

January 24, 2012

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

SUBJECT: URANIUM ONE USA, INC., WILLOW CREEK PROJECT, CAMPBELL AND
JOHNSON COUNTIES, WYOMING, SOURCE MATERIALS LICENSE SUA-
1341, AMENDMENT NO. 21 – ANNUAL SURETY ESTIMATE ADJUSTMENT
AND OPERATIONAL SURETY ADJUSTMENT (TAC NO. J00653)

Dear Mr. Winter:

By letter to the U.S. Nuclear Regulatory Commission (NRC or Commission) dated September 16, 2011, Uranium One Americas, Inc. (Uranium One) submitted, for NRC staff review, revisions to its surety estimate for the Willow Creek Project in Campbell and Johnson Counties, Wyoming. The revisions were submitted pursuant to requirements in License Condition 9.5 and Title 10 of the *Code of Federal Regulations*, Part 40 (10 CFR Part 40), Appendix A, Criterion 9. The NRC staff accepted the submittal for review on October 27, 2011. On November, 28, 2011, the NRC staff issued a Request for Additional Information (RAI) regarding the surety estimate to Uranium One. Uranium One responded to the RAI in a letter dated December 9, 2011.

NRC staff has reviewed the information provided by Uranium One and has approved the updated surety estimate. The updated surety amount is \$16,308,890, which is an increase of \$3,380,458 over the previously approved surety. The NRC staff's review of the updated surety is documented in the enclosed Safety Evaluation Report. Uranium One is to provide the staff with the updated surety instrument and irrevocable standby letter of credit with the State of Wyoming within ninety days from the date of this Safety Evaluation Report, or such other date as otherwise agreed to by NRC staff.

In accordance with 10 CFR 2.390 of the NRC's "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 the 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>.

J. Winter

2

If you have any questions regarding this letter, please contact Ron Linton at (301) 415-7777, or by email at ron.linton@nrc.gov.

Sincerely,

/RA/

Keith I. McConnell, Deputy Director
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.: 040-08502

License No.: SUA-1341

Enclosures:

1. Safety Evaluation Report
2. Amendment 21

cc: G. Mooney (WYDEQ)

J. Winter

2

If you have any questions regarding this letter, please contact Ron Linton at (301) 415-7777, or by email at ron.linton@nrc.gov.

Sincerely,

/RA/

Keith I. McConnell, Deputy Director
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.: 040-08502
License No.: SUA-1341

- Enclosures:
- 1. Safety Evaluation Report
 - 2. Amendment 21

cc: G. Mooney (WYDEQ)

DISTRIBUTION:
BSpitzberg (RIV) LGersey (RIV) KKline

ML113540381

OFC:	DURLD	DURLD	DURLD	DURLD	DURLD	OGC	DURLD
NAME:	MPurdie	BGarrett	RLinton	BvonTill	LChang	BJones	KMcConnell
DATE:	12/ /11	12/20/11	12/ 20/11	12/ 28 /11	01/4/12	01/21/12	01/24/12

OFFICIAL RECORD COPY

SAFETY EVALUATION REPORT

Docket No.: 040-08502
License No.: SUA-1341
Project: Uranium One USA, Inc., Willow Creek Project
Project Manager: Ron C. Linton
Technical Reviewer: Michael Purdie

Summary and Conclusions

By letter to the U.S. Nuclear Regulatory Commission (NRC or Commission) dated September 26, 2011, Uranium One Americas, parent company to licensee, Uranium One USA, Inc. (Uranium One), submitted their annual surety estimate update for the Willow Creek Project for NRC review and approval (Agencywide Documents Access and Management System (ADAMS) Accession No. ML11278A010). Uranium One revised its surety estimate in a letter to the NRC dated December 9, 2011 (Accession No. ML11348A082).

The staff finds the cost estimate for the surety bond to be acceptable. In its December 9, 2011 submittal, Uranium One revised its cost estimate to \$16,308,890, which is an increase of \$3,380,458 over the previously approved surety estimate. The staff finds the revisions to the recurring costs to be reasonable. The staff also finds the updates for groundwater restoration, plant equipment removal and disposal, restoration and reclamation costs, pond reclamation costs, well plugging and abandonment, wellfield equipment removal and disposal, topsoil replacement and revegetation, and miscellaneous reclamation to be reasonable. The procedures to update these costs and the inclusion of costs for Christensen Ranch Mine Unit 8 (CR MU8) are acceptable. These conclusions are further discussed in this Safety Evaluation Report (SER).

