

January 28, 1999

Mr. Roy Cellan
Homestake Mining Company
P.O. Box 98
Grants, New Mexico 87020

SUBJECT: CLEANUP OF MILL AND WINDBLOWN CONTAMINATION, AMENDMENT NO. 32

The U. S. Nuclear Regulatory Commission (NRC) staff has completed its review of Homestake Mining Company's (HMC's) Completion Report for Reclamation of Off-Pile Areas, submitted by letter dated December 18, 1995, and HMC's Mill Decommissioning Completion Report and amendment request, submitted by letter dated March 7, 1996.

Based on the information contained in the two completion reports (CR's), and the various telephone conversations and HMC addenda to the CR's, the staff has determine that the radiological cleanup of soil and buildings at the Grants Mill site met applicable standards and license conditions, as documented in Enclosure 1, the Technical Evaluation Report (TER). In addition, the requested amendments to Materials License SUA-1471 have been evaluated and determined to be acceptable, with the changes discussed with HMC (Roy Cellan) and documented in the TER.

Therefore, pursuant to Title 10 of the Code of Federal Regulations (10 CFR), Part 40, Source Material License SUA-1471 is hereby amended as discussed in the TER. All other conditions of this license shall remain the same. The license is being reissued to incorporate the revised and new license conditions (Enclosure 2). An environmental report is not required from HMC, since the amendment does not meet the criteria of 10 CFR 51.60(b)(2). An NRC staff environmental assessment was not performed, since this action is categorically excluded under 10 CFR 51.22(c)(11).

If you have any questions regarding this letter or the enclosures, please contact the NRC Project Manager for the HMC site, Ken Hooks, at (301) 415-7777.

Sincerely, [Signed by]
N. King Stablein, Acting Chief
Uranium Recovery Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Docket No.: 40-8903

License No.: SUA-1471, Amendment No. 32

Enclosures: As stated

cc: R. Edge, DOE Grand Junction
M. Hanning, NMED, Santa Fe
G. Lyssy, EPA Region 6, Dallas

Cases Closed: L51329, L51390

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DATE	01/21/99	H	01/25/99		01/28/99					



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

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If you have any questions regarding this letter or the enclosures, please contact the NRC Project Manager for the HMC site, Ken Hooks, at (301) 415-7777.

Sincerely,

A handwritten signature in cursive script that reads "N. King Stablein".

N. King Stablein, Acting Chief
Uranium Recovery Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Docket No.: 40-8903
License No.: SUA-1471
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Enclosures: As stated

cc: R. Edge, DOE Grand Junction
M. Hanning, NMED, Santa Fe
G. Lyssy, EPA Region 6, Dallas

TECHNICAL EVALUATION REPORT

HOMESTAKE MINING COMPANY'S COMPLETION REPORT FOR RECLAMATION OF OFF-PILE AREAS AND THE MILL DECOMMISSIONING COMPLETION REPORT

DATE: December 16, 1998

DOCKET NO. 40-8903 LICENSE NO. SUA-1471

LICENSEE: Homestake Mining Company of California

FACILITY: Homestake (Grants Uranium Mill Site)

PROJECT MANAGER: K. Hooks

TECHNICAL REVIEWERS: E. Brummett, Ted Johnson

SUMMARY AND CONCLUSIONS:

By letter dated December 18, 1995, the Homestake Mining Company of California (HMC) submitted, as required by License Condition 29F, a Completion Report For Reclamation of Off-Pile Areas, documenting soil cleanup and verification for most of the Homestake uranium mill site near Grants, New Mexico. Also, by letter dated March 7, 1996, HMC provided the Mill Decommissioning Completion Report (CR) and requested an amendment to remove License Conditions (LCs) 29, 29D, and 29F. The NRC staff has reviewed both CRs, the subsequent revisions, supporting documents, and results of the staff's confirmatory survey and concludes that the reclamation data provides reasonable assurance that the radiological cleanup of soil and buildings meets the applicable standards in 10 CFR Part 40 and that applicable LCs were met.

DESCRIPTION OF LICENSEE'S AMENDMENT REQUEST:

In response to an NRC staff comment, HMC revised its amendment request (May 21, 1998) such that: LC 29E becomes LC 37K; LC 29 is deleted because mill and windblown cleanup is complete; LC 37B is revised to include decommissioning of the groundwater restoration facilities; and LC 37J is added to require use of the approved 1994 soil cleanup verification plan for the groundwater restoration facilities area.

