

February 12, 2016

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

SUBJECT: SECOND REQUEST FOR ADDITIONAL INFORMATION REGARDING
KENNECOTT SOURCE MATERIAL LICENSE APPLICATION REQUEST,
SWEETWATER URANIUM PROJECT, SWEETWATER COUNTY, WYOMING

Dear Mr. Paulson,

By letter dated July 24, 2014, Kennecott submitted a source material license application to the U.S. Nuclear Regulatory Commission (NRC) requesting a ten-year renewal of Source Material License SUA-1350. The facility is currently in standby and not operating. The Technical, Financial Re-baseline Reports, and environmental information supporting the license application request are publicly available in the NRC's Agency-wide Documents Access and Management System (ADAMS) under Accession Number ML14251A113.

The staff has completed the financial re-baseline review and it is in the process of reviewing the technical and environmental information of the application request. As stated in our previous letter dated July 13, 2015 (ML15167A373), the Request for Additional Information (RAI) was a partial set of RAIs for the safety aspect of the Technical Report. This second request includes additional safety RAIs and environmental RAIs. Enclosed are the NRC staff's second set of RAIs which identifies the information needed for the continued review of your license application request.

Please respond or propose a schedule for responding to this second set of RAIs within 30 days. Kennecott should prepare a table identifying the RAI response(s) and where the information is located in the revised Technical Report and the new Environmental Report.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," 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 ADAMS. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

O. Paulson

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If you have any questions, or clarification is required for any RAIs, please contact me at James.Webb@nrc.gov or (301) 415-6252.

Sincerely,

/RA/

James Webb
Uranium Recovery Licensing Branch
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

Docket No.: 040-8584

Enclosures:

1. Environmental Information
2. Safety RAIs

cc: Lowell Spackman, (WDEQ)
Miles Bennett, (WDEQ)

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Miles Bennett, (WDEQ)

DISTRIBUTION: L. Gersey, Region IV

ADAMS Accession No.: ML16028A179

OFFICE	NMSS	NMSS	NMSS/LA	NMSS	NMSS/BC	NMSS/FCSE/ERB	NMSS
NAME	J. Webb	J. Valdes	S. Achten	A. Malliakos	B. VonTill (on safety RAI only)	L. Chang	J. Webb
DATE	2/1/16	2/1/16	2/2/16	2/3/16	2/11/16	2/12/16	2/12/16

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**COMPLIANCE WITH THE REQUIREMENTS OF 10 CFR 51.60
AND REQUEST FOR ADDITIONAL INFORMATION
FROM KENNECOTT URANIUM COMPANY
FOR THE PROPOSED SUA-1350 10-YEAR LICENSE RENEWAL**

RAI 1

Compliance with the Requirements of 10 CFR 51.60

Per 10 CFR 51.60 “Each applicant for a license or other form of permission, or an amendment to or renewal of a license or other form of permission issued pursuant to parts 30, 32, 33, 34, 35, 36, 39, 40, 61, 70 and/or 72 of this chapter, and covered by paragraphs (b)(1) through (b)(5) of this section, shall submit with its application to: ATTN: Document Control Desk, Director, Nuclear Material Safety and Safeguards, a separate document, entitled "Applicant's Environmental Report" or "Supplement to Applicant's Environmental Report," as appropriate. The "Applicant's Environmental Report" shall contain the information specified in § 51.45.” If the application is for an amendment to or a renewal of a license or other form of permission for which the applicant has previously submitted an environmental report, the supplement to applicant's environmental report may be limited to incorporating by reference, updating or supplementing the information previously submitted to reflect any significant environmental change, including any significant environmental change resulting from operational experience or a change in operations or proposed decommissioning activities.

Provide the Environmental Report (ER) or a supplement to an ER for the July 24, 2014, license renewal. Guidance in preparing ERs is provided in NUREG-1748, “Environmental Review Guidance for Licensing Actions Associated with NMSS Programs,” (NRC, 2003).

Request for Additional Information

In the absence of an ER or a supplement to an ER and to expedite the environmental review process, the U.S. Nuclear Regulatory Commission (NRC) staff is considering applicable information provided in the “Request for a Renewal Source Material License SUA-1350 for a Ten (10) Year Term”, July 24, 2014, (KUC, 2014). Although the request for license renewal (KUC, 2014) is not considered a replacement for an ER the following information requests are needed for the continuation of the staff's review. The purpose of the Requests for Additional Information (RAIs) is to provide information necessary for the NRC staff to fulfill the requirements of Title 10 *Code of Federal Regulations* (CFR) Part 51 which is the NRC's promulgated regulations implementing the requirements of the National Environmental Policy Act of 1969, as amended (NEPA).

