



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
1600 EAST LAMAR BOULEVARD  
ARLINGTON, TEXAS 76011-4511

November 22, 2019

EA-16-114

David Pierce  
Closure Manager  
Homestake Mining Company of California  
P.O. Box 98, Hwy 605  
Grants, NM 87020

SUBJECT: NRC INSPECTION REPORT 040-08903/2019-002 AND NOTICE OF VIOLATION

Dear Mr. Pierce:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) inspection conducted from October 22-24, 2019, at your Grants Reclamation Project in Cibola County, New Mexico. This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures, representative records, observations of activities, and interviews with personnel.

The inspection findings were presented to your staff at the conclusion of the onsite inspection on October 24, 2019. The enclosed report presents the results of the inspection.

Based on the results of this inspection, the NRC has determined that two Severity Level IV violations of NRC requirements occurred. The violations involve your failure to: (1) ensure that an instrument used for quantitative radiation measurements was properly calibrated; and (2) to establish a standard operating procedure for an activity involving the handling and processing of radioactive materials. These violations were evaluated in accordance with the NRC Enforcement Policy included on the NRC's Web site at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce.pol.html>. The violations are cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. The violations are being cited in the