Background

The Willow Creek Project consists of two projects, the Irigaray project and the Christensen Ranch project, and was formally known as the Irigaray and Christiansen Ranch project. The Willow Creek project is licensed for operation under NRC source and byproduct materials license SUA-1341. The previously approved surety amount of \$12,928,432 was approved by staff in license amendment 19 dated December 16, 2010 (Accession Package No. ML103140486).

By letters dated September 16 and 26, 2011, Uranium One submitted their annual surety estimate update for the Willow Creek Project in Johnson and Campbell Counties, Wyoming (Accession No. ML120100030 and ML11278A010). The annual surety update was submitted pursuant to 10 CFR 40, Appendix A, Criterion 9 and SUA-1341, License Condition (LC) 9.5. The staff accepted the submittal for review in a letter dated October 27, 2011 (Accession No. ML113000323). The staff sent a Request for Additional Information (RAI) to Uranium One dated November 28, 2011 (Accession No. ML113260199). Uranium One provided responses to the staff's RAIs dated December 9, 2011

Enclosure

(Accession No. ML11348A082). The submissions from Uranium One dated September 26, 2011, and December 9, 2011, are referred to collectively in this SER as the surety update request.

Regulatory Requirements

Nuclear facilities licensed under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 40, are required to establish adequate financial assurance (FA) for decommissioning, decontamination and reclamation pursuant to 10 CFR 40, Appendix A, Criterion 9, "Financial Criteria." Criterion 9 requires that the Commission review the surety annually. License SUA-1341, LC 9.5, sets forth Uranium One's FA requirements, including a requirement that the surety be updated annually.

Review Scope

The NRC staff reviewed Uranium One's surety update request in accordance with the requirements in 10 CFR Part 40, Appendix A, Criterion 9, "Financial Criteria" and License SUA-1341, LC 9.5. The staff used NUREG-1569, "Standard Review Plan for In Situ Leach Uranium Extraction License Applications," Appendix C, as guidance during its review.

Safety Evaluation

Introduction

The September 26, 2011, submittal from Uranium One initially requested NRC to amend License Condition 9.5 to reflect a new surety amount of \$16,240,210, an increase of \$3,311,788 over the prior-approved level of \$12,928,432. This increase is due to the reasons discussed below. Part of Uranium One's increase in the cost estimate is to account for the CR MU8 wellfield development and the expected start of mining operations at CR MU8 in 2012. Uranium One also revised their recurring costs to account for actual quotes from a local trucking company, the City of Casper's current landfill rates, and revisions to Wyoming Department of Environmental Quality – Land Quality Division (WDEQ-LQD) Guideline 12: Standardized Reclamation Performance Bond Format and Cost Calculation Methods. Uranium One's cost estimate chose to apply Consumer Price Index (CPI) inflation rates from June 2011 only to groundwater restoration, because Worksheets 2-8 have current costs from actual quotes and the WDEQ Guideline 12, which was published in 2010. Uranium One also applied a 15% contingency to the cost estimate as required by License Condition 9.5. Uranium One did not include any cost associated with CR MU9 in the cost estimate because no mining or wellfield development for CR MU9 is expected until the 2012-2013 reporting period.

Uranium One's cost estimate increased an additional \$68,680 in its December 9, 2011, RAI responses from the September 26, 2011, submittal. The reasons for this increase are due to changes in transportation and disposal of wellfield piping and production well pumps at CR MU8 in Worksheet 6, an increase in cost for removal per manhole in Worksheet 6, and the addition of telephone cost per month in Worksheet 8. These are discussed further in the body of this SER.

Worksheet 1: Groundwater Restoration

Uranium One has adjusted the quantity of wells to reflect current conditions at CR MU7 and CR MU8 for groundwater restoration. The costs for groundwater restoration at CR MU7 have declined due to WDEQ Guideline 4: In-Situ Mining, recommendations that baseline water quality wells have a density

of 3 per acre that reduced the number from 38 in the 2010 submittal, to 11 in the 2011 submittal. The costs for CR MU8 groundwater restoration have been added in this submittal as well, including lixiviant injection which is anticipated beginning in 2012. The recurring cost assumptions for MU8 are the same as MU7 including the pore volume amount for reverse osmosis. The total increase in the 2011 cost estimate for groundwater restoration is \$1,823,669 over the prior approved surety amount. The NRC staff verified the formulas and calculations submitted by Uranium One and found them to be accurate. The NRC staff reviewed the quantities and effort identified in the groundwater restoration worksheet and found them to be consistent with its knowledge of the site. For these reasons, the NRC staff determined that Uranium One has provided adequate justification for groundwater restoration costs at the facility. Therefore, the NRC staff finds the updated cost estimate to this worksheet to be acceptable.

