RIO TINTO

ENERGY AMERICA

6/12/07

Mr. Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials & Environmental Management Programs
U.S. Nuclear Regulatory Commission
11545 Rockville Pike
Rockville, Maryland 20852-2738

Dear Mr. McConnell:

Subject: Sweetwater Uranium Project - Docket No. 40-8584, License No. SUA-1350
Storage of Loaded Water Treatment Plant Resins at the Sweetwater Uranium Project

Kennecott Uranium Company (KUC) wishes to store a small volume (approximately 8,000 cubic feet) of ion exchange resin loaded with uranium at the Sweetwater Uranium Project beginning in September 2007. These loaded resins contain 1% to 3% natural uranium. These resins would be stored until such time as licensed operations are resumed at the site, at which point they would be eluted (processed), the uranium removed from them, precipitated as yellowcake and the yellowcake product dried and sold. This issue was discussed in a conference call involving Stephen Cohen, Ron Linton, Bill Von Till, Rick Weller and Myron Fliegel of the Nuclear Regulatory Commission (NRC), Anthony J. Thompson and Christopher S. Pugsley of Thompson and Simmons, LLC, and Oscar Paulson of KUC on the afternoon of Wednesday, May 23, 2007. This letter was requested as a result of that conference call. KUC believes that these materials can be stored on site without the need for a license amendment pending resumption of operations pursuant to NRC-approved license modifications for the following reasons:

Nature of the Materials

These materials are ion exchange resins loaded with natural uranium in concentration s of 1% to 3%. As such, these materials are *licensable* source material defined by regulation as follows:

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

These resins are not 11(e).2 byproduct materials since they are resins newly loaded for the first time with uranium by water treatment procedures. Therefore, they have not been loaded "primarily" for their source material content nor have they ever been processed (eluted) for their source material content. In any event, they are not a "waste" as they will not have been "discarded" or "abandoned":

KUC believes that these materials are properly classified as "ore" as defined in *Regulatory Issues Summary 2000-23 Recent Changes to Uranium Recovery Policy* 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. [1]

[1] KUC believes that this definition properly can be read to mean any other matter from which source material is, *or can be*, extracted in a licensed uranium mill.

Rio Tinto Energy America • 505 South Gillette Avenue (82716) • Post Office Box 3009 • Gillette, Wyoming 82717-3009
T +1 307 687 6000 • F +1 307 687 6015 • www.rtea.com

More specifically, these materials have been defined by NRC to constitute "ore," albeit a "refined and processed" ore:

"The Nuclear Regulatory Commission (NRC) and Agreement States have received, and in some cases approved, requests to allow a uranium mill to process feed material that was not natural (native, raw) uranium ore and dispose of the resulting waste in the facility's tailings impoundment. In those cases, the feed material was generally either processing wastes from other extraction procedures or **the residues from mine-water treatment.** *These requests were handled on a case-by-case basis, and approvals were based on the interpretation that the proposed feed material was* ***refined or processed ore****."*

57 Fed. Reg. 20525, 20532 (May 13, 1992).

During the telephone conference on Wednesday, May 23, 2007, NRC Staff acknowledged that KUC could place *ore* on the ore pad at the Sweetwater Uranium Project for future processing without a license amendment. The question raised by one NRC Staff member was: Can an alternate feed ore (i.e., other than natural ore) be considered "ore" without a license amendment determination that it qualifies as "ore?" KUC believes that the above-quoted determination by NRC Staff adequately answers this question—that is, NRC has recognized that these resins are indeed "ore" (albeit a refined and processed ore). Moreover, the GEIS evaluated the extraction of uranium from water sources and the use of resins to concentrate uranium in conventional uranium mill circuits. ("Nonconventional recovery processes include *in situ extraction of ore bodies...uranium recovery from mine water*, copper dump leach liquor, or wet process phosphoric effluents." GEIS at Summary 3, pp. 3-4-3-10 (emphasis added); *see also* Volume II at B-9 –B-10. The GEIS also states "the resulting impure dilute leach solutions have to undergo *concentration* and *purification* as a prerequisite to the production of a final, high-grade, uranium product. A number of major techniques are used to affect this stage of the milling process. They are: *ion-exchange... solvent extraction....*" GEIS at B-9.