NOTE: In addition to providing a separate and complete ER, the following RAIs need to be addressed. The responses to the following RAIs is not a replacement of the separate and complete ER. If the information requested in the following RAIs is included in the ER, then separate responses to RAI 2 thru RAI 13 are not needed.

ENCLOSURE 1

RAI 2

The request for license renewal (KUC, 2014) includes section 1.3 “Proposed Action.” However Section 1.3 only talks about “Proposed Activities.” Identify and discuss based on the guidance provided in (NRC, 2003) the following:

- a) Proposed action;
- b) No-action alternative; and
- c) Other reasonable alternatives to the proposed action.

RAI 3

Regarding the zoning of facility site and the vicinity provide the following:

- a) The current zoning of the land the facility lies on; and
- b) The current zoning of the land within 5 miles from the site.

RAI 4

Regarding waste management provide the following:

- a) The estimated annual amount of waste (solid and liquid) generated per year when the facility goes into operation mode;
- b) The estimated annual amount of waste (solid and liquid) generated per year while the facility is in standby mode;
- c) For (a) and (b) from above:
 - i. The off-site waste disposal locations; and
 - ii. The number of vehicles expected to be used on an annual basis for the transportation of the waste to off-site locations.
- d) Environmental impacts for:
 - i. On-site waste disposal; and
 - ii. Off-site waste disposal.

RAI 5

For the environmental impacts on water resources provide the following:

- a) Is the current contamination discussed in (KUC, 2014) from:
 - i. an existing leak;

- ii. a previous leakage that has been repaired; or
 - iii. a combination of (i) and (ii)?
 - iv. If the answer for (a) is (a, ii) provide the technical basis as to why the contaminants have not been contained for more than 30 years since the leakage from the tailings impoundment synthetic liner was repaired in 1984, despite that a Corrective Action Program is in place to contain the contamination.
- b) Address impacts of contaminants leakage on surface water and ground water resources for:
- i. Standby mode; and
 - ii. Future operation mode as more contaminants will be generated.
- c) Address spread of the contaminants discussed in (KUC, 2014) beyond the site boundary including the following:
- i. Impacts on surface water resources;
 - ii. Impacts on ground water resources;
 - iii. Monitoring measures; and
 - iv. Mitigation measures.

RAI 6

Address impacts on water quality due to future operational mode for groundwater contamination for the following:

- a) Surface water resources;
- b) Ground water resources; and
- c) Sweetwater Uranium Project's wells described in (KUC, 2014a) including the following:
 - i. The potable water wells used as sources of drinking water in the area;
 - ii. The three water wells with tanks for livestock and wildlife watering along Sweetwater County Road 63;
 - iii. The wells equipped with solar powered submersible pumps for livestock and wildlife watering in the general area; and
 - iv. The other wells in the area, including wells on Bureau of Land Management lands.

RAI 7

For soil contamination addresses the following:

- a) Provide the current status of soil contamination;
- b) Provide remediation measures used to reduce soil contamination levels; and

- c) In the responses to items (a) and (b) above, include the current status and remediation measures of surface and subsurface of soil contamination discussed in the "Response to Comments Regarding Natural Uranium and Thorium-230 Remediation in Subsurface Soils," (KUC, 2005).

RAI 8

The Request for License Renewal Source Material (KUC, 2014) states that the staffing on site at its present level of standby mode is four (4) Kennecott Uranium Company employees. What is the expected number of employees during future operations?

RAI 9

Provide the following transportation information:

- a) Provide the following for the roads used to access the facility:
 - i. The names of the roads;
 - ii. The condition of the roads; and
 - iii. Current use/traffic of these roads.
- b) Number of vehicles in and out of the facility for each road from (a, i) from above during:
 - i. Standby mode; and
 - ii. Future operation mode.
- c) Transportation impacts for (b, i) and (b, ii) from above.

RAI 10

Provide the following information for visual or scenic resources:

- a) All nearby natural or man-made features as distinct visual or scenic resources within 50 miles from the facility site; and
- b) The impact of the facility on visual or scenic resources.

