

March 14, 2008

Mr. Anthony J. Thompson, Esq.
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1225 19th Street, NW, Suite 300
Washington, DC 20036

SUBJECT: KENNECOTT URANIUM COMPANY PLAN TO RECEIVE AND STORE
URANIUM LOADED ION-EXCHANGE RESINS AT ITS SWEETWATER
URANIUM MILL (TAC 60488)

Dear Mr. Thompson:

Your legal memorandum and cover letter, dated January 14, 2008, addressed to the Chairman of the U.S. Nuclear Regulatory Commission (NRC) and pertaining to License SUA - 1350, has been referred to me for response. You were writing on behalf of your client, the Kennecott Uranium Company (KUC), protesting an evaluation made by my office (documented in the NRC staff's November 30, 2007, letter to KUC). You state that under the NRC's alternate feed guidance, KUC should be allowed to store uranium-loaded ion exchange (IX) resin as "ore" on its mill site without first obtaining a license amendment authorizing such storage. You request that the staff position requiring a license amendment application to authorize storage be overruled.

In considering your request, the NRC staff has reviewed the licensing history of License SUA - 1350, and the license conditions (LCs) set forth in this license. For the reasons set forth below, I am denying your request.

But before getting into the details of this matter, my view is that the financial assurance issues discussed below could be resolved by a fairly routine revision to LC 9.7, should KUC decide to pursue a storage-only license amendment. Such a revision would likely entail preparation of a simple environmental assessment, and I would thus expect that a license amendment request seeking to either revise the surety amount, or revise the basis for the surety amount, could be handled expeditiously. If you have any questions regarding this matter, please contact Mr. William von Till at (301) 415-0598, or, by e-mail, at rwv@nrc.gov.

Background

As reflected in the August 1978 application which resulted in the issuance of source materials license SUA - 1350 in 1979, the Sweetwater Uranium Mill is located adjacent to an open pit uranium mine. The mill was built in 1979-80, and was placed as close to the mine as possible to provide the shortest ore haulage distance. Ore from the mine was processed at the mill from February 1981 through April 1983. The mill was then placed into standby status - which it remains in today -- and no mined ore has been processed at the mill since 1983. With the cessation of milling operations, mine dewatering was halted resulting in flooding of the adjacent mine pit.

In 1989, the licensee at the time (Minerals Exploration Company) requested a license amendment to authorize the operation of an IX facility at the Sweetwater Uranium Mill. The initial purpose of this IX facility was to extract uranium from the water in the adjacent flooded

mine pit. The license was amended in early 1990 and in 1991 to permit the construction and operation of the IX facility.

In 1996, KUC requested a license amendment for authorization to accept for direct disposal in its mill tailings cell 11e.(2) byproduct materials shipped from Crow Butte's ISL operations in Nebraska (under License SUA-1534). It was estimated that over a 15-year period Crow Butte's ISL operations would generate a maximum of 2800 cubic yards of byproduct materials (including spent resins), and KUC recognized in its application that a license amendment was required because LC 10.6 of SUA-1350 did not cover the Crow Butte material. LC 10.6 was amended in 1997 to cover the Crow Butte material.

In its letter to the staff dated June 10, 2007, KUC stated its intent to store at its mill site 8,000 cubic feet of unprocessed IX resins to be shipped from water treatment plants that are removing uranium from drinking water supplies using an IX process. Such treatment is done to comply with the U.S. Environmental Protection Agency's (EPA's) maximum contaminant level (MCL) for uranium of 0.03 mg/l (established by EPA a few years ago). At the water treatment plants, uranium is concentrated on the resin in a range from one to three percent. This uranium is 10 CFR Part 40 source material because it is uranium "in any physical or chemical form," and its concentration is greater than the 10 CFR 40.13 exemption limit of 0.05 percent. Before being authorized to resume operations – specifically, operation of its IX facility -- KUC wants to store the IX resins at its site. KUC views these resins as "ore," and would store them until it applies for and obtains a license amendment allowing KUC to process the IX resins. In this IX process, KUC would elute, precipitate and dry the uranium from the resin, yielding yellowcake. The liquid and solid wastes from the IX process would be disposed of in KUC's tailings cell as 11e.(2) byproduct material. The yellowcake product would be dried and sold.

As indicated above, KUC argues in its June 10 letter that the unprocessed IX resins qualify as "ore" under the NRC's alternative feed guidance. From this premise, KUC states that even if these resins are not later processed in its IX facility, they could later be disposed of onsite as 11e.(2) byproduct material. This claim is the primary issue here.