BACKGROUND:

Staff reviewed both CRs and provided 32 comments to HMC on September 23, 1996. HMC's response was submitted October 15, 1996, and additional data were later provided: soil Ra-226 analysis for the split confirmatory samples on November 26, and soil background data on December 18, 1996. HMC provided additional information dated March 27 and July 23, 1997, May 21 and October 8, 1998, related to comments on the CRs and comments resulting from the 1998, related to comments on the CRs and comments resulting from the site inspections conducted October 1996 and January 1998. These HMC documents should be considered part of the CRs.

Enclosure

HMC performed cleanup of radiological contamination at the Homestake site from 1988 to 1995. The soil cleanup was done in two phases, each under a different approved plan. LC 29 directed the early cleanup and verification of windblown tailings and was revised in 1995 for the second phase (90 percent of the site) of windblown cleanup and verification to reflect the improved verification program. Mill decommissioning was also specified by LC 29.

HMC buried mill process and miscellaneous structures in pits as described in Sections 2.3 and 2.4 of the 1993 Reclamation Plan. The disposal pits do not contain significant amounts of 11e.(2) byproduct material (page two of mill CR), but HMC provided radon barrier covers and performed testing to demonstrate that the pits meet the disposal cell criteria of Part 40 Appendix A.

TECHNICAL EVALUATION:

The NRC staff reviewed radiation aspects of remedial actions at the HMC Homestake mill site to ensure that residual radioactive materials were cleaned up and controlled in accordance with specifications in the Reclamation Plan, LC 29, and Part 40 Appendix A Criterion 6 (radiological requirements for disposal cell covers and limits for radium (Ra-226) in soil). The regulations to be met for this review also include 10 CFR 40.42(j) which requires, in part, a radiation survey and report with gamma radiation levels in mSieverts or microrentgen per hour at one meter, and Part 40.42(k) requirements that a reasonable effort has been made to eliminate residual radioactive contamination, and a radiation survey and other submitted information to demonstrate that the premises is suitable for release. Areas of review included contaminated material excavation, soil and building cleanup verification procedures and data, final radon flux measurements, and cover radiological data.

Decommissioning records review and confirmatory survey activities were conducted by staff during inspections performed September 30 to October 2, 1996 (NRC, 1997a), February 13, 1997 (NRC, 1997b), and January 12-14, 1998 (NRC, 1998). These inspections document that the data reviewed and the radiological survey and soil analysis results were acceptable. One follow-up item related to the trucking yard soil and buildings was addressed by HMC's submittal of May 21, 1998.

Soil cleanup of mill-related radionuclides other than Ra-226 was considered, but cleanup criteria were not proposed because soil thorium-230 levels in excess of Ra-226 were not anticipated from the alkaline process used at the mill. Some uranium measurements were performed, but most of the mill yard, where yellowcake spills were likely, was treated as a disposal area.

During the review, with respect to the above criteria and commitments, NRC staff noted the following:

1. Soil Cleanup and Verification: The CR indicates that approved procedures for soil verification were appropriately applied. The licensee divided the site into 33 X 33 foot (10 x 10 meter) grids and composite soil samples (taken in grid with highest gamma level in each block) and gamma readings were taken, as designated in the plan, to verify cleanup levels. Of the 72 soil samples taken in the inner zone (around the tailings piles), the average Ra-226 value was 1.1 pCi/g and no sample exceeded 5 pCi/g. Of the 78 samples taken in the outer zone, the average value was 2.9 pCi/g and no sample

exceeded 8 pCi/g. The cleanup criterion was exceeded in one grid in the buffer zone (beyond the excavated area) but additional analysis of the sample indicated an acceptable level of Ra-226.

The staff determined that the quality control program delineated in LC 29E appears to have been followed (considering both the Ra-226 and uranium data), and that the data are adequate to demonstrate compliance with the soil Ra-226 cleanup standards.