RAI 11

The facility has not been operated for several decades thus:

- a) Are there any activities to prepare the facility and equipment before the facility begins future operations;
- b) What is the impact of these activities from item (a) to the environment;

- c) What is the current condition of equipment;
- d) Is the equipment operational; and
- e) If the equipment is not operational what is needed to make them operational and what is the impact to the environment?

RAI 12

The Council on Environmental Quality regulations implementing NEPA define cumulative effects as “the impact on the environment which results from the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR 1508.7). Provide the following:

- a) Current and reasonably foreseeable future projects within 50 miles from the site; and
- b) Cumulative impacts of the proposed action for all resources.

RAI 13

Provide mitigation measures for all resources.

REFERENCES:

KUC, 2014, Sweetwater Uranium Project - Docket Number 040-8584, Source Materials License No. SUA-1350 - Request for a Renewal Source Material License SUA-1350 for a Ten (10) Year Term, July 24, 2014, ADAMS Accession No. ML14251A115.

KUC, 2014a, Sweetwater Uranium Project - Docket Number 040-8584, Source Materials License No. SUA-1350 - License Conditions 11.2 and 12.3 Land Use Report, January 27, 2014, ADAMS Accession No. ML14077A337.

KUC, 2005, Sweetwater Uranium Project, Response to Comments Regarding Natural Uranium and Thorium-230 Remediation in Subsurface Soils, Docket No. 040-8584, Source Materials License No. SUA-1350, January 18, 2005, ADAMS Accession No. ML050350266.

NRC, 2003, *Environmental Review Guidance for Licensing Actions Associated With NMSS Programs—Final Report*, NUREG–1748, Washington, DC, August 2003, ADAMS Accession No. ML032450279

**SAFETY REVIEW
REQUEST FOR ADDITIONAL INFORMATION (RAIs)
FROM KENNECOTT URANIUM COMPANY
FOR THE PROPOSED SUA-1350 10-YEAR LICENSE RENEWAL**

1) **ISSUE:**

In Section 2 of the license renewal application the applicant does not demonstrate that KUC has reviewed any post-1999 information to justify the “no change” statements made in several places with regard to site characteristics. The NRC staff is seeking additional information on several site characterization features at Kennecott, so that the staff can complete its safety review.

Basis:

NUREG 2126 (draft report for comment) Appendix A, seventh bullet, states that the applicant should provide for review: "Updates and changes to any site characterization information important to the evaluation of exposure pathways and doses including site location and layout; use of adjacent lands and waters; population distributions; meteorology; the geologic or hydrologic setting; ecology; background radiological or non-radiological characteristics; and other environmental features."

RAI

The applicant should document the results of review of data sources (e.g., latest USGS seismic hazard map), publications and other resources that may update or change the site characterization information below:

- Adjacent lands and waters - The applicant identifies the UR Energy, Inc. Lost Creek Project commenced operation in 2013. The applicant did not indicate how this facility would impact, or not impact, the Kennecott should it start operations with respect to the adjacent lands and waters. The NRC staff cannot determine if water uses (surface and/or groundwater) from Lost Creek impact Kennecott, if Kennecott chooses to start operations (Maps should be dated to reflect the time period; i.e., 2004 vs 2014 and a brief summary that concludes whether there is a significant change or no change).
- Population distributions - The applicant provided a table in the Technical Report (Section 2.3) that shows populations of several towns, but did not indicate any changes, if any, to the population from the previous license renewals. (Compare population distributions from previous license renewals for each town and/or city as described in NUREG-2126, and a brief summary that concludes whether there is a significant change or no change).
- Meteorology - The applicant provided wind roses and frequency of winds by direction and speed based on 1994 Revised Environmental Report but did not adequately demonstrate if this information remains unchanged. The applicant shall provide wind direction and wind speed data to reflect results between 2004 and 2014 and compare the results to previous data to determine if there is a change or no change. The NRC staff cannot determine if current environmental monitoring stations are adequately positioned around the site.

