

November 30, 2007

Mr. Oscar Paulson  
Facility Supervisor  
Kennecott Uranium Company  
P.O. Box 1500  
Rawlins, WY 82301-1500

SUBJECT: STORAGE OF WATER TREATMENT ION EXCHANGE RESIN PRIOR TO  
PROCESSING, KENNECOTT URANIUM COMPANY, SWEETWATER  
URANIUM PROJECT (TAC J60488)

Dear Mr. Paulson:

By letter dated June 10, 2007 (ADAMS Accession No. ML071660298), Kennecott Uranium Company (KUC) informed U.S. Nuclear Regulatory Commission (NRC) staff that it would like to store water treatment ion exchange (WTIX) resin at its Sweetwater Uranium Project, Sweetwater County, Wyoming. In its letter, KUC makes several arguments in support of its position that it should be allowed to store the WTIX resin onsite without first being granted a license amendment to do so. If it is later authorized to resume its milling operations, KUC intends to process the WTIX resin as alternate feed material and dispose the resultant 11e.(2) byproduct material in its onsite tailings cell. As discussed below, because the resin is not natural ore already present at the site, and because KUC is not presently authorized to conduct milling, the requested action requires a license amendment.

#### Background

The WTIX resin originates from potable water treatment plants that are removing uranium from drinking water using an ion exchange (IX) process. Such treatment is done to comply with the U.S. Environmental Protection Agency's maximum contaminant level (MCL) for uranium of 0.03 mg/l. Uranium is concentrated on the WTIX 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." Before being authorized to resume licensed uranium milling operations, KUC seeks authority to store the WTIX resin at its site. Later, as part of its milling operations, KUC would extract the uranium from the resin in a precipitation process yielding yellowcake, and the yellowcake product would then be dried and sold.

#### Discussion

##### A. A License Amendment Application is Required

Since 1999, the staff's policy has been to have mill operators obtain a performance-based license amendment before processing alternate feed material. This avoids the need to thereafter obtain separate amendments for each individual processing action, and provides licensees the same flexibility to process alternate feed material as they have to process natural ore (SECY 99-12, p. 9). During its past operations, KUC never obtained such a performance-based license amendment. Additionally, regarding uranium-laden resin from water treatment

plants, the staff's intent was that such resin be sent to a properly licensed facility for disposition. This is reflected in License Condition 35 of R.M.D. Operations, LLC's Source Material License SUC-1591. Absent a license amendment, KUC's Sweetwater facility will not be a properly licensed facility authorized to accept the WTIIX resin.

Relying on the NRC's alternate feed guidance (as set forth in *Regulatory Issues Summary 2000-23: Recent Changes to Uranium Recovery Policy*), KUC contends that the WTIIX resin here is properly classified as a type of processed ore. In the guidance, the word "ore" is defined 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."

Regarding the first part of the definition, the staff does not view the WTIIX resin as being natural or native matter that may be mined. The WTIIX resin is neither an ore body from which uranium has been mined, nor is it a material processed for its source material content. It is a technologically enhanced radioactive material generated by the removal of uranium in drinking water. The second part of the definition provides the NRC staff flexibility in determining whether a material may be considered alternate feed material. It is important to note that the above definition, because it is guidance, has no legal force. Therefore, NRC staff, not the licensee, must make a determination that a certain material is alternate feed material through the license amendment process. Consequently, the uranium on the WTIIX resin is not an ore that KUC could place on its ore pad for future processing without first obtaining a license amendment.

KUC further contends that the 1980 GEIS on uranium milling is relevant here, because it evaluated the extraction of uranium from water sources and the use of resin to concentrate uranium in conventional mills. While the GEIS briefly discusses the use of IX resin within the conventional mill process after the ore has been leached (GEIS, Page B-9), the following excerpt (from Page 1-2) shows that its focus was on the impacts of conventional uranium milling:

"Nonconventional recovery processes include in situ leaching from mines or uranium-rich tailings piles and extraction of uranium from mine water and wet-process phosphoric acid. These processes are described to a limited extent for completeness; they are not evaluated in depth since they now produce relatively small quantities of uranium.... "

KUC also cites the fact that in 1998 the NRC staff verbally authorized KUC to store 174,500 pounds of IX resin at its Sweetwater uranium mill without requiring KUC to apply for a license amendment. KUC states that the "only difference" between the 1998 resin and the WTIIX resin is that the 1998 resin is "defined as 11e.(2) byproduct material." The 1998 telephone logs (notes of Oscar Paulson) that KUC recently provided to the staff do not indicate why the 174,500 pounds of IX resin was deemed to be byproduct material. However, NRC staff apparently classified it as such and found cause to do so. On the contrary, KUC states in its June 10, 2007 letter - and staff agrees - that the WTIIX resin is not byproduct material because it has not yet been processed for its source material content. Because the WTIIX resin is not byproduct material, the staff does not view its 1998 verbal authorization as being relevant here.

## B. Guidance on Obtaining a License Amendment

The staff could consider a single license amendment application addressing both the storage and processing of the WTIIX resin. However, if storage is a more immediate concern, the staff can consider an amendment for storage only. To obtain NRC's approval to store the WTIIX resin

as alternative feed material prior to processing the resin, KUC must submit a license amendment request. In such a request, KUC would need to show that its financial assurance addresses the need to dispose of the WTIX resin at a licensed facility, in the event that processing the resin at Sweetwater cannot later be accomplished for any reason (e.g., KUC becomes insolvent, or its mill never re-opens). KUC thus must show that its financial assurance covers the cost of removing and disposing the resin at another location.

Please note that NRC staff has made this determination based on the information provided in KUC's correspondence and in-house documents. If KUC would like to raise additional issues regarding this matter, it may do so. If you have any questions, please contact Mr. Stephen J. Cohen, Project Manager, at 301-415-7182 or, by email, at [sjc7@nrc.gov](mailto:sjc7@nrc.gov).

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

**/RA/**

William von Till, Chief  
Uranium Recovery Licensing Branch  
Decommissioning and Uranium Recovery  
Licensing Directorate  
Division of Waste Management  
and Environmental Protection  
Office of Federal and State Materials  
and Environmental Management Programs

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

cc: M. Thiesse, WDEQ

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Sincerely,

**/RA/**

William von Till, Chief  
 Uranium Recovery Licensing Branch  
 Decommissioning and Uranium Recovery  
 Licensing Directorate  
 Division of Waste Management  
 and Environmental Protection  
 Office of Federal and State Materials  
 and Environmental Management Programs

Docket No.: 40-8584  
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