UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

November 6, 2017

Mr. Scott Schierman, Manager
Health, Safety, and Environment
Uranium One USA, Inc.
907 N. Poplar Street, Suite 260
Casper, WY 82601-1310

SUBJECT: URANIUM ONE, USA, INC., WILLOW CREEK PROJECT, STAFF EVALUATION OF LICENSEE RESPONSES TO LICENSE CONDITIONS 9.8 AND 9.12, MATERIALS LICENSE SUA-1341 (CAC J00707)

Dear Mr. Schierman:

By letter dated August 8, 2014, Uranium One USA, Inc. (Uranium One) submitted revised responses to the Nuclear Regulatory Commission (NRC) materials license SUA-1341, conditions 9.8 and 9.12, which require that Uranium One submit a revised contamination control program and related designee qualification and training programs (NRC's Agencywide Documents Access and Management System (ADAMS) Accession No. ML14309A456). Uranium One's submission does not fully satisfy the subject license conditions, and requires revision. In particular, Uranium One's shipments outside a licensed area, whether on public or private roads, are subject to Department of Transportation regulations and 10 CFR Part 71, as appropriate. The NRC staff's review can be found in the enclosure.

Further, in its review, the NRC staff noted an inconsistency in the subject license conditions' references to different guidance documents and their applicability in similar circumstances. An amendment to the subject conditions could resolve the inconsistency.

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 NRC's ADAMS. ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

If you have any questions, contact me at 301-415-7777, or by e-mail at ron.linton@nrc.gov.

Sincerely,

/RA/

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

Docket No.: 040-08502
License No.: SUA-1341
Enclosure: NRC Staff Review

cc: Luke McMahan, PG. (WDEQ)
Ryan Schierman (WDEQ)

SUBJECT: URANIUM ONE, USA, INC., WILLOW CREEK PROJECT, STAFF EVALUATION OF LICENSEE RESPONSES TO LICENSE CONDITIONS 9.8 AND 9.12, MATERIALS LICENSE SUA-1341 (CAC J00707), DATED NOVEMBER 6, 2017

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NRC Staff Review of Uranium One USA, Inc. License Conditions 9.8 and 9.12, Materials License SUA-1341; Docket 040-08502;
Willow Creek Contamination Control Program

I. Background

In Section 5.7.6.3.3, "Contamination Surveys for Items Released from Restricted Areas," of the NRC staff's Safety Evaluation Report for License Renewal of the Willow Creek Uranium In Situ Recovery Project (NRC 2013), the NRC staff found "Uranium One may be removing equipment, materials, and equipment that has the potential for accessible radiological surface contamination levels above background from restricted or controlled areas (wellfields and header houses) without surveying equipment prior to its removal from these areas and travelling through unrestricted areas, before being returned to a restricted or controlled area." As a result of this issue, the NRC staff revised license condition (LC) 9.8 of Uranium One's renewed Byproduct and Materials License SUA-1341.[1]

[1] The full text of LC 9.8 is provided below:

> Release of surface contaminated equipment, materials, or packages from restricted areas shall be in accordance with the NRC guidance document "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," dated April 1993 (ADAMS Accession No. ML003745526) (the Guidelines) or suitable alternative procedures approved by NRC prior to any such release.
>
> Where surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alpha- and beta-gamma-emitting nuclides shall apply independently.
>
> Personnel performing contamination surveys for items released for unrestricted use shall meet the qualifications as health physics technicians or radiation safety officer as defined in Regulatory Guide 8.31 (as revised). Personal effects (e.g., notebooks and flash lights) which are hand carried need not be subjected to the qualified individual survey or evaluation, but these items should be subjected to the same survey requirements as the individual possessing the items.
>
> Regulatory Guide 8.30 (as revised), Table 2, shall apply to the removal of equipment, materials, or packages that have the potential for accessible radiological surface contamination levels above background to unrestricted areas. The licensee shall submit to the NRC for review and written verification a contamination control program within 90 days of license renewal. The program shall provide sufficient detail to demonstrate how the licensee will maintain control over the equipment, materials, or packages that have the potential for accessible radiological surface contamination levels above background, until they have been released for unrestricted use as specified in the Guidelines, and what methods will be used to limit the spread of contamination to unrestricted areas. The contamination control program shall demonstrate how the licensee will limit the spread of contamination when moving or transporting potentially contaminated equipment, materials, or packages (i.e. pumps, valves, piping, filters, etc.) from wellfield areas (restricted or controlled areas) through uncontrolled areas. The licensee shall receive written verification of the licensee's contamination control program prior to its implementation.

