferral recommendation and has not expressed a willingness to accept active regulation of ground-water activities at ISL facilities. Additionally, the EPA has expressed concern over several issues that have not yet been resolved, which encompass issues addressed in this SECY. Specifically, that NRC deferral to EPA's, Safe Drinking Water Act Underground Injection Control program for regulation of ISL ground-water is not practical and leaves gaps in coverage.

Recognizing that public health, safety, and the environment are adequately protected under all four options, I believe that Option 2 provides the most clear and transparent jurisdictional, regulatory, and oversight approach and practice, consistent with the NRC's mission, and which in fact, was the NRC's practice until 1995. Additionally, it also provides the least regulatory burden on our existing and future ISL licensees, and will not significantly impact NRC staff resources or program efficiencies.

2. COMMISSION DIRECTION ON THE APPROACH TO BE TAKEN IN STAFF GUIDANCE DOCUMENTS REGARDING HOW TO CLASSIFY WASTE DISCHARGE FROM ISL FACILITIES

1. Staff Technical Position on Effluent Disposal at Licensed Uranium Recovery Facilities (Effluent Guidance); and
2. Final Revised Guidance on Disposal of non-Atomic Energy Act of 1954, Section 11e.(2) Byproduct Material in Tailings Impoundments (Disposal Guidance)

These guidance documents should be appropriately revised to reflect Option 2 and the direction provided in the SRM for SECY 99-267 - International Uranium Corporation Commission Review of LBP 99-5 (which also impacts SECY 99-012). Specifically,

That financial considerations and the uranium content of the feed material do not factor into approving or denying a license amendment request; and
That the 11e.(2) definition was designed to extend the NRC's regulatory authority over all wastes resulting from the extraction or concentration of source material in the course of the nuclear fuel cycle.

Commissioner Diaz

I approve the approach identified in option 3, relating to regulation of waste water at ISL facilities, for incorporation into the new Part 41 rulemaking plan. Under this proposal, the only waste water classified as 11e. (2) byproduct material would be post-ion exchange waste.

I approve the staff's recommendation for NRC to rely on the EPA Underground Injection Control program, thus removing NRC from the review of ground-water protection issues at ISL facilities. The staff notes that this approach will be codified in the new Part 41 rulemaking plan. However, in the mean time, as part of the continuing rulemaking process, the staff should ensure, to the extent practicable, that the approach adopted by NRC minimizes dual regulation at ISL facilities. In this regard, I would no object if NRC's jurisdiction over ground water and how it relates to other activities at ISL facilities is formally examined by OGC.

Commissioner McGaffigan

I approve in part and disapprove in part the staff recommendations for improving the efficiency of NRC regulation at in-situ leach (ISL) uranium recovery facilities. Based on the staff paper and discussions with various stakeholders during the June 1999 Commission briefing and since that time, I offer the following comments on the two topics discussed in the paper for the staff's consideration.

Dual Regulation of Ground Water

I join Commissioners Diaz and Merrifield in approving the staff recommendation that NRC maintain its regulatory jurisdiction over the restoration of ground water in the well field at ISL facilities and rely on the underground injection control (UIC) permit issued by the Environmental Protection Agency (EPA) or the State for the adequate protection of ground water. I also agree with my fellow Commissioners that, while NRC would maintain authority over the well field, the UIC permit would serve as the basis for NRC licensing determinations on all matters pertaining to protection of ground water at ISL facilities without further NRC review of protective measures. I also agree with the staff recommendation that this approach to ground water regulation be pursued with the appropriate stakeholders as part of the Part 41 rulemaking initiative described in SECY-99-011. However, contrary to the position expressed by my fellow Commissioners, I am not convinced at this time that the development of one or more Memoranda of Understanding (MOU) with EPA, EPA Regions and/or the States is the most efficient use of NRC or government resources to resolve this matter. Specifically, the number of NRC-licensed ISL facilities is extremely low (6), the staff estimate of unbudgeted resources needed to develop one or more MOUs is relatively high (1.5 - 5.0 FTE)[(3)], and EPA has identified several dual jurisdiction issues that need to be resolved with stakeholder involvement during the rulemaking process, e.g., protection of ground water within versus outside the UIC permit boundary. Therefore, I strongly suggest to my fellow Commissioners that the staff not be directed to immediately proceed with development of one or more MOUs at this time. Instead, the staff should include in its rulemaking