Discussion

A. License Amendment Application is Required

Absent a license amendment, KUC's Sweetwater facility will not be authorized to accept the IX resins at issue here. KUC's argument that these unprocessed resins must be regarded as "ore," and would thus "become 11e.(2) byproduct material" in the event that KUC's site was permanently closed (June 10 letter, at 2 n.2) is without merit. KUC cites an excerpt from NUREG 0706, the 1980 Generic Environmental Impact Statement (GEIS) on uranium milling. The GEIS excerpt quoted by KUC, from GEIS page A-89, repeats text from Section 84a(1) of the Atomic Energy Act (as the provision read before wording was added to it in 1983). The GEIS excerpt cited by KUC states as follows:

Section 205(a) of the UMTRCA amends the Atomic Energy Act of 1954 by adding a new Section 84 which states in part that 'the Commission shall insure that the management of any byproduct material, as defined in section 11e.(2), is carried out in such a manner as [1] the Commission deems appropriate to protect the public health and safety and the

environment from radiological and nonradiological hazards associated with the processing and [with] the possession and transfer of such material.

June 10 letter, at 2 n.2 (emphasis added). KUC concludes that no license amendment is now necessary to authorize the storage of the loaded resins "pending the resumption of NRC-approved uranium recovery operations," because KUC is already licensed to possess and process unlimited quantities of source material. June 10 letter, at 2. KUC is incorrect. As detailed below, KUC's current license allows possession of natural uranium mined at the site, not unprocessed IX resins originating at offsite water treatment plants and shipped to KUC's site. An amendment is necessary for KUC to store the unprocessed IX resins. Further, it cannot be assumed (1) that these unprocessed IX resins qualify as "ore"; or (2) that such resins would later qualify as 11e.(2) byproduct material regardless of whether or not they are processed in KUC's IX facility.

As stated in AEA Section 84a(1), Congress gave the NRC wide discretion regarding the management of byproduct material. Using the discretion provided by AEA Section 84a(1), the staff developed the NRC's alternative feed guidance to evaluate materials such as the unprocessed resins at issue here. Under this guidance, whether to classify uranium-loaded resins from water treatment plants -- material that is not ore taken from a uranium mine -- as ore is a question for the NRC, not KUC, to decide. Moreover, neither the Congress in 1978, nor the NRC in 1980 (when the GEIS was published), had in mind a situation in which a uranium mill in standby status would be seeking to store material collected to comply with an EPA MCL for uranium that was not then in existence.

There is a distinction between a mill's processing natural ore from a nearby mine, and processing alternate feed material shipped in from elsewhere. When a mill permanently closes, any stockpiled ore remaining from past mining operations can be placed in the onsite tailings cell even though it had not been processed for its source material content. See URFO letter to BP America, dated December 19, 1989. Such mined uranium ore, coming from a nearby mine, is assumed to be radiologically consistent with the existing tailings at the mill site. However, such an assumption cannot reasonably be made for alternate feed material, which could contain hazardous components in addition to concentrated source material. These issues, and ones relevant to whether IX resins from treatment of mine water can be designated as ore, are discussed in the staff's 1992 alternate feed analysis setting forth for public comment its then-proposed alternative feed guidance. In explaining the guidance, the staff stated in part as follows:

Treatment is often via ion-exchange columns which concentrate high levels of uranium on resins or the eluate. Several mills ... 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 11.e(2) byproduct material ...

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. ... 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 mined from the earth meets the definition of 11e.(2) byproduct material.

57 Fed. Reg. 20525, 20532 (May 13, 1992). The determination whether feed material is ore, under the guidance's definition, is the staff's responsibility, as first explained here. *Id.*, at 20530.

After considering public comments, the 1992 draft alternate feed guidance was published in final form in 1995. The preamble and section 1 ("Determination of Whether the Feed Material is Ore") of the guidance remained unchanged. Cf. 57 Fed. Reg. 20530 to 60 Fed. Reg. 49296 (Sept. 22, 1995). The guidance's preamble states that the NRC staff must review "licensee requests" to process alternate feed in order to determine whether the proposed material qualifies as ore. *Id.*, at 49296.

These same elements of the alternative feed guidance remain in place today (in the updated 2000 version). Section 1 states in full as follows:

1. Determination of whether the feed material is ore.

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

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

Thus, throughout the guidance's development, the NRC has made clear that the staff's designation of alternate feed as ore is an essential first step in approving any part 40 licensee's proposal involving alternate feed. As discussed further below, the guidance provides the staff with a set of procedures for implementing the existing regulations in 10 CFR part 40, Appendix A. Neither KUC's June 10 letter, nor your January 2008 submittals, identify an alternative to the guidance that is acceptable to the staff.