Indeed, many conventional uranium recovery facilities received and processed IX resins from IX columns used to extract uranium from mine water. IX technology was used to remove uranium from large volumes of mine water generated during the mine dewatering to enable underground mining.

Further, the facility's Source Material License (SUA-1350) contains the following conditions that are applicable to this proposed activity:

- License Condition 6 – Byproduct Source, and or Special Nuclear Material
  - Allows possession of *Natural Uranium and/or Natural Uranium Byproducts*
- License Condition 7 - Chemical and/or Physical Form
  - Allows *Any* chemical and/or physical form
- License Condition 8 – Maximum Amount that Licensee May Possess at Any One Time Under This License
  - Allows for *Unlimited* quantities
- License Condition 9.4
  - States in part, *"The licensee is authorized to operate an ion exchange (IX) uranium recovery facility in accordance with submittals dated September 27, 1989 and October 18, 1991. Contaminated liquid and solid wastes from the IX plant shall be placed in the tailings impoundment."*
  - Possession of uranium-laden IX resin is part and parcel of the operation of an ion exchange uranium recovery plant and is permitted under this license condition.

These existing license conditions allow KUC to possess natural uranium and/or natural uranium byproducts in any chemical or physical form in unlimited quantities, including in the form of loaded ion-exchange resins, which NRC has recognized to be an "ore." These ion exchange resins are not "*source material waste*" nor are they 11e.(2) byproduct material at this time as they have neither been "discarded" or "abandoned" nor have they been processed "primarily" for their source material content.[2] Thus, no license amendment should be necessary for KUC to store *licensable* uranium in the form of loaded resins pending the resumption of NRC-approved uranium recovery operations.

---

[2] As an "ore" stored on-site, if KUC were to go to final site closure prior to it being processed and if the "ore" could not be sold to a third party, then it would become 11e.(2) byproduct material. GEIS at A-89 ("Section 205(a) of the UMTRCA [Uranium Mill Tailings Radiation Control Act of 1978] 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...the Commission deems appropriate to protect the public health and

History of Resin Storage at the Facility

The facility has historically stored ion exchange resins without a license amendment. In 1998, the facility accepted 174,500 pounds of ion exchange resin (with associated water to pump it). The licensees' Project Manager was asked at that time about storage of this material. She investigated the situation and, in a telephone conversation, verbally authorized the licensee to store the resin on-site without a license amendment. She did this following discussions with other members of the Staff including a member of the Office of General Counsel (OGC). (Telephone logs provided to Stephen Cohen) The only difference between those resins and the ones that the licensee wishes to store now is that those resins were defined as 11(e).2 byproduct material.

Those resins have been stored at the facility in an idle counter current decantation unit (thickener) since 1998. They are monitored for ambient gamma radiation, radon and radon progeny. Information regarding these monitoring results is reported to the Commission in the facility's Annual ALARA Report. The doses from these stored materials are insignificant and they pose no hazard to workers or to the general public. The resins are stored in a tank that is on a bermed slab with sumps inside of a building to protect against the unlikely event of a leak or spill. The resin tank is heated in winter to prevent freezing of the resin and potential freezing-related damage.

The facility has a long (over one (1) decade) history of storing ion exchange resins with the Commission's permission. Storage of additional uranium bearing resins on site is not a departure from this history. These additional volumes of resin are small when compared to the amount of resin already stored on site, specifically the resins brought to the site in 1998 and stored in a counter-current decantation thickener.

Performance Based License

The facility possess a performance based license with based upon License condition 9.3 entitled Changes, Tests and Experiments. It reads as follows:

9.3 Changes, Tests and Experiments

(a) The licensee may, without obtaining a license amendment pursuant to § 40.44, and subject to conditions specified in (b) of this condition:
i. make changes in the facility as described in the license application (as updated),
ii make changes in the procedures as described in the license application (as updated), and
iii conduct tests or experiments not described in the license application (as updated).

