Request for Additional Information

Decommissioning and Reclamation Plan, Update 2013

License Condition (LC) 36, of Homestake Mining Company of California's (HMC's) License No. SUA-1471, requires that site reclamation be conducted in accordance with an approved reclamation plan. The reclamation plan currently in effect was submitted to the U.S. Nuclear Regulatory Commission (NRC) on October 29, 1993, and approved by the NRC in License Amendment 21, dated May 5, 1995.

On April 4, 2013, HMC submitted its Decommissioning and Reclamation Plan (DRP), Update 2013 (Agencywide Documents Access and Management Systems (ADAMS) Accession No. ML131070607). The NRC noticed receipt of the DRP and offered an opportunity to request a hearing and submit comments in the Federal Register (ADAMS Accession No. ML13141A575) on June 27, 2013. The opportunity to request a hearing and submit public comments on the DRP closed on August 26, 2013.

The purpose of the updated DRP is to update the October 1993 reclamation plan, and to provide supporting documentation to amend groundwater and site reclamation schedules provided in the Updated Corrective Action Program (CAP) submitted by HMC on March 15, 2012 (ADAMS Accession No. ML120890113) for NRC review and approval.

NUREG-1620, Rev. 1, "Standard Review Plan for the Review of a Reclamation Plan for Mill Tailings Sites under Title II of the Uranium Mill Tailings Radiation Control Act of 1978," provides guidance to the staff for reviewing reclamation plans. However, since most of the mill and soil remediation at this facility has already been completed, much of the guidance in NUREG-1620 is not applicable.

The NRC has reviewed the DRP. The staff's review consisted of: (1) verifying that information common to the DRP and CAP is consistent; and (2) evaluating the adequacy of new information. Based on the staff's review, the NRC is requesting that HMC provide the following information:

1. **Description**

Sections 2.1.1 "Facility Ownership" and Section 2.2.1 "Operational History" of the DRP do not include a discussion of the 1984 licensee name change from Homestake Mining Company to Homestake Mining Company of California.

- **Basis of Request**

License SUA-1471 is currently held by Homestake Mining Company of California. In 1984, Homestake Mining Company officially changed its name to Homestake Mining Company of California. With License Amendment 47, the NRC changed the licensee name from Homestake Mining Company to Homestake Mining Company of California.

- **Formulation of RAI**

Please revise the DRP to reflect the correct, current name of the licensee.

2. **Description**
Section 2.1.2 of the DRP includes a list of the major remaining tasks to be completed for final site closure. However, the list does not include the conduct of final status surveys for the four off-site irrigation areas.

- **Basis of Request**

Section 9.7.3 of the DRP states that HMC will conduct Class 2 MARSSIM surveys across irrigation fields to verify and document that the soil meets the soil cleanup criteria.

- **Request for Additional Information**

Please revise Section 2.1.2 of the DRP to include the conduct of final status surveys for the four off-site irrigation areas on the list of the major remaining tasks to be completed for final site closure.

3. **Description**
Section 2.1.4.3 of the DRP discusses remedial actions associated with Operable Unit 3 (OU3). HMC states that the current schedule for EPA's release of the Final Human Health Risk Assessment (HHRA) is early 2013.

- **Basis of Request**

The U.S. Environmental Protection Agency released the Final HHRA in December 2014.

- **Request for Additional Information**

Please revise the DRP to address the release of the Final HHRA and the impact of that assessment on HMC's plans for reclamation and decommissioning of the Homestake site.

4. **Description**
Section 2.2.2.5 of the DRP, "Groundwater Restoration History," page 2-55, states, in reference to the groundwater collection and irrigation system, that: "This land application methodology was reviewed and approved by the NRC and NMED through letter authorizations (MFG 2006)."

- **Basis of Request**

New Mexico Environment Department (NMED) approved HMC's request to use water from the alluvial aquifer as a source of irrigation water by letter dated February 15, 1999, (Enclosure 2 to February 16, 1999 Letter (ADAMS Public Legacy Library Accession No. 9903030316) from HMC to the NRC describing the land application system). On April 20, 1999, the NRC notified HMC by letter (ADAMS Public Legacy Library Accession No. 9905050038) that the irrigation program was not subject to regulation under Materials License No. SUA-1471, and that the radiological dose assessment for the irrigation program was generally acceptable for demonstrating compliance with the radiation dose limits for individual members of the public established by 10 CFR Part 20.1301.