The first paragraph of LC 9.8 contains requirements for release of equipment, materials, or packages for unrestricted use using instructions in the 1993 Guidelines (NRC 1993). The second paragraph is based on instructions in the 1993 Guidelines that require the licensee to apply the limits for alpha-emitting radionuclides and beta-gamma-emitting radionuclides independently. The third paragraph of LC 9.8 contains requirements for the qualification of personnel performing surveys of equipment, materials, and packages for release for unrestricted use, and the scope of those surveys. The fourth paragraph contains the requirements for release of equipment, materials, or packages to unrestricted areas onsite, and a related requirement for the licensee to submit a revised contamination control program.

The last paragraph of LC 9.8 addresses NRC staff review and verification of the licensee's program to identify and train qualified designees who may perform surveys associated with the licensee's revised contamination control program. In a related matter, in Section 5.4.3.3, "Personnel Designated by the Radiation Safety Officer" of the NRC staff's Safety Evaluation Report for License Renewal of the Willow Creek Uranium In Situ Recovery Project (NRC 2013), the NRC staff found that the licensee may use qualified designees to survey resin trucks leaving a restricted area and traveling to another restricted area at the Willow Creek Project, subject to requirements imposed by LC 9.12, paragraph 3, which provides:

> Within 90 days of license renewal, the licensee will develop an SOP and specific training for personnel that do not meet the qualifications of RSO or Health Physics Technician, as defined in Regulatory Guide 8.31, as revised, that are designated to survey resin trucks leaving a restricted area and traveling to another restricted area authorized by the license. The SOP and training shall be submitted to the NRC for review and verification.

The licensee provided its initial response to LC 9.8 on June 5, 2013 (Uranium One 2013). The NRC staff and the licensee discussed the submittal in a meeting in May 2014 (NRC 2014b). By letter dated August 8, 2014, the licensee provided its revised response to the Contamination Control Plan requirement in LC 9.8, paragraph 4, and the qualified designee requirements in LC 9.8, paragraph 5 and LC 9.12, paragraph 3 (Uranium One 2014).

> The licensee may identify a qualified designee(s) to perform surveys, as needed, associated with the licensee's contamination control program when moving or transporting potentially contaminated equipment, materials, or packages from restricted or controlled areas through uncontrolled areas and back into controlled or restricted areas. The qualified designee(s) shall have completed education, training, and experience, in addition to general radiation worker training, as specified by the licensee. The education, training, and experience required by the licensee for qualified designees shall be submitted to the NRC for review and written verification. The licensee shall receive written verification of the licensees qualified designee(s) training program prior to its implementation.

NRC 2016c.

II. NRC Staff Evaluation of Uranium One's Response

In Attachment 1, "Contamination Control Plan," of its August 8, 2014 submittal, the licensee stated the following in Section IV, "Conditional releases":

> "No standards exist for the transfer of potentially contaminated material between restricted/controlled areas; therefore, Uranium One will use DOT regulations for excepted packages when transferring potentially contaminated material."

But as stated in the first sentence of the fourth paragraph of LC 9.8, "Regulatory Guide 8.30 (as revised), Table 2, shall apply to the removal of equipment, materials, or packages that have the potential for accessible radiological surface contamination levels above background to unrestricted areas." Thus, Table 2 of Regulatory Guide 8.30 contains the applicable standards, and the required standards under the license condition, for the transfer of potentially contaminated material through unrestricted areas onsite.

Further, the licensee stated Department of Transportation (DOT) Hazardous Material Regulations in Title 49, *Code of Federal Regulations,* did not apply to its activities because roadways at the Willow Creek Project in unrestricted areas are private roads. The licensee stated it would nonetheless adopt, for purposes of its contamination control program, DOT standards for excepted packages containing radioactive instruments or articles. But contrary to the licensee's assertion, the NRC's regulations in 10 CFR 71.5(a) provide that each licensee who transports licensed material outside the site of usage, as specified in the NRC license, shall comply with the applicable requirements in DOT regulations 49 CFR parts 107, 171 through 180, and 390 through 397, appropriate to the mode of transport. Further, 10 CFR 71.5(b) requires licensees to conform to the DOT standards and requirements specified in 10 CFR 71.5(a) even if DOT regulations are not applicable to a shipment of licensed material (for example, because the shipment occurs only on private roads). As a result, shipments of radioactive material between Christensen Ranch and Irigaray, or anywhere else outside the site of usage, as specified in the NRC license, are subject to the applicable standards in the DOT regulations. This also entails that the scope of future inspections at the Willow Creek Project would include NMSS Inspection Procedure 86740, "Inspection of Transportation Activities," for the transport of radioactive material between Christensen Ranch and Irigaray.