plan and deliberations with stakeholders the option of not pursuing an MOU but rather developing rule text with stakeholder input that would explicitly state that NRC retains jurisdiction over the ground water in the well field but defers active regulation to EPA or the EPA-authorized State through the UIC permit program. In the end, an MOU or multiple MOUs may be clearly indicated; however, in the interim, we should explore with appropriate stakeholders other options that might increase the efficiency with which we regulate ISL facilities.

Disposal of Solar Evaporation Pond Sludges

I join the majority of the Commission in disapproving the staff recommendation to pursue Options 3 or 4--production bleed would no longer be considered 11e.(2) material--and approving Option 2--NRC would maintain regulatory authority over all liquid effluents by declaring them 11e.(2) byproduct material, as the preferred approach to address the disposal of evaporation pond sludges generated at ISL facilities. Option 2 is also the preferred option expressed in the two Differing Professional Views attached to the staff paper which I found persuasive. In addition, the disadvantages identified by the staff under the status quo--Option 1-- would be mitigated by Option 2. Specifically, 1) the logistics of managing non-11e.(2) and 11e.(2) material to avoid commingling of wastes would be eliminated; 2) all wastes would be eligible for disposal in uranium mill tailings impoundments and previously commingled wastes would not have to be "grandfathered;" and 3) previous NRC conclusions made in environmental assessments and impact statements concerning the offsite disposal of radioactive materials would remain unchanged. These facts lead me to conclude that NRC should reverse its approach to the pre-1995 approach and classify all liquid effluents at ISL facilities as 11e.(2) byproduct material. Also, the resource savings associated with Options 3 or 4, wherein NRC relinquishes its authority over certain ISL wastes, are minimal (0.5 FTE) and not persuasive. Moreover, the potential resource expenditure associated with developing a legislative package and garnering support for such an approach in Congress could easily outweigh the identified resource savings.

Commissioner Merrifield

I disapprove the staff recommendation of option 3 or 4 as the preferred approach in SECY-99-013. Instead, I approve option 2 (classifying all liquid effluents as 11e.(2) byproduct material) with modifications as discussed in the following paragraphs. In addition, until the new Part 41 is completed, I approve staff continuing its standard practice of conducting detailed evaluations of ground water activities. However, as discussed below, I do not approve continuing the staff practice of using a more narrow definition of 11e.(2) byproduct material for *in-situ* leach (ISL) mining reviews.

First, I strongly approve adding specific provisions in the rulemaking plans for the new Part 41 regulations to address ISL mining. The current regulations were not written to address ISL mining as it was not a dominant part of the industry when the regulations were written. However, today, ISL extraction is the predominant method of uranium recovery in the United States. I believe that it is appropriate for our implementing regulations to codify the numerous regulatory decisions and precedents established over the years for this unique mining operation.

Second, an important issue to be addressed is the matter of NRC jurisdiction over the ground water, as there is already some regulation of the well field mining operations by EPA/State authorities. I understand that the industry's preferred approach for addressing dual regulation in the well field is for the NRC to determine that it does not have jurisdiction in the well field. The staff's preferred options 3 and 4 are an attempt to address industry's concerns by declaring that only a small portion of the ISL piping actually contains 11e.(2) byproduct material. However, I have a conceptual problem with this proposal. My problem arises from attempting to declare, without a statutory basis for the decision, that at some arbitrary portion of the system the effluent becomes 11e.(2) byproduct material; and throughout the rest of the system the material which is physically, chemically, and radiologically identical to this same material (and in fact originated from the same location) is not 11e.(2) byproduct material.