ENCLOSURE 2

- Geology/hydrogeology - The applicant refers to pre-2000 geologic/hydrogeologic information submitted for previous application renewals, but does indicate what effort has been made to uncover and evaluate more recent information that might have become available in the literature. The applicant should identify more recent geological and hydrogeological information (e.g., stratigraphic revisions; delineation of previously unmapped faults/fractures that might provide preferential flow pathways) applicable to the site area and how (if at all) it may modify previous site characterizations.
- Seismicity - The applicant cites the 1996 "Revised Addendum to the Revised Environmental Report, Regional Seismicity" as the basis for the characterization of seismic hazards at the site but does not provide any update of this information. The applicant should update/supplement the 1996 characterization with an evaluation of the significance (if any) of more recent data, including the latest USGS National Seismic Hazard Map covering the site area and earthquakes occurring since 1996 within the proximate region of the site. In addition, the update should identify and consider any available post-1996 studies of the two active faults identified near the site in the 1996 seismic hazard analysis or other relevant active faults since identified.

2) **ISSUE:**

In Section 3.5.1 of the license renewal application, in connection with the construction of the proposed new tailings impoundment, reference is made to LC 10.3 which states:

The licensee shall construct and operate the proposed tailings impoundment, liner system, evaporation ponds, and tailings disposal system in compliance with Volumes III, IV, and VII of the Final Design application submitted by cover dated June 11, July 23, and September 18, 1997, including page changes submitted April 13, June 10, July 1, and July 20, 1998, and March 25, and June 21, 1999.

Figure 1-2 in FD Vol. III places the location of the new tailings impoundment immediately adjacent to and slightly northeast of the existing tailings impoundment. This location overlies an area of existing groundwater contamination. Table 5-2 in KUC (1999) identifies (existing) wells TMW-31, TMW-75 and TMW-78 as monitoring wells and TMW-64 as the Point of Compliance (POC) well.

Basis:

10 CFR 40, Appendix A, Criteria 5B(1) and 7A require the establishment of point of compliance and detection monitoring. The existence of groundwater contamination from the existing impoundment under the location of the proposed tailings impoundment poses a problem in terms of distinguishing between contamination sources. The assumptions made by the NRC regarding the existing contamination plume in approving well locations for the proposed tailings impoundment were that: (1) "the plume is shrinking," and (2) restoration of the contaminated plume "should be complete within 10 years" (as estimated by the licensee) (NRC, 1999, pg. 17). At the time of the 1999 SER the combined radium-226/228 plume covered "approximately 127 acres" (NRC, 1999, pg. 17). In comparison, the 2013 areal extent of the combined radium-226/228 plume cited in the LRA (pg. 34) is 158.4 and 192.6 acres for the minimum and maximum plume areas, respectively. Staff performed an examination of the well locations selected for the proposed tailings impoundment (KUC, 1999, Table 5-2) in relation to the 2013 extent of the

combined radium-226/228 plume (KUC, 2013). This examination indicated that proposed operational monitoring wells TMW-75 and TMW-78 are, respectively, inside and on the edge of the existing plume whereas proposed (downgradient) POC well TMW-64 is located within the plume.

RAI:

The applicant should identify how the proposed location of the new tailings impoundment, or an alternative location, will satisfy the POC and detection monitoring requirements of 10 CFR 40, Appendix A, Criteria 5B(1) and 7A.

3) ISSUE

In our Request for Additional Information (RAI) letter dated July 13, 2015 (ML15167A373) NRC staff requested the applicant to calculate annual average Rn-222 concentrations at several receptor locations from the actual (2014) source terms from the tailings impoundment (RAI #8). The applicant provided the calculated annual average Rn-222 concentrations at several receptor locations from the actual (2014) source terms from the tailings impoundment (See ML15300A295 and ML15300A296) using the MILDOS-AREA computer code.

Basis:

Follow up to RAI #8, the NRC staff would like to obtain a copy of the MILDOS input parameters for review and ADAMS file.

RAI:

The applicant needs to provide a copy of the actual MILDOS input parameters for each receptor location that computed the annual average Rn-222 concentrations using the actual 2014 source terms from the tailings impoundment from the MILDOS-AREA computer code.

REFERENCES:

KUC. 1999. Page Changes for Final Design Volume VII – Operations Plan. May 25. ADAMS Accession No. ML9904010323.

KUC. 2013. Sweetwater Uranium Project - Annual Corrective Action Program Review and Groundwater Monitoring Report for 2013. ADAMS Accession No. ML14077A340.

NRC. 1999. Safety Evaluation Report for Renewal of Source Material License No. SUA-1350. July 31. ADAMS Accession No. ML9908230110.