(b) The licensee shall obtain a license amendment pursuant to § 40.44 prior to implementing a proposed change, test or experiment if the change, test, or experiment would:
i Result in any appreciable increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated);
ii Result in any appreciable increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the license application (as updated);
iii Result in any appreciable increase in the consequences of an accident previously evaluated in the license application (as updated);
iv Result in any appreciable increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated);
v Create a possibility for an accident of a different type than any previously evaluated in the license application (as updated);
vi Create a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated);
vii Result in a departure from the method of evaluation described in the license application (as updated) used in establishing the Final Safety Evaluation Report (FSER) or the Environmental Assessment (EA) or Technical Evaluation Reports (TERs) or other analysis and evaluations for license amendments;
viii For purposes of this paragraph as applied to this license, SSC means any SSC which has been referenced in a staff SER, TER, EA, or Environmental Impact Statement (EIS) and supplements and amendments thereof.

---

safety and the environment from radiological and nonradiological hazards *associated with the processing* and the possession and transfer of such material...."

(c) Additionally, the licensee must obtain a license amendment unless the change, test, or experiment is consistent with the NRC conclusions, or the basis of, or analysis leading to, the conclusions of actions, designs, or design configurations analyzed and selected in the site or facility Safety Evaluation Report, TER, and EIS or EA. This would include all supplements and amendments, and TERs, EAs, EISs issued with amendments to this license.

(d) The licensee's determinations concerning (b) and (c) of this condition shall be made by a Safety and Environmental Review Panel (SERP). The SERP shall consist of a minimum of three individuals. One member of the SERP shall have expertise in management (e.g., Plant Manager) and shall be responsible for financial approval for changes; one member shall have expertise in operations and/or construction and shall have responsibility for implementing any operational changes; and, one member shall be the radiation safety officer (RSO) or equivalent, with the responsibility of assuring changes conform to radiation safety and environmental requirements. Additional members may be included in the SERP as appropriate, to address technical aspects such as groundwater, hydrology, surface-water hydrology, specific earth sciences, and other technical disciplines. Temporary members or permanent members, other than the three above-specified individuals, may be consultants.

e) The licensee shall maintain records of any changes made pursuant to this condition until license termination. These records shall include written safety and environmental evaluations made by the SERP that provide the basis for determining changes are in compliance with (b) of this condition. The licensee shall furnish, in an annual report to the NRC, a description of such changes, test, or experiments, including a summary of the safety and environmental evaluation of each. In addition, the licensee shall annually submit to the NRC changed pages, which shall include both a change indicator for the area changed, e.g., a bold line vertically drawn in the margin adjacent to the portion actually changed, and a page change identification (date of change or change number or both), to the operations plan and reclamation plan of the approved license application (as updated) to reflect changes made under this condition.

Another resin storage tank containing resin under the most conservative interpretation could be considered to be a *change in the facility as described in the license application*, but given the discussion above and the minimal potential incremental impacts, reasonably should be considered a change requiring a Safety and Environmental Evaluation (SEE) approved by the Safety and Environmental Review Panel (SERP), if that. The installation of a resin storage tank would not result in any of the consequences requiring a license amendment as listed in License condition 9.3 Section B.

Conclusions

KUC believes that storage of uranium bearing ion exchange resin containing *licensable* levels of source material uranium on site in a volume of approximately 8,000 cubic feet is permissible in light of NRC Staff's determination that such resins constitute "ore," License Conditions 6, 7, 8 and 9.4 read together, and the facility's history of storage of ion exchange resin as permitted by the Commission.

Sincerely yours,

Oscar Paulson
Facility Supervisor

cc: Region IV - DRSS
Stephen Cohen (2)
John Lucas
Nick Taylor
Rich Atkinson
Shelley Schutterle