

June 7, 2012

Mr. Jon F. Winter
Manager, Wyoming Environmental
and Regulatory Affairs
Uranium One USA, Inc.
907 North Poplar Street
Suite 260
Casper, WY 82601

SUBJECT: ACCEPTANCE FOR REVIEW AND REQUEST FOR ADDITIONAL
INFORMATION, SUPPLEMENTAL INFORMATION TO 2008 LICENSE RENEWAL
APPLICATION, URANIUM ONE WILLOW CREEK *IN SITU* LEACH URANIUM
RECOVERY PROJECT, JOHNSON AND CAMPBELL COUNTIES, WYOMING
(TAC NO. J00564)

Dear Mr. Winter:

By letter dated March 7, 2012, Uranium One USA, Inc. (Uranium One) submitted to the U.S. Nuclear Regulatory Commission (NRC) supplemental information to the 2008 License Renewal Application that would modify the process flow from 4000 to 9000 gallons per minute at the Christensen Ranch satellite facility, Willow Creek *In Situ* Recovery Project. The request is publicly available in NRC's Agencywide Documents Access and Management System (ADAMS), listed under Package Number ML120820095. Your request has been accepted for technical review.

In NRC's acknowledgment e-mail dated March 30, 2012 (ML121040197), we stated that, "NRC is not incorporating this supplemental information and request into the license renewal review that is nearly complete." NRC has reconsidered this decision and will incorporate the supplemental information into the license renewal request. However, this will delay the renewal of NRC license SUA-1341 until August 31, 2012, due to the need to supplement the published environmental assessment for the license renewal. Please also note the NRC staff will perform this review, using the Technical Assignment Control (TAC) number J00564 that is for the license renewal application.

Enclosed is a request for additional information pertaining to the supplemental information to the 2008 License Renewal Application. If you have any questions, please contact me at Ron.Linton@nrc.gov or (301) 415-7777.

In accordance with 10 CFR 2.390 of the "NRC Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders," 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 ADAMS. ADAMS is Accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

/RA/

Ron C. Linton, Project Manager
Uranium Recovery Licensing Branch
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal State Materials
and Environmental Management Programs

Docket No.: 040-08502
License No.: SUA-1341

Enclosure

cc: Glenn Mooney (WDEQ)

J. Winter

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Docket No.: 040-08502

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cc: Glenn Mooney (WDEQ)

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OFC	DWMEP	DWMEP	DWMEP	DWMEP
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DATE	05/ 31 /12	05/31 /12	06/ 4 /12	06/7/12

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Request for Additional Information (RAI)

Willow Creek Supplemental Information to 2008 License Renewal Application

- RAI 1:** Provide updated pages to the 2008 License Renewal Application (LRA) to reflect the dose calculations in Section 7.3, Radiological Effects, and any other pertinent information for the proposed 9000 gallons per minute (gpm) flow rate.
- Basis:** The current submission includes dose calculations for a 7000 gpm flow rate based on a MILDOS analysis performed by Environmental Restoration Group, Inc. (ERG), not the requested 9000 gpm flow rate. For example, Section 7.3.3.4 provides TEDE information to individual receptors and the doses for a 7000 gpm production flow rate. Additionally, population doses, and other information, need to be revised to reflect the adjustment for a 9000 gpm flow rate. The licensee instructs the staff to apply a conversion factor of 1.29; however, the licensee should provide this information.
- RAI 2:** Clarify the 10 percent radon release rate in the well fields.
- Basis:** It is unclear to the NRC staff if the 10 percent of the total radon release rate is from production fluid released or from radon releases in each well field. Provide a basis for the 10 percent radon release rate used in the analysis.
- RAI 3:** Confirm the mine unit production areas used in MILDOS calculations.
- Basis:** The LRA Section 7.3.3.1, Table 7.3-1, concerns parameters used to estimate and characterize source terms and shows that the mined area will be $1.6E+5$ square meters per year (m^2/yr), or equivalent to 39.5 acres/year. The LRA indicates in Table 3.1 that the current production areas (mine units (MU)) are 202 acres ($84 + 71 + 57 = 202$ acres or $8.2 E+5 m^2$). These MUs include 2 through 9. The assumptions for the MUs that will be operating in each year need to be clarified as to what value should be used in the MILDOS calculation.
- RAI 4:** Confirm the radon-222 half-life used in the supplemental information.
- Basis:** Page 2 of the ERG Report listed the radon-222 half-life as 3.2 days. This appears to be a typographical error since the half-life is reported as 3.82 days in the technical literature.
- RAI 5:** Explain the apparent contradiction between the 2875 Ci/yr radon-222 releases reported in Section 3.2.1.1 of the ERG Report and the 1480 Ci/yr radon-222 releases reported in the LRA supplemental pages in LRA Section 7.3.3.1.1.

Enclosure

Basis: There appears to be a problem with information transfer from the ERG Report to the LRA, Section 7.3, supplemental pages. ERG Report Section 3.2.1.1 for the Willow Creek Christensen Ranch satellite facility dated August 2011 indicates that the radon-222 release rate to production fluid is 2875 Ci/yr. The LRA supplemental information, Page 7-12, Section 7.3.3.1.1, indicates that the radon-222 release to production fluid is 1480 Ci/yr. Both documents indicate that the NRC Regulatory Guide 3.59 equations and the same operations parameters were used to determine the radon-222 release rate to production fluid.

RAI 6: Correct or confirm the production column values in LRA Table 7.3-2.

Basis: The LRA Table 7.3-2, Estimated Radon-222 Releases (Ci/y), has an apparent “addition” error in the production column. However, the total column is correct for the total for all production units and the Christensen Ranch satellite facility.

RAI 7: Clarify in the LRA the type of dryer used at the Willow Creek Irigaray facility.

Basis: The description of the yellowcake dryer appears to be inaccurate. LRA, Section 7.3.3.1.6, describes the yellow dryer as a vacuum rotary type. LRA Section 7.3 states, “The uranium contained in the regenerant from the production ion exchange columns will be precipitated and subsequently vacuum dried.” Subsequently, LRA Section 7.3 describes the yellowcake dryer as a propane-fired multi-hearth dryer.

RAI 8: Clarify the deep disposal well(s) ability to handle and dispose of up to 315 gpm brine generated at a 9000 gpm flow rate capacity during the Joint Production / Restoration Phase of operations.

Basis: Currently, Uranium One has four permitted deep disposal wells at Christensen Ranch and two permitted deep disposal wells at Irigaray, according to the LRA and the supplemental information provided by Uranium One. However, only two of those wells are installed at the Christensen Ranch. During the Joint Production / Restoration Phase of operations, up to 315 gpm of disposal will be required (90 gpm + 225 gpm). It is unclear in the application if the permitted wells and the additional wells will have the ability to handle the additional disposal capacity needed.

RAI 9: Demonstrate that the Willow Creek ISR Project has the waste disposal capacity or contingency plan to insure that well field bleed can be maintained and restoration can be completed if one of the disposal wells fails.

Basis: Maintaining a well field bleed and the ability to complete groundwater restoration is required to protect groundwater outside of the production zone aquifer. It is unclear if the four permitted wells at Christensen Ranch will have the ability to maintain the well field bleed or handle well field restoration if one of the wells becomes inoperable.

RAI 10: Confirm LRA pages 5-4a through 5-5 are to be removed and replaced by pages 5-4a through 5-5, dated February, 2012.

Basis: The NRC staff cannot find page 5-4a in the LRA to be replaced by page 5-4a dated February, 2012. LRA page 5-5, dated May, 2008, has more information than is being replaced by page 5-5 dated March 7, 2012.