Worksheet 2: Plant Equipment Removal and Disposal

Uranium One updated its recurring costs to reflect the current, actual costs and costs associated with WDEQ Guideline 12. Uranium One also noted that it plans to add six IX vessels to the satellite plant at Christensen Ranch to increase the volume of the satellite plant and filter media volume and two new precipitation tanks at the Irigaray Plant. These changes at the site are represented in Worksheet 2. The information in the surety update request resulted in an increase in \$60,429 over the prior approved surety amount. The NRC staff verified the formulas and calculations submitted by Uranium One and found them to be accurate. The NRC staff reviewed the quantities of plant equipment to be removed and disposed of and found these quantities to be consistent with its knowledge of the site. The NRC staff determined that Uranium One had correctly increased the estimate to account for new infrastructure at the Christensen Satellite plant. For these reasons, the NRC staff determined that Uranium One has provided adequate justification for costs related to equipment removal and disposal. Therefore, the NRC staff finds the updated costs to this worksheet to be acceptable.

Worksheet 3: Restoration and Reclamation Costs

Uranium One updated its recurring costs to reflect the current, actual costs and costs associated with WDEQ Guideline 12. Uranium One also noted that it plans to add nine wellfield module buildings and one booster pump building to the Christensen Ranch site. These increases are represented in Worksheet 3. However, the NRC staff had a concern with respect to the Irigaray expansion building and the Christensen Ranch satellite plant. Uranium One indicated on Worksheet 2, that these two buildings had been expanded. It appeared to the staff on Worksheet 3, that the changes in building demolition volume were not carried over from Worksheet 2. The staff asked an RAI on this concern and Uranium One indicated that the building sizes had not changed, just the equipment within the buildings of concern had changed. The information in the surety update request resulted in an increase of \$459,642 over the prior approved surety amount. The NRC staff verified the formulas and calculations submitted by Uranium One and found them to be accurate. The NRC staff reviewed the restoration and reclamation costs and found the quantities and estimated effort to be consistent with its knowledge of the site. The NRC staff determined that Uranium One had correctly increased the estimate to reflect the addition of new wellfield module buildings and booster pump. For these reasons, the NRC staff determined that Uranium One has provided adequate justification for costs related to restoration and reclamation. Therefore, the NRC staff finds the updated cost estimate to this worksheet to be acceptable.

Worksheet 4: Pond Reclamation

Uranium One updated its recurring costs to reflect the current, actual costs and costs associated with WDEQ Guideline 12. However, the NRC staff had a concern with respect to the estimated costs related to the leak detection system removal for Brine Pond 1 at the Christensen Ranch. It was clear to the staff that Uranium One had included line items for the volume that needed to be disposed of, the loads required for disposal, and the cost per load. It did not appear to the staff that Uranium One had calculated the total cost for leak detection system removal. The staff asked an RAI on this concern and Uranium One indicated that the line item for handling cost per truckload was actually the total handling cost and a new line item for handling cost per load had been included in the December 9, 2011, RAI response. The information in the surety update request resulted in an increase in \$46,708 over the prior approved surety amount. The NRC staff verified the formulas and calculations submitted by Uranium One and found them to be accurate. The NRC staff reviewed the quantities and effort related to pond reclamation and found these items to be consistent with its knowledge of the site. For these reasons, the NRC staff determined that Uranium One has provided adequate justification for costs related to pond reclamation. Therefore, the NRC staff finds the updated cost estimate to this worksheet to be acceptable.

Worksheet 5: Well Plugging and Abandonment

Uranium One updated its recurring costs to reflect the current, actual costs and costs associated with WDEQ Guideline 12. The cost estimate for the surety also reflects the change in the quantity of wells at CR MU7 and MU8, including the removal of the line item "Misc. Baseline/Regional Wells" because these wells are existing production or injection wells and are already accounted for in the line item "Production/Injection Wells" in Worksheet 5. These changes in assumptions and costs are represented in Worksheet 5. The costs increased primarily due to the increase in recurring costs and the increase in production/injection wells at CR MU8. The information in the surety update request resulted in an increase in \$108,383 over the prior approved surety amount. The NRC staff verified the formulas and calculations submitted by Uranium One and found them to be accurate. The NRC staff reviewed the quantities related to well plugging and abandonment and found them to be consistent with its knowledge of the site. The NRC staff also determined that Uranium One had correctly adjusted the well plugging and abandonment cost estimate to reflect the increase in production/injection wells at CR MU8. For these reasons, the NRC staff determined that Uranium One has provided adequate justification for well plugging and abandonment costs. Therefore, the NRC staff finds the updated cost estimate to this worksheet to be acceptable.