As proposed for revision in 1999, the alternate feed guidance would have allowed mill licensees to process alternate feed without always obtaining prior NRC approval. See SECY-99-12, at 9. Licensees could request a performance-based license amendment, avoiding the need for the licensee to thereafter obtain separate amendments for each individual processing action. The staff further explained that this would provide licensees the same flexibility to process alternate feed material as they have to process natural ore. *Id.*

But KUC never requested or obtained such a license amendment. Accordingly, its Sweetwater facility is not now a properly licensed facility authorized to accept alternate feed material such as the unprocessed resin at issue here. In this regard, the staff's intent was that loaded resin from water treatment plants would be sent to a properly licensed facility for disposition (this is

reflected in condition 35 of License SUC-1591, a source material license held by R.M.D. Operations). You do not address these points in your January 14 legal memorandum.

The fact that the KUC mill's acceptance of the Crow Butte material required a license amendment is viewed by the NRC staff as a relevant precedent. In this regard, LC 10.6 states as follows:

During any period of mill standby, [KUC] shall not add tailings or other solid wastes to the tailings impoundment, except byproduct material in the form of debris generated by routine site maintenance. [KUC] may add a maximum of 2800 cubic yards of 11e.(2) byproduct material generated by Crow Butte Resources, Inc. in the course of operating its Crow Butte In Situ Leach (ISL) facility that is licensed by SUA-1534 and solid and liquid wastes from the site's IX plant. Disposal of the Crow Butte ISL materials shall be in accordance with [KUC's] submittal of July 9, 1996.

This LC, rather than the more general LCs 6, 7, and 8 (relied upon by KUC in its June 10 letter), more closely relates to the present licensing issues. LCs 6, 7, and 8 collectively authorize the possession of unlimited amounts of natural uranium and/or natural uranium byproducts in any chemical and/or physical form at the Sweetwater Mill. Yet their presence in the license in 1996 did not authorize KUC to accept the Crow Butte 11e.(2) byproduct material – otherwise, no license amendment would then have been necessary. LCs 6, 7, and 8 have been in place in substantially similar form since the mill was first licensed in 1979. The broad and general nature of their terms relate to the mill's original licensing basis (i.e., the mill was designed and operated to process natural uranium bearing rock from the adjacent mine). Consequently, KUC's reliance on LCs 6, 7, and 8 (see June 10 letter, at 2) is misplaced, for they are not good authority for now allowing the storage of IX resins at the mill. Such reliance gives these LCs a meaning substantially beyond the purpose for which they were originally made part of license SUA-1350, at a time when the mill was not in its present standby status.

The mill's present standby status is reflected in LC 9.4 (the other license condition relied upon by KUC in its June 10 letter). LC 9.4 describes the mill's present "standby mode of operation," during which "no yellowcake is produced by the mill." The NRC must be notified at least 90 days "prior to any planned resumption of uranium milling operations." LC 9.4 reflects the operating authority discussed above (in the Background section) regarding the mill's IX facility, requiring that any contaminated liquid and solid wastes from the IX facility "be placed in the tailings impoundment." LC 9.4 further states that KUC "is not authorized to produce any other uranium concentrates" until after a pre-operational inspection confirms that proper operating procedures and environmental monitoring programs are in place, and that pre-operational testing is complete. Thus, at KUC's mill, processing of any ore for its source material content is dependent on first obtaining this production authorization. Additionally, unless authorized by LC 10.6, the only byproduct material KUC is authorized to possess pursuant to LC 9.4 is that which is "in the form of uranium waste tailings and other uranium byproduct waste generated by [KUC's] milling operations."

On the need for a license amendment, your January 14 legal memorandum assumes a difference between storing the resin (no amendment needed) and processing it, acknowledging that processing would require a license amendment (storage should be allowed "pending issuance of a license amendment to KUC authorizing the processing [of] such IX resins").

January 14 legal memorandum, at 3. However, KUC leaves open the question of when such a license amendment application would be submitted. What is clear is that LC 9.4 now prohibits yellowcake production by KUC, and prohibits the generation of any byproduct material beyond that already allowed in its license. Allowing resin storage without revising the license's surety amount (set forth in LC 9.7) would thus create an unacceptable risk that the resin would not thereafter be processed onsite. Absent approval of such processing, the resin would not qualify as 11e.(2) byproduct material, and could not be disposed of onsite in the existing tailings pile.