- **Request for Additional Information**

Please revise the DRP to indicate that NMED approved the land application program by letter in 1999, and that NRC approval was not required or given.

5. **Description**
Section 9.1.2, “Small Tailings Pile” page 9-8, states: “Because no significant subsequent settlements should occur before barrier placement, no settlement monitoring will be performed.”

- **Basis of Request**

The technical basis for HMC’s conclusion that no significant subsequent settlements should occur is provided on page 9-7. While it appears that settlement will likely not occur after slope re-contouring, HMC should perform settlement monitoring to ensure that the Small Tailings Pile (STP) is still performing as designed in accordance with 10 CFR Part 40, Appendix A, Criterion 6. See Section 2.6 “Construction Considerations,” acceptance criterion 7 of NUREG-1620, Rev.1, for guidance on what criteria NRC staff will use to review plans for measuring settlement of the disposal cell.

- **Request for Additional Information**

Please revise the DRP to indicate how HMC will verify that the STP barrier is performing as designed after slope re-contouring.

6. **Description**
Section 9.11 of the DRP provides a schedule for completion of the remaining decommissioning and reclamation activities. The activities and dates provided are not consistent with the activities and dates provided in LC 36 of Materials License No. SUA-1471.

- **Basis of Request**

LC 36 of Materials License No. SUA-1471 establishes completion dates for: (1) placement of the final radon barrier on the Large Tailings Pile (LTP); (2) placement of the erosion protection on the LTP; (3) placement of the erosion protection on the STP; and (4) projected completion of groundwater corrective actions. Scheduled dates for completion of decommissioning activities that are established in the DRP can only be revised via license amendment.

- **Request for Additional Information**

Please revise Section 9.11 to include, at a minimum, a schedule for the decommissioning activities as found in LC 36.

7. **Description**
Section 9.11.7, “Physical Reclamation/Closure,” provides a schedule for completion of groundwater reclamation activities. The schedule for placement of the Radon Barrier and Rock Cover on the LTP is seven years after completion of tailings flushing.

- **Basis of Request**

After completion of the tailings flushing program, HMC will continue extracting tailings pore water and impacted groundwater beneath the tailings impoundment. Extraction of the tailings pore water is scheduled to be completed in 2016. It appears that additional extraction wells drilled through the tailings impoundment will continue to be used until 2020 based on the proposed completion date for alluvial aquifer collection. HMC stated it plans to defer placement of the final radon barrier and rock cover on the LTP until 2022.

- **Request for Additional Information**

What is HMC's technical justification for waiting six years to place the Radon Barrier and Rock Cover on the LTP after completion of tailings flushing?

8. **Description**

Section 2.2.2.3, "Surface Water Runoff Control-Onsite," states that the diversion channel will be cleared of windblown sediments and re-established as needed. Additionally this section states that the diversion channel and drainage crossings were not originally part of the 1993 design/reclamation plan and occurred as a field engineering change. The amount of windblown sediments accumulating in both the diversion channel and the drainage crossings is not discussed.

- **Basis for the Request**

The diversion channels and crossings should be designed to store or flush the expected volume of sediment that will enter the channels over a 1000-year period in such a way that provides reasonable assurance that the on-site earthen covers will be effective radiological barriers for 1,000 years to the extent reasonable achievable (10 CFR Part 40, Appendix A, Criterion 6).

- **Request for Additional Information**

Provide the design specifications and engineering calculations used for the drainage channels and crossings, which document the adequacy of the protection provided from erosion when subjected to design flood flows over a 1000-year period.

9. **Description**

The clean-up of non-radiological constituents is not addressed.

- **Basis for the Request**

Non-radiological constituents must be addressed per the requirement of 10 CFR Part 40, Appendix A, Criterion 6(7).

- **Request for Additional Information**

Please explain how the non-radiological constituents will be evaluated to address any hazardous concentrations in the soils to comply with 10 CFR 40, Appendix A, Criterion 6(7).

10. **Description**

Sufficient description of the methodology to be used to measure radon flux through the final cover of the STP and the LTP is required for NRC evaluation.

- **Basis for the Request**

License condition 36.A.(3) of Materials License No. SUA-1471 requires that the final radon barrier for the STP and the LTP limit radon emissions to an average flux of no more than 20 pCi/m^2s.

- **Formulation of the RAI**

Please provide a complete description of how HMC's radon flux measurement methodology will be used to measure radon flux from the final cover, including how many measurements will be taken and from where on each pile, and how these values will be used for an ultimate value.