2. **Equipment and Building Cleanup:** A potential problem with the determination of surface activity was discovered during the inspection of October 1996, because an incorrect efficiency factor was used for converting instrument readings (counts) to activity (disintegrations). However, HMC reviewed procedures (HMC, 1997) and found that a conservative error in determining probe size reduced the underestimation of total activity from 100 to 24 percent. Also, the removable activity had been overestimated 130 percent. Examination of records by NRC staff, allowing for the needed corrections, indicated that released material did not exceed the recommended release limits. The remaining buildings also meet release limits.
3. **Cover Radon Flux:** The six disposal pits in the mill yard and the two between the two tailings piles contain mill-related debris (and grout for stability). HMC measured the radon flux over the three areas (mill yard, pit 4, and pit 5) with results averaging 5.6, 5.6, and 3.4 pCi/m²s, respectively, well below the 20 pCi/m²s limit. The measurements were determined to have been performed appropriately. The disposal pits have at least 4 feet of radon barrier cover (would control radon emanation for over 1000 years) and are in the area to be deeded to the federal government for custody in perpetuity.
4. **Cover Radiation Levels:** Staff determined that the number of measurements and resulting data for the disposal pits and mill yard area are acceptable for demonstrating that the covers have reduced gamma exposure levels from the waste to approximately background. Also, the licensee provided data (HMC, 1994 and 1995a) indicating that the material to be utilized for the radon barrier of the cover had Ra-226 values within the range of local soil background values.
5. **Cover Stability:** The stability of the cover over the disposal pits/mill yard was partially addressed in the Reclamation Plan (HMC, 1993 - see App B #8) by placing a cement mixture over the debris to reduce settlement/subsidence. The NRC staff has yet to review the final site drainage plan. The approved site drainage plan should provided assurance that the disposal pit covers will be stable (minimal erosion) for at least 200 years.

Based on the above observations, and on the results of on-site inspections performed by NRC staff, the NRC staff concludes that the radiological aspects of construction were performed in accordance with the approved Reclamation Plan and that radiological cleanup and control verification data demonstrate compliance with the criteria in 10 CFR Part 40. The NRC staff determined that the CR information provides reasonable assurance that the land, beyond the area to be deeded to the federal government, is suitable for release.

RECOMMENDED LICENSE CHANGES:

Delete all of LC 29 (see LC 37K below) because the mill decommissioning is complete and approved, the borrow area locations have been documented and approved, and the 90 day requirement for CR submittal has been met.

Revise LC 37B to read "The final reclamation of the area that includes the small tailings pile and the two evaporation ponds will include the disposal of the contaminated groundwater restoration materials and precipitated solids from the evaporation ponds. The small tailings pile and evaporation ponds will be recontoured and covered with radon barrier material. The placement of the barrier on the small tailings pile shall be done in accordance with the material types, thicknesses, and placement criteria described in Homestake Mining Company's Final Radon Barrier Design for the Small Tailings Pile, transmitted to the NRC in August 1996. [Applicable Amendments: 27, 32]"

Add LC 37J to read "The soil cleanup program associated with the decommissioning of the groundwater restoration facilities and small tailings pile reclamation shall be done as specified in the submittal of September 15, 1994, and as modified by the submittal of December 13, 1995."

Add LC 37K (revision of the previous LC 29E) to read, "The licensee shall implement a quality control (QC) program for the soil cleanup verification program to include sending at least 10 percent of the samples (randomly selected) to a vendor laboratory for Ra-226 analysis. If the vendor laboratory uses gamma spectroscopy, at least 30 percent of these QC samples shall also be chemically analyzed. [Applicable Amendments: 20 and 32]"

REFERENCES:

HMC "Reclamation Plan, Revision 10/93," issued by letter dated October 29, 1993.

HMC Letter "Radon Barrier Material Test Results," March 15, 1994.

HMC Letter "Final Radon Barrier Design for the Large Tailings Facility," June 16, 1995a.

HMC Letter "Completion Report for Reclamation of Off-Pile Areas," December 18, 1995b.

HMC Letter "Completion Report - Mill Decommissioning," March 7, 1996a.

HMC Letter "Response to 9/23/96 NRC Comments," October 15, 1996b.

HMC Letter "Laboratory Results for 11 Soil Samples Taken 10/2/96," November 26, 1996c.

HMC Letter "Submittal of Map for 1988 Radium Background Information," December 18, 1996d.

HMC Letter "Response to NRC's 2/11/97 Draft Comments," March 27, 1997a.

HMC Letter "Resubmittal of Responses to Earlier NRC Comments," July 23, 1997b.