Worksheet 6: Wellfield Equipment Removal and Disposal

Uranium One updated its recurring costs to reflect the current, actual costs and costs associated with WDEQ Guideline 12. Uranium One also included cost for removal and disposal wellfield pipeline, production well pumps, buried trunkline, and manholes for CR MU8. The licensee increased the amount of wells at CR MU7 to reflect the current amount for removal and disposal. The licensee deducted costs for Irigaray production well pumps, surface trunkline removal, buried trunkline removal, and manholes because all the wells at the Irigaray site have been plugged and abandoned. The staff had two concerns with Worksheet 6. The first concern the staff had was that the licensee states that it included information with respect to production well pumps at CR MU8. The licensee appeared to assume 100 percent disposal at a landfill for tubing volume and reduction of the production well pumps, but indicates zero percent in the submittal. With respect to the other concern, the licensee lowered the cost estimate for manhole removal cost from \$117 each to \$109.73 each. Both of these

concerns were discussed in the staff's RAIs. Uranium One made appropriate changes to the cost estimate for CR MU8 transportation and disposal of wellfield piping and production well pumps. Uranium One projects that 50 percent of the wellfield piping will be disposed of onsite and 50 percent transported and disposed of offsite. The licensee assumes a similar distribution for the production well pumps, including tubing volume. With respect to the staff's other concern, the cost per manhole removal, Uranium One increased the cost per manhole removal to \$149.51 based on WDEQ Guideline 12. The result of these two responses was an increase of \$44,922 between the September 26, 2011 submittal and the December 9, 2011 submittal. The information in the surety update request resulted in an increase in \$389,004 over the prior approved surety amount. The NRC staff verified the formulas and calculations submitted by Uranium One and found them to be accurate. The NRC staff reviewed the quantities related to wellfield equipment removal and disposal and found them to be consistent with its knowledge of the site. For these reasons, the NRC staff determined that Uranium One has provided adequate justification for wellfield equipment removal and disposal costs. Therefore, the NRC staff finds the updated cost estimate to this worksheet to be acceptable.

Worksheet 7: Topsoil Replacement and Revegetation

Uranium One updated its recurring costs to reflect the current, actual costs and costs associated with WDEQ Guideline 12. Uranium One noted that affected acreage for CR MU7 and MU8 had not changed from the last surety cost estimate update. The staff had one concern with Worksheet 7. Uranium One presented information regarding affected acreage in Section V, "Other," and Section VI, "Remedial Action," but did not give any indication with respect to soil depth. Since the costs for topsoil replacement and revegetation are based on soil volume, there were no costs for topsoil handling and grading for these two sections. This concern was discussed in the staff's RAIs. Uranium One indicated in its RAI responses that topsoil would not be affected in Section V because the areas affected are marginal in the minefield development. Only revegetation will need to occur in these areas. Section VI is based on the assumption that 50 percent of revegetation in affected areas in Sections I-V will be unsuccessful, and is where the licensee captures the revegetation of the original areas where revegetation was unsuccessful. The information in the surety update request resulted in a decrease of \$28,246 over the prior approved surety amount. The NRC staff verified the formulas and calculations submitted by Uranium One and found them to be accurate. The NRC staff reviewed the quantities related to topsoil replacement and vegetation and found them to be consistent with its knowledge of the site. For these reasons, the NRC staff determined that Uranium One has provided adequate justification for topsoil replacement and vegetation. Therefore, the NRC staff finds the updated cost estimate to this worksheet to be acceptable.