Industry would have the Commission declare that the dissolution of the uranium in the well field is mining and therefore is not under NRC authority. I disagree. The definition of 11e.(2) byproduct material comes directly from the AEA of 1954, as amended, which reads "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 AEA further requires NRC to exercise regulatory authority over byproduct material with certain restrictions. Those restrictions do not apply in this situation. Using a traditional mine as an analog, the NRC is not heavily involved in mining the ore because the uranium remains in its natural state in the ore (i.e, the uranium is not extracted from the ore, the ore is extracted from the ground). The physical mining operations are best regulated by more knowledgeable authorities in this area. However, once the ore is taken to the mill and is initially crushed to start the removal of the uranium, NRC regulations come into force. NRC regulations do not state that in the first 20 feet of the mill (or some other arbitrary number) the crushed rock is not 11e.(2) byproduct material. Instead, if the mill operator subsequently determines that the specific uranium loading of the crushed ore does not meet the company's economic criteria for continued processing, the material must be transported directly to the mill tailings pile and is considered 11e.(2) byproduct material. I believe the same scenario applies to the ISL mining. When the chemicals are injected into the well field to initiate the process of leaching the uranium (as well as other minerals) out of the rock, I consider it equivalent to crushing the ore in a conventional mill. Therefore, I believe that NRC authority for this material starts at this point.

In fact, I believe that attempting to arbitrarily declare only a section of the system as 11e.(2) material creates more problems than it solves. For example, as discussed in the paper, this position creates a large component of non-11e.(2) material that must be disposed under some other regulatory authority, which increases the potential for dual regulation of the site. In addition, there is a very high likelihood that this non-11e.(2) material could become accidently mixed with its identical 11e.(2) sister material, creating regulatory problems for the NRC and State.

Therefore, the most logical position, in my view, is for the NRC to maintain regulatory authority over all liquid effluents by declaring them 11e.(2) byproduct material (option 2 in the SECY paper). Under this position, waste from production bleed, discrete processing, and restoration operations would all have an approved, unambiguous disposal option.

However, I fully agree that the problem of dual regulation of the groundwater in the well field should be addressed; and I believe it can be addressed under a modified option 2. Under this modification and as discussed in the paper, the Commission could maintain regulatory authority over the entire ISL mining process but would rely on the actual or expected underground injection control permit (UIC), issued by the EPA or a State under the UIC

program, as a basis for NRC licensing determinations on all matters pertaining to protection of groundwater from the underground operations of ISL mining activities, without further review of such groundwater protection matters. The difference between my proposal and the staff's proposal is that the NRC would maintain regulatory authority over the well field.

Although I would define the jurisdictional boundary between NRC and EPA in this area slightly differently than the staff had recommended, I agree with the fundamental notion that the NRC should avoid dual regulation where possible. Consistent with my recommendation above, I would urge staff to continue its efforts toward satisfactory resolving our regulatory responsibilities in this area to avoid as much as possible dual regulation. The Commission has been successful in other areas defining respective roles of the NRC and EPA in complicated licensing decisions. See, e.g., Public Service Company of New Hampshire, CLI-78-1, 7 NRC 1, 26 (1978), aff'd sub nom. New England Coalition v. NRC,, 582 F.2d 87, 98 (1st Cir. 1978) (staff relied on EPA's findings pursuant to the Federal Water Pollution Control Act).

Implementation of a program to rely on the UIC permitting process should be done as part of the Part 41 rulemaking process so that comments and input can be obtained from appropriate stakeholders, including the industry, EPA and States with primacy under the UIC program, and members of the general public. The staff should begin discussions with EPA and States (which currently allow ISL mining) concerning how this approach should be implemented, including the possibility of negotiating memorandums of understanding, if appropriate. As part of these discussions, the staff should negotiate clear lines of responsibilities and authorities between the various parties. These discussions should also include draft rulemaking language as well as draft regulatory guidance.

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1. The term "process bleed" is also used. It refers to the combination of production bleed and the process effluent.

2. See K. Sweeney et.al., Recommendations for a Coordinated Approach to Regulating the Uranium Recovery Industry: A White Paper Presented by the National Mining Association, 102 (undated) ("[The production bleed] brings fresh water into the mining zone to inhibit the build up of contaminants that could reduce the efficiency of the mining operation.")

3. See the October 28, 1999 memorandum from William Travers, EDO to the Commission regarding staff resources needed to develop and finalize MOUs for regulation of groundwater at in-situ leach facilities.