HMC Letter "Responses to NRC Comments in 4/23/98 Letter," May 21, 1998a.

HMC Letter "Response to Comments on Completion Reports for Off-Pile Cleanup and Mill Decommissioning," October 8, 1998b.

HMC Letter "Mill Cover Inspection Dated 10/15/98, Response to Comments," October 22, 1998c.

NRC Letter "Soil Cleanup Verification Survey and Sampling Plan," (License Amendment No. 20) March 1, 1995.

NRC Letter "Comments on Radiological Sections of Completion Reports," September 23, 1996.

NRC Inspection Report 40-8903/96-02, January 23, 1997a.

NRC FAX of Draft Comments on Completion Reports, February 11, 1997b.

NRC Inspection Report 40-8903/97-01, April 2, 1997c.

NRC FAX of Comments on HMC's 3/27/97 Letter, May XX, 1997d.

NRC Inspection Report 40-8903/98-01, February 13, 1998a.

NRC Letter "Previously Faxed Comments on Completion Reports," April 23, 1998b.

NRC Inspection Report 40-8903/98201, November 9, 1998c.

ENVIRONMENTAL IMPACT EVALUATION:

An environmental report from HMC is not required by 10 CFR 51.60(b)(2), since this amendment will not authorize or result in: (i) a significant expansion of a site, (ii) a significant change in the types of effluents, (iii) a significant increase in the amount of effluents, (iv) a significant increase in individual or cumulative occupational radiation exposures, or (v) a significant increase in the potential for or consequences from radiological accident.

An NRC staff environmental assessment was not performed, since this amendment is categorically excluded under 10 CFR 51.22 (c)(11), as: (i) there is no significant change in the types or significant increase in the amounts of any effluent that may be released off site, (ii) there is no significant increase in individual or cumulative occupational radiation exposure, (iii) there is no significant construction impact, and (iv) there is no significant increase in the potential for, or consequences from, radiological accidents.

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee			
1.	Homestake Mining Company	3. License Number	SUA-1471, Amendment No. 32
2.	P.O. Box 98 Grants, New Mexico 87020	4. Expiration Date	Until NRC determines site reclamation is adequate. [Applicable Amendment: 12]
		5. Docket or Reference No.	40-8903

6. Byproduct, Source, and/or Special Nuclear Material	7. Chemical and/or Physical Form	8. Maximum Amount that Licensee May Possess at Any One Time Under This License
Uranium	Any	Unlimited

9. Authorized Place of Use: The licensee's uranium mill located in Cibola County, New Mexico, County, New Mexico. [Applicable Amendment: 12, 29]

10. This license authorizes only the possession of residual uranium and byproduct material in the form of uranium waste tailings and other byproduct waste generated by the licensee's past milling operations in accordance with Tables 1 and 3 and the procedures submitted by letter dated September 2, 1993, as modified by letter dated March 7, 1996.

Anywhere the word "will" is used, it shall denote a requirement.

[Applicable Amendments: 2, 6, 12, 16, 24]

11. DELETED by Amendment 21.

12. Periodic embankment inspections of the large and small tailings embankment shall be conducted by knowledgeable individuals who are familiar with the site and mining operations. An annual status report shall be included in the Semi-Annual Environmental Report for the second half of the year.

[Applicable Amendments: 2, 12, 14, 24]

13. DELETED by Amendment No. 27.

14. Release of equipment or packages from the restricted area shall be in accordance with the amendment to SUA-1471 entitled "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct or Source Materials," dated September 1984. [Applicable Amendments: 21, 31]

15. The results of all effluent and environmental monitoring required by this license shall be reported in accordance with 10 CFR 40, Section 40.65, with copies of the report sent to the NRC. Monitoring

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data shall be reported in the format shown in the attachment to SUA-1471 entitled, "Sample Format for Reporting Monitoring Data." For purposes of 10 CFR 40.65 reporting requirements, only groundwater radionuclide data from the point of compliance wells and backgrounds well P shall be reported. [Applicable Amendments: 5, 31]

16. Before engaging in any activity not previously assessed by the NRC, the licensee shall prepare and record an environmental evaluation of such activity. When the evaluation indicates that such activity may result in a significant adverse environmental impact that was not previously assessed or that is greater than that previously assessed, the licensee shall provide a written evaluation of such activities and obtain prior approval of the NRC in the form of a license amendment.
17. Prior to termination of this license, the licensee shall provide for transfer of title to byproduct material and land, including any interests therein (other than land owned by the United States or the State of New Mexico), which is used for the disposal of such byproduct material or is essential to ensure the long-term stability of such disposal site, to the United States or the State of New Mexico, at the State's option.
18. DELETED by Amendment No. 27.
19. DELETED by Amendment No. 17.
20. DELETED by Amendment No. 21.
21. The site Radiation Protection Administrator (RPA), who is responsible for conducting the site radiation safety program, shall possess the minimum qualifications as specified in Section 2.4.1 of Regulatory Guide 8.31, "Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Mills will be As Low As is Reasonably Achievable." [Applicable Amendment: 27]
22. The results of sampling, analyses, surveys and monitoring; the results of calibration of equipment, reports on audits and inspections; all meetings and training courses required by this license and any subsequent reviews, investigations, and corrective actions, shall be documented. Unless otherwise specified in the NRC regulations, all such documentation shall be maintained for a period of at least 5 years.
23. Standard procedures shall be established for all activities involving radioactive materials that are handled, processed, or stored. Procedures shall enumerate pertinent radiation safety practices to be followed. Additionally, written procedures shall be established for environmental monitoring, bioassay analyses, and instrument calibrations. An up-to-date copy of each written procedure shall be kept in the area to which it applies.

All written procedures shall be reviewed and approved in writing by the RPA before implementation and whenever a change in procedure is proposed to ensure that proper radiation protection principles are being applied. In addition, the RPA shall perform a documented review of all existing procedures at least annually.

[Applicable Amendment: 27]

24. The licensee shall be required to use a Radiation Work Permit (RWP) for all work or nonroutine maintenance jobs where the potential for significant exposure to radioactive material exists and for

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which no standard written procedure already exists. The RWP shall be approved by the RPA or his designee, qualified by way of specialized radiation protection training, and shall at least describe the following:

- A. The scope of work to be performed.
- B. Any precautions necessary to reduce exposure to uranium and its daughters.
- C. The supplemental radiological monitoring and sampling necessary prior to, during, and following completion of the work.

25. DELETED by Amendment No. 21.

26. Mill tailings, other than small samples for purposes such as research or analysis, shall not be transferred from the site without specific prior approval of the NRC in the form of a license amendment. The licensee shall maintain a permanent record of all transfers made under the provisions of this condition.

27. DELETED by Amendment No. 21.

28. The licensee shall maintain an NRC-approved financial surety arrangement consistent with 10 CFR 40, Criteria 9 and 10, adequate to cover the estimated costs, if accomplished by a third party, for decommissioning and decontamination of the mill and mill site, reclamation of tailings or waste disposal areas, ground-water restoration, and the long-term surveillance fee. Within 3 months of NRC approval of a revised reclamation plan, the licensee shall submit for NRC review and approval a proposed revision to the financial surety arrangement if estimated costs for the newly approved plan exceed the amount covered in the existing financial surety. The revised surety arrangement shall then be in effect within 3 months of written NRC approval.

Annual updates to the surety amount by 10 CFR Part 40, Appendix A, Criteria 9 and 10, shall be submitted to the NRC at least 3 months prior to the anniversary date, which is designated as June 30 of each year. Along with each proposed revision or annual update, the licensee shall submit supporting documentation showing a breakdown of costs and the basis for the cost estimate. The attachment to the license entitled, "Recommended Outline for Site Specific Reclamation and Stabilization Cost Estimates," outlines the minimum considerations used by the NRC in the review of site closure cost estimates.

The licensee's currently approved surety, a Parent Company Guarantee issued by Homestake Mining Company, shall be continuously maintained in an amount no less than \$24,000,000 for the purpose of complying with 10 CFR 40, Criteria 9 and 10, until a replacement is authorized by the NRC. The use of a parent company guarantee necessitates an evaluation of the corporate parent as part of the annual surety update. In addition to the cost information required above, the annual submittal must include updated documentation of the (1) letter from the chief financial officer of the parent company, (2) auditor's special report confirmation of chief financial officer's letter, (3) schedule reconciling amounts in chief financial officer's letter to amounts in financial statements, and (4) parent company guarantee if any changes are appropriate.

[Applicable Amendments: 9, 12, 23, 24, 26]

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29. DELETED BY Amendment No. 32

30. DELETED by Amendment No. 21.

31. DELETED by Amendment No. 27]

32. The licensee shall comply with the following:

A. DELETED by Amendment No. 27.

B. Analysis of urine samples shall utilize an LLD of at least 5 ug/l uranium.

C. A copy of the report documenting the annual ALARA audit shall be submitted to the NRC, review within 30 days of completion of the audit.

[Applicable Amendment: 2]

33. DELETED by Amendment No. 21.

34. DELETED by Amendment No. 4.

35. The licensee shall implement a groundwater compliance monitoring program to assess the performance of the groundwater restoration program. This program is separate from the requirements in License Condition 15. The Licensee shall:

A. Implement the groundwater monitoring program shown in groundwater monitoring program Table 2 as revised by the licensee's August 25, 1997 submittal.

B. Comply with the following groundwater protection standards at the point of compliance wells D1, BP, X, S4, S3; M5, and DQ with background being recognized in well P.

chromium = 0.06 mg/l, molybdenum = 0.03 mg/l, selenium = 0.10 mg/l, vanadium = 0.02 mg/l, uranium = 0.04 mg/l, radium-226 and -228 = 5.0 pCi/l, and thorium-230 = 0.30 pCi/l.

C. Implement the corrective action program described in the September 15, 1989 submittal, due to exceeding the groundwater protection standards, and as modified by the reverse osmosis system described in the January 15, 1998, submittal with the objective of returning the concentrations of molybdenum, selenium, thorium-230, uranium, and vanadium to the site standards as listed in LC 35B. In addition, the reverse osmosis system will include the addition of Sample Point 2 downstream of the Mixing Tank. Composite samples from Sample Point 2 will be taken weekly for the first month, monthly for the rest of the first year, then quarterly thereafter and analyzed for U and Mo. The Sample Point 2 decrease in sampling is dependent on demonstrating acceptable levels of constituents before decreasing sampling frequency.

D. Operate the two lined evaporation ponds, Pond #1 and Pond #2, and enhanced evaporation systems located in each pond as described in the June 8 and 28, 1990; and July 26, August 16, August 19, September 2 and 15, 1994 submittals.

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E Submit by March 31 of each year, a performance review of the corrective action program that details the progress towards attaining groundwater protection standards.

[Applicable Amendments: 3, 4, 5, 7, 8, 10, 11, 16, 21, 28, 30, 31]

36. The licensee shall complete site reclamation in accordance with an approved reclamation plan. The ground-water corrective action plan shall be conducted as authorized by License Condition No. 35. All activities shall be completed in accordance with the following schedules:

A. To ensure timely compliance with target completion dates established in the Memorandum of Understanding with the Environmental Protection Agency (56 FR 55432, October 25, 1991), the licensee shall complete reclamation to control radon emissions as expeditiously as practicable, considering technological feasibility, in accordance with the following schedule:

(1) Windblown tailings retrieval and placement on the pile:

For the Large Impoundment - December 31, 1996.

For the Small Impoundment - May 31, 1997.

(2) Placement of the interim cover to decrease the potential for tailings dispersal and erosion:

For the Large Impoundment - December 31, 1996.

For the Small Impoundment - May 31, 1997.

(3) Placement of final radon barrier designed and constructed to limit radon emissions to an average flux of no more than 20 pCi/m²/s.

For the Large Impoundment which has no evaporation ponds - December 31, 2003.

For the Small Impoundment, tailings pile surface areas are essentially covered by evaporation ponds constructed as part of the ground-water corrective action program. Prior to December 31, 2012, the areas not covered by the evaporation ponds shall have final radon barrier in place. Final radon barrier placement over the entire pile shall be completed within 2 years of completion of ground-water corrective actions.

[Applicable Amendment: 25]

B. Reclamation, to ensure required longevity of the covered tailings and ground-water protection, shall be complete as expeditiously as is reasonably achievable, in accordance with the following target dates for completion:

(1) Placement of erosion protection as part of reclamation to comply with Criterion 7 of Appendix A of 10 CFR Part 40:

For the Large Impoundment - September 30, 2004.

For the Small Impoundment - September 30, 2013.

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[Applicable Amendment: 25]

- (2) Projected completion of ground-water corrective actions to meet performance objectives specified in the ground-water corrective action plan - May 1, 2010.
- C. Any license amendment request to revise the completion dates specified in Section A must demonstrate that compliance was not technologically feasible (including inclement weather, litigation which compels delay to reclamation, or other factors beyond the control of the licensee).
- D. Any license amendment request to change the target dates in Section B above, must address added risk to the public health and safety and the environment, with due consideration to the economic costs involved and other factors justifying the request such as delays caused by inclement weather, regulatory delays, litigation, and other factor beyond the control of the licensee.

[Applicable Amendment: 13, 22]

37. The licensee shall reclaim the large and small tailings impoundments as stated in their October 29, 1993, submittal, including the following requirements.

- A. The radon barrier for the large tailings pile shall be in accordance with material types, thicknesses and placement criteria described in Homestake Mining Company's *Final Radon Barrier Design for the Large Tailings Pile*, submitted June 16, 1995. [Applicable Amendment: 22]
- B. The final reclamation of the area that includes the small tailings pile and the two evaporation ponds will include the disposal of the contaminated groundwater restoration materials and precipitated solids from the evaporation ponds. The small tailings pile and evaporation ponds will be reconstructed and covered with radon barrier material. The placement of the barrier on the small tailings pile shall be done in accordance with the material types, thicknesses, and placement criteria described in Homestake Mining Company's *Final Radon Barrier Design for the Small Tailings Pile*, transmitted to the NRC in August 1996. [Applicable Amendments: 27, 32]
- C. The licensee shall submit a construction quality control program for NRC review and approval prior to placing any portion of the radon barrier that will ensure that the specification which limits the activity of the radon barrier material to 5 pCi/g above background is not exceeded.
- D. The construction quality assurance and control program shall be as defined in the Staff Technical Position On Testing and Inspection (NRC, 1989). The acceptable correlation between ASTM D 2922 and ASTM D 1556 shall be as defined in the licensee's April 30, 1992, submittal.
- E. OMITTED in Amendment No. 14.
- F. The radon barrier shall not be placed on the top surface of the large tailings impoundment until the settlement has been demonstrated to be at least 90 percent of expected settlement, and the results of this determination have been reviewed and accepted by the NRC. The

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number

SUA-1471, Amendment No. 32

Docket or Reference Number

40-8903

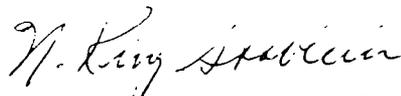
the impoundment. Care shall be taken to preclude the possibility of ponding. Before the erosion protection is placed, it shall be verified that the radon barrier material meets the specifications.

- G. The adequacy of the erosion protection proposed for the side slopes of both the large and small impoundments shall be reevaluated considering any increases in impoundment heights due to the revised radon attenuation cover design.
- H. DELETED by Amendment No. 21.
- I. A completion report shall be provided within 6 months of the completion of construction. This report, including as-built drawings, shall verify that reclamation of the site has been performed according to the approved plan. The report shall also include summaries of results of the quality assurance and control testing to demonstrate that approved specifications were met.
- J. The soil cleanup program associated with the decommissioning of the groundwater restoration facilities and small tailings pile reclamation shall be done as specified in the submittal of September 15, 1994, and as modified by the submittal of December 13, 1995. [Applicable Amendment: 32]
- K. The licensee shall implement a quality control (QC) program for the soil cleanup verification program to include sending at least 10 percent of the samples (randomly selected) to a vendor laboratory for Ra-226 analysis. If the vendor laboratory uses gamma spectroscopy, at least 30 percent of these QC samples shall also be chemically analyzed. [Applicable Amendment: 32]

[Applicable Amendment: 14]

- 38. The licensee is authorized to use water collected as part of the site ground-water corrective action program for conditioning soils during placement of the interim cover or the radon barrier on the tailings impoundments. The licensee shall also analyze samples of the collection water being used for this purpose for radium-226 and 228 content semiannually. If sample results exceed 30 pCi/l combined radium, the licensee shall perform an evaluation of the potential impacts of using this water on the required design of the radon barrier and submit the evaluation for NRC review within 30 days of receipt of sample results. [Applicable Amendment: 18]
- 39. DELETED by Amendment No. 31.

FOR THE NUCLEAR REGULATORY COMMISSION



N. King Stablein, Acting Chief
Uranium Recovery Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Date 1/28/99