Worksheet 8: Miscellaneous Reclamation

Uranium One updated its recurring costs to reflect the current, actual costs and costs associated with WDEQ Guideline 12. Uranium One updated cost information for CR MU7 with respect to fence removal and disposal, powerline removal and disposal, powerpole removal and disposal, and booster pump assembly removal and disposal. The licensee also included costs for CR MU8 development throughout Worksheet 8. The staff identified one issue regarding the utilities cost, which was discussed in the staff's RAIs. Specifically, the staff questioned whether the utilities charges indicated in Section IX of Worksheet 8 should also include telephone costs. Uranium One included the cost for telephone cost per month in the RAI response. The inclusion of this cost increased the cost estimate between the September 26 submittal and the December 9 submittal by \$12,260. The information in the surety update request resulted in a decrease of \$7,000 over the prior approved surety amount. The NRC staff verified the formulas and calculations submitted by Uranium One and found them to be

accurate. The NRC staff reviewed the quantities and effort identified in the miscellaneous reclamation estimate and found that the estimate reflects its knowledge of the site. For these reasons, the NRC staff determined that Uranium One has provided adequate justification for miscellaneous reclamation costs at the site. Therefore, the NRC staff finds the updated cost estimate to this worksheet to be acceptable.

Conclusion

The staff finds the cost estimate for the surety bond to be acceptable and the deficiencies identified in the September 26, 2011, submission have been resolved. In its September 26, 2011 submittal, Uranium One increased its cost estimate to \$16,240,210, which is an increase of \$3,311,788 over the previous surety amount. Uranium One increased its cost estimate to \$16,308,890 in its December 9, 2011, RAI responses, which is an increase of \$3,380,458 over the previous surety amount. The staff finds the revisions to the recurring costs to be reasonable, including the CPI calculation used to adjust for inflation. The staff finds Uranium One's use of WDEQ-LQD Guideline number 12 for calculating performance bond costs acceptable. The staff also finds the updates and calculations for groundwater restoration, plant equipment removal and disposal, restoration and reclamation costs, pond reclamation costs, well plugging and abandonment, wellfield equipment removal and disposal, topsoil replacement and revegetation, and miscellaneous reclamation to be reasonable. The procedures to update these costs and the inclusion of costs for CR MU8 are acceptable. The staff notes that unless Uranium One follows a similar process for providing actual and current, recurring costs using quotes and/or the WDEQ Guideline 12 (or another verifiable resource), the CPI index should be used for all worksheets to update the cost estimate for the surety bond in the future.

Environmental Review

The staff has reviewed the licensee's request and finds that the proposed action belongs to a category of regulatory actions that the NRC has determined are eligible for categorical exclusion (i.e., that do not require an environmental assessment) under 10 CFR 51.22(c)(10), which states:

Issuance of an amendment to a permit or license under parts 30, 31, 32, 33, 34, 35, 36, 39, 40, 50, 52, 60, 61, 63, 70, or part 72 of this chapter which—
(i) Changes surety, insurance and/or indemnity requirements; (ii) Changes recordkeeping, reporting, or administrative procedures or requirements; . . .

The staff finds that the revisions to the surety bond cost estimate constitute a change in surety, insurance and/or indemnity requirements and, therefore, an environmental assessment is not required.

References

10 CFR Part 40. Code of Federal Regulations, Title 10, *Energy*, Part 40, "Domestic Licensing of Source Material."

NRC, 2011a. Request For Additional Information, Willow Creek Annual Surety Update Review, Uranium One Americas, Inc., Willow Creek Project, ADAMS Accession No. ML113260199, November 28, 2011.

NRC, 2011b. Acceptance for Review, Willow Creek Annual Surety Update, Uranium One

Americas, Inc., Willow Creek Project, ADAMS Accession No. ML113000323, October 27, 2011.

NRC, 2011c. Amendment No. 20 to Source Materials License SUA-1341. ADAMS Accession No. ML111310039, August 2, 2011.

NRC, 2010. Letter and Amendment No. 19 to Source Materials License SUA-1341. ADAMS Package Accession No. ML103140486, December 16, 2010.

NRC, 2003. NUREG-1569, "Standard Review Plan for In Situ Leach Uranium Extraction License Applications", June 2003.

Uranium One, 2011a. Letter from Uranium One, Re: Annual Report for WDEQ Permit to Mine No. 478. ADAMS Accession No. ML120100030, September 16, 2011.

Uranium One, 2011b. Response to NRC's 11/28/11 Request for Additional Information, ADAMS Accession No. ML11348A082, December 9, 2011.

Uranium One, 2011c. Letter from Uranium One, Re: Willow Creek Annual Surety Update, ADAMS Accession No. ML11278A010, September 26, 2011.

WDEQ, 2010. "Guideline 12 – Standardized Reclamation Performance Bond Format and Cost Calculation Methods." Wyoming Department of Environmental Quality – Land Quality Division. November 2010.

WDEQ, 2009. "Guideline 4 – In-Situ Mining." Wyoming Department of Environmental Quality – Land Quality Division. December 2009.