In summary, the staff's position remains that KUC's present license does not authorize the storage or processing of the IX resin at issue here. The alternate feed guidance, last revised in 2000, by its terms applies to the review of "licensee requests to process alternate feed material (material other than natural ore) in uranium mills" (emphasis added). The guidance does not extend to KUC's request to store the IX resin, because KUC's request does not seek authorization to process the resin. The guidance's preamble also states that its implementation is in addition to determining whether a licensee has complied "with appropriate aspects of Appendix A of 10 CFR Part 40." Criterion 9 of Appendix A (referenced in LC 9.7 of KUC's license) contains the financial assurance requirements at issue here. In requiring that financial assurance issues be addressed before the IX resin storage is authorized, the staff is acting in a manner consistent with the alternate feed guidance. Once KUC submits a storage-only license amendment request addressing the financial assurance issues discussed below, the staff can properly determine whether to authorize the IX resin storage.

B. Financial Assurance Issues

Because the mill is presently in standby status, it is unknown whether or when any of the subject IX resin would be processed to produce yellowcake. In this regard, notwithstanding your response to the staff's November 30 letter, we remain concerned about the related issue of financial assurance. As stated in the staff's letter, to pursue a storage-only option at this time KUC would need to demonstrate that in the event it cannot later process the resin (*e.g.*, if KUC becomes insolvent, or its mill never re-opens), it would have the financial assurance to cover ". . . the cost of removing and disposing the resin at another location." November 30, 2007, letter, at 3. You state (January 14, 2008, memorandum, at 34) that the staff's position that an increase in the financial assurance is required is "impractical" for a number of reasons. However, none of these reasons preclude the possibility that this non-11e.(2) byproduct material might require disposal offsite at a cost not considered in the existing financial assurance. There appears to be general agreement that the material proposed for storage is not currently 11e.(2) byproduct material. In addition, the material has not yet been approved for processing. As noted earlier in this response, it is possible that the material will not be processed and will remain non-11e.(2) material with no provision for proper disposal. Therefore, financial assurance to ensure proper disposition avoids any potential for stranded or orphan waste. Changes to the existing financial assurance would require a license amendment to LC 9.7.

C. The Definition of "Ore" Lacks Legal Force

Your January 14, 2008, memorandum and letter do not discuss any of the LCs in License SUA – 1350. Instead, you take issue with the staff's position that the definition of "ore" (as set forth above in the NRC's alternative feed guidance) lacks legal force. This definition of ore can have no greater legal force than the guidance document of which it is a part. The Commission most

recently evaluated the NRC's alternative feed guidance in its *International Uranium Corporation* (IUC) decision, CLI-00-1, 51 NRC 9 (2000). You reference this decision (see January 14, 2008, memorandum, at 25-26), but you do not discuss the following statements made there by the Commission regarding the alternative feed guidance's status as a legally enforceable document:

The Commission, however, is not bound by the Guidance. Like NRC NUREGs and Regulatory Guides, NRC Guidance documents are routine agency policy pronouncements that do not carry the binding effect of regulations.... Such guidance documents merely constitute NRC Staff advice on one or more possible methods licensees may use to meet particular regulatory requirements.... These guides, however, do not themselves have the force of regulations for they do not impose any additional legal requirements upon licensees.

51 NRC 9, at 19 (citations omitted). This directly contradicts your January 14 argument that the guidance, and its definition of ore, have the full force and effect of law.

Further in this regard, without including any supporting citation, you claim that in IUC the Commission "inextricably linked" (January 14, 2008, memorandum, at 26) the guidance's definition of ore to the Atomic Energy Act's definition of section 11e(2) byproduct material. On the contrary, the Commission emphasized at the beginning of its legal analysis that its IUC decision ". . . rests solely on section 11e(2)'s 'processed primarily for its source material content' clause." 51 NRC 9, at 14. In fact, nowhere in its IUC decision does the Commission discuss the guidance's definition of ore. The Commission did note that no NRC regulation implementing this guidance had been established (*id.*, at 20 n.5), and this remains the case today. Thus, the guidance's definition of ore lacks regulatory force, and it cannot be considered in isolation from the guidance document of which it is a part.

Conclusion

The fact remains that the IX resin at issue here would first need to be approved for processing for its source material content, before it would qualify as 11e(2) byproduct material. See the NRC staff's November 30, 2007, letter, at 2. The issue now is whether the uranium-loaded resin that KUC wants to store at its Sweetwater Mill will later be processed there as alternate feed. For absent such processing - which will require a license amendment -- the resin is not 11e(2) byproduct material, raising the financial assurance concern that the stored resin would become stranded or orphan waste.

A. Thompson

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Sincerely,

/RA George Pangburn for/

Charles L. Miller, Director
Office of Federal and State Materials
and Environmental Management Programs

Docket No.: 40-8584
License No.: SUA-1350

cc: Christopher S. Pugsley, Esq.
Oscar Paulson

Enclosure: December 19, 1989 Letter to BP America

A. Thompson

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