Further, Uranium One's proposed standards in lieu of using Regulatory Guide 8.30, Table 2, are adopted from 49 CFR 173.424, "Excepted packages for radioactive instruments and articles." A *radioactive instrument or article,* as defined in 49 CFR 173.403, means any manufactured instrument or article such as an instrument, clock, electronic tube or apparatus, or similar instrument or article having Class 7 (radioactive) material in gaseous or nondispersible solid form as a component part. But use of these DOT standards is not reasonable or appropriate because the materials, equipment, or packages at the Willow Creek Project are not *radioactive instruments or articles*.

In addition, in its proposed Contamination Control Plan, the licensee did not specify, in accordance with paragraph 5 of LC 9.8, its education, training, and experience criteria, in addition to general radiation worker training, for designees who would perform surveys in accordance with the proposed revised Contamination Control Program.

For the reasons stated above, the licensee has not developed an acceptable contamination control plan.

III. Further Observations

As noted above, in its review of the licensee's submittals in response to License Conditions 9.8 and 9.12, the staff noted inconsistencies in the applicability of the references in the license conditions. The staff believes these inconsistencies could be clarified, for example, by revising the reference in the first paragraph of Condition 9.8 to "unrestricted use" instead of "from restricted areas."

Similarly, the fourth paragraph could be revised, for example, to clarify that Regulatory Guide 8.30 applies to the release of equipment, materials, or packages to unrestricted areas within the licensed boundary. Release of these materials outside the licensed areas, and beyond the licensee's control, would be considered release for unrestricted use subject to the requirements in the first paragraph of LC 9.8.

Thus, as discussed above, the guidance in Regulatory Guide 8.30 to survey equipment, materials, and packages to show that the limits in Table 2 are met are generally sufficient, without additional controls, to release equipment, materials, and packages to (or through) unrestricted areas within the licensed boundary.

With these potential clarifications with respect to release for unrestricted use, an acceptable conforming contamination control plan could be developed. But the licensee must still follow the instructions in the "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material" (NRC 1993) pursuant to LC 9.8. And for the removal of equipment, materials, or packages that have the potential for accessible radiological surface contamination above background to unrestricted areas within the licensed boundary, the licensee could demonstrate satisfaction of the similar quantitative contamination levels presented in Table 2 of Regulatory Guide 8.30, "Health Physics Surveys in Uranium Recovery Facilities" (NRC 2002).

IV. References

NRC (U.S. Nuclear Regulatory Commission). 1993. "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," U.S. Nuclear Regulatory Commission, April 1993, ADAMS Accession No. ML003745526.

NRC (U.S. Nuclear Regulatory Commission). 2002. Regulatory Guide 8.30, Revision 1, "Health Physics Surveys in Uranium Recovery Facilities." Washington, DC. ADAMS Accession No. ML021260524.

NRC (U.S. Nuclear Regulatory Commission). 2013. Letter from A. Persinko, NRC to D. Wichers, Uranium One USA Inc., dated March 7, 2013, Re: Materials License SUA-1341, License Renewal, Uranium One USA, Inc., Willow Creek Uranium In Situ Recovery Project, Campbell and Johnson Counties, Wyoming (TACX J00564). ADAMS Accession No. ML13015A179 (pkg).

NRC (U.S. Nuclear Regulatory Commission). 2014. Memorandum from R. Linton, NRC, to B Von Till, NRC, dated July 7, 2014, RE: Summary of May 27, 2014, Meeting with Uranium One USA, Inc., Willow Creek Licensing Issues. ADAMS Accession No. ML14156A141.

NRC (U.S. Nuclear Regulatory Commission). 2016. Letter from A. Kock, NRC to Mr. S. Schierman, Uranium One USA Inc., dated September 29, 2016, Re: Uranium One, USA, Inc., Willow Creek Project, Campbell and Johnson Counties, Wyoming, Source Materials License SUA-1341, Annual Financial Assurance (Surety) Estimate Adjustment (TAC No. L00793). ADAMS Accession package No. ML16173A142.

Uranium One (Uranium One USA Inc.). 2013. Letter from S. Schierman, Uranium One, to R. Linton, NRC, dated June 5, 2013, RE: License SUA-1341, Docket No. 40-8502 Willow Creek Project Submittal of Requested SOP's. ADAMS Accession No. ML13211A356.

Uranium One (Uranium One USA Inc.). 2014. Letter from S. Schierman to R. Linton (NRC), dated August 8, 2014, RE: License Condition 9.8 and 9.12, Materials License SUA-1341. ADAMS Accession No. ML14309A456.