MATERIALS LICENSE

Amendment No. 54

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and the applicable parts of Title 10, Code of Federal Regulations, Chapter I, Parts 19, 20, 30, 31, 32, 33, 34, 35, 36, 39, 40, 51, 70, and 71, and in reliance on statements and representations heretofore made by the licensee, a licensee 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				3.	License Number:	SUA-1471
1.	Homestake Mining Company of California					
2.	P.O. Box 98 Grants, New Mexico 87020			4.	Expiration Date:	Until terminated
				5.	Docket No.:	40-8903
6.	Byproduct, Source, and/or Special Nuclear Material: Uranium	7.	Chemical and/or Physical Form: Any	8.	Maximum Amount that Licensee May Possess at Any One Time Under This License: Unlimited	

9. Authorized Place of Use: The licensee's uranium mill located in Cibola County, New Mexico.

   [Applicable Amendments: 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 No. 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 the embankment design. An annual embankment status report shall be included in the Annual Report (see LC 42).

    [Applicable Amendments: 2, 12, 14, 24, 34]

13. DELETED by Amendment No. 27.

14. Release of equipment or packages from the restricted area shall be in accordance with the attachment 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]

MATERIALS LICENSE

MATERIALS LICENSE SUPPLEMENTARY SHEET	License Number SUA-1471
	Docket or Reference Number 40-8903
	Amendment No. 54

15. The results of all effluent and environmental monitoring required by this license and regulation shall be reported semi-annually, by March 31 and September 30. All groundwater monitoring data shall be reported per the requirements in License Condition 35.

    [Applicable Amendments: 5, 31, 34, 49 (Order No. EA-16-114)]

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.

MATERIALS LICENSE

MATERIALS LICENSE SUPPLEMENTARY SHEET	License Number SUA-1471
	Docket or Reference Number 40-8903
	Amendment No. 54

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 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, Appendix A, 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 and its cost estimate, 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 30 days of written NRC approval of the surety documents.

    Annual updates to the surety amount required by 10 CFR Part 40, Appendix A, Criteria 9, 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, adjustments for inflation, maintenance of a minimum 15 percent contingency, and reflecting any changes in engineering plans or any other conditions affecting estimated costs for site closure. Appendix C of NUREG-1620, Rev.1, 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 Barrick Gold Corporation, shall be continuously maintained in an amount no less than $83,455,824 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

MATERIALS LICENSE

MATERIALS LICENSE SUPPLEMENTARY SHEET	License Number SUA-1471
	Docket or Reference Number 40-8903
	Amendment No. 54

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, 34, 35, 37, 38, 40, 41, 42, 43, 44, 46, 48, 51, 53]

29. DELETED by Amendment No. 32.

30. DELETED by Amendment No. 21.

31. DELETED by Amendment No. 27.

32. The licensee shall follow the guidance set forth in U.S. Nuclear Regulatory Commission, Regulatory Guides 8.22, “Bioassay at Uranium Recovery Facilities,” 8.30, “Health Physics Surveys in Uranium Recovery Facilities,” and 8.31, “Information Relevant to Ensuring that Occupational Radiation Exposure at Uranium Recovery Facilities will be As Low As is Reasonably Achievable (ALARA),” or NRC-approved equivalent.

    A. DELETED by Amendment 27.

    B. Any time uranium in a worker’s urine specimen exceeds 15 micrograms per liter (ug/l), the annual ALARA audit will indicate what corrective actions were considered or performed.

    C. DELETED by Amendment 34.

    [Applicable Amendments: 2, 34]

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 shown in Tables 2-1 and 2-2 of the Groundwater Monitoring Plan submitted by the licensee dated November 20, 2017 (ML18018A102), as updated by the licensee in correspondence dated October 8, 2019 (ML19281C055).

MATERIALS LICENSE

MATERIALS LICENSE SUPPLEMENTARY SHEET	License Number SUA-1471
	Docket or Reference Number 40-8903
	Amendment No. 54

B. The following ground water protection standards are established for each designated aquifer/zone as described in Ground-Water Hydrology for Support of Background Concentration at the Grants Reclamation Site (Hydro-Engineering, December 2001) and Background Water Quality Evaluation of the Chinle Aquifers (Homestake Mining Company and Hydro-Engineering, October 2003):

Constituents	Alluvial Aquifer	Chinle Mixing Zone	Upper Chinle Non-Mixing Zone	Middle Chinle Non-Mixing Zone	Lower Chinle Non-Mixing Zone
Selenium (mg/L)	0.32	0.14	0.06	0.07	0.32
Uranium (mg/L)	0.16	0.18	0.09	0.07	0.03
Molybdenum (mg/L)	0.1	0.1	0.1	0.1	0.1
Sulfate (mg/L)	1500	1750	914	857	2000
Chloride (mg/L)	250	250	412	250	634
TDS (mg/L)	2734	3140	2010	1560	4140
Nitrate (mg/L)	12	15	*	*	*
Vanadium (mg/L)	0.02	0.01	0.01	*	*
Thorium-230 (pCi/L)	0.3	*	*	*	*
Ra-226 + Ra-228	5	*	*	*	*

* - ground-water protection standards not necessary for the constituents in the indicated zones

The constituents listed above for the alluvial aquifer must not exceed the specified concentration limit at compliance monitoring wells (former point of compliance wells) D1, X, and S4. At present, no compliance monitoring wells have been designated for the Chinle Mixing Zone or the Upper, Middle or Lower Chinle Non-Mixing Zones for the purpose of implementing the ground water protection standards listed above for these zones. The licensee shall propose compliance monitoring wells for the Chinle Mixing Zone and the Upper, Middle and Lower Chinle Non-Mixing Zones in a revised Corrective Action Plan to be submitted to the NRC no later than December 31, 2006. NRC will evaluate the proposed

MATERIALS LICENSE

MATERIALS LICENSE SUPPLEMENTARY SHEET	License Number SUA-1471
	Docket or Reference Number 40-8903
	Amendment No. 54

compliance monitoring wells and, if acceptable, will incorporate them into the license as compliance locations for the ground water protection standards listed above. NRC will notify the licensee and request new proposed compliance monitoring well locations from the licensee, if any of the well locations are determined to be unacceptable.

C. Implement the corrective action program described in the September 15, 1989 submittal, as modified by the reverse osmosis system described in the January 15, 1998 submittal, excluding all sampling and reporting requirements for Sample Point 1, with the objective of achieving the concentrations of all constituents listed in License Condition 35B. Composite samples from Sample Point 2 (SP2) will be taken monthly and analyzed for the constituents listed in License Condition 35B; the results of these analyses will be reported in the semi-annual and annual reports required by License Conditions 15 and 42.

D. Operate evaporation ponds, EP1, EP2 and EP3, and enhanced evaporation systems located in each pond as described in the June 8 and 28, 1990; July 26, August 16, August 19, September 2 and 15, 1994; October 25, 2006, February 7, 2007, July 18, 2007, and March 17, 2008, submittals. Monitoring and mitigation measures for EP3 contained in the HMC Environmental Report dated January 30, 2007, are incorporated into this LC by reference.

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, 33, 34, 39, 41, 49 (Order No. EA-16-114), 54 (Order No. EA-16-114)]

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:

MATERIALS LICENSE

MATERIALS LICENSE SUPPLEMENTARY SHEET	License Number SUA-1471
	Docket or Reference Number 40-8903
	Amendment No. 54

For the Large Impoundment which has no evaporation ponds – December 31, 2012.

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 D*ecember* 31, 2013, the areas not covered by the evaporation ponds shall have interim cover in place. Final radon barrier placement over the entire pile shall be completed within 2 years of completion of ground-water corrective actions.

[Applicable Amendments: 25, 36, 41, 45]

B. Reclamation, to ensure required longevity of the covered tailings and ground-water protection, shall be completed 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 6 of Appendix A of 10 CFR Part 40:

For the Large Impoundment – September 30, 2013.

For the Small Impoundment - December 31, 2013.

[Applicable Amendments: 25, 36, 41, 45]

(2) Projected completion of ground-water corrective actions to meet performance objectives specified in the ground-water corrective action plan - December 31, 2011.

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 factors beyond the control of the licensee.

E. As detailed in the licensee's October 28, 2003 submittal, the licensee is to verify compliance with the radon flux standard of 20 pCi/m^2s by performing a radon flux survey for the large and small tailings piles on an annual basis during the milestone extension period specified above. An annual report detailing results of this survey shall be submitted with the annual groundwater CAP report as specified in condition 35E no later than March 31 each year.

[Applicable Amendments: 13, 22, 36]

MATERIALS LICENSE

MATERIALS LICENSE SUPPLEMENTARY SHEET	License Number SUA-1471
	Docket or Reference Number 40-8903
	Amendment No. 54

37. The licensee shall reclaim the large and small tailings impoundments as stated in its 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 three evaporation ponds will include the disposal of the contaminated groundwater restoration materials and precipitated solids from the evaporation pond. 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, 41]

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 radon barrier may be placed on the large impoundment side slopes following final grading of 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.

MATERIALS LICENSE

MATERIALS LICENSE SUPPLEMENTARY SHEET	License Number SUA-1471
	Docket or Reference Number 40-8903
	Amendment No. 54

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 Amendments: 14, 32]

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.

40. All written notices and reports to NRC required under this license shall be addressed: Attn: Document Control Desk, c/o Deputy Director, Division of Decommissioning, Uranium Recovery, and Waste Programs (Mailstop T5-A10), Office of Nuclear Materials Safety and Safeguards, U. S. Nuclear Regulatory Commission, 11545 Rockville Pike, Two White Flint North, Rockville, MD 20852-2738.

Required telephone notification shall be made to the NRC Operations Center at (301) 816-5100, unless otherwise specified in license conditions.

[Applicable Amendments: 34, 41, 48, 51]

MATERIALS LICENSE

MATERIALS LICENSE SUPPLEMENTARY SHEET	License Number SUA-1471
	Docket or Reference Number 40-8903
	Amendment No. 54

41. Spills, Leaks, Excursions, and Incident/Event Reporting

Until license termination, the licensee shall maintain documentation on unplanned release of source or 11e.(2) byproduct materials and process chemicals. Documented information shall include, but not be limited to: date, volume, total activity of each radionuclide released, radiological survey results, soil sample results (if taken), corrective actions, results of post remediation surveys (if taken), and a map showing the spill location and the impacted area. The licensee shall have procedures which will evaluate the consequences of the spill or incident/event against 10 CFR 20, Subpart "M," and 10 CFR 40.60 reporting criteria. If the criteria are met, then report to the NRC Operations Center as required.

If the licensee is required to report any spills, leaks, or excursions of source, 11e.(2) byproduct material and process chemicals that may have an impact on the environment, or any other incidents/events to State or Federal Agencies, a report shall be made to the NRC Region IV Nuclear Materials Licensing Branch Chief and NRC Headquarters Project Manager (PM) by telephone or electronic mail (e-mail) within 48 hours of the event. This notification shall be followed, within thirty (30) days of the notification, by submittal of a written report to NRC Region IV and NRC Headquarters, detailing the conditions leading to the spill or incident/event, corrective actions taken, and results achieved.

[Applicable Amendment: 34]

42. An annual report will be submitted to the NRC that includes the ALARA audit report, land use survey, monitoring data, corrective action program report, and the effluent and environmental monitoring reports.

[Applicable Amendment: 34]

43. Before engaging in any developmental activity not previously assessed by the NRC, the licensee shall administer a cultural resource inventory. All disturbances associated with the proposed development will be completed in compliance with the National Historic Preservation Act (as amended) and its implementing regulations (36 CFR 800), and the Archaeological Resources Protection Act (as amended) and its implementing regulations (43 CFR 7).

In order to ensure that no unapproved disturbance of cultural resources occurs, any work resulting in the discovery of previously unknown cultural artifacts shall cease. The artifacts shall be inventoried and evaluated in accordance with 36 CFR Part 800, and no disturbance of the area shall occur until the licensee has received authorization from the NRC to proceed.

MATERIALS LICENSE

MATERIALS LICENSE SUPPLEMENTARY SHEET	License Number SUA-1471
	Docket or Reference Number 40-8903
	Amendment No. 54

In the event that bones or prehistoric or historic archaeological materials are uncovered during construction or earth-disturbing activities, cease work immediately and protect the remains from further disturbance. If bones are found, immediately notify local law enforcement and the Office of the Medical Investigator pursuant to 18-6-11.2C (Cultural Properties Act NMSA 1978).

In accordance with 18-6-11.2C and/or 36 CFR 800.13(b) (Protection of Historic Properties), notify the State Historic Preservation Officer (SHPO) or the State Archaeologist, immediately.

In either case, the Agency and the SHPO, in consultation with an archaeologist who holds state unmarked human burial excavation and survey permits, will determine the necessary steps to evaluate significance, document, protect or remove the material or remains, in compliance with law. Call the SHPO or State Archaeologist at (505) 827-6320.

[Applicable Amendment: 34, 41]

44. The Licensee shall perform all activities in accordance with Confirmatory Order No. EA-16-114 dated March 28, 2017, and NRC letters dated October 19, 2017 (ML17241A299), December 26, 2017 (ML17340B341), and June 15, 2018 (ML18107A033).

[Applicable Amendment: 49 (Order No. EA-16-114), 50 (Order No. EA-16-114), 52 (Order No. EA-16-114)]

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Dated: November 12 ,2019

//RA//

Bill VonTill, Chief
Uranium Recovery and Materials
Decommissioning Branch
Division of Decommissioning, Uranium Recovery
and Waste Programs
Office of Nuclear Material Safety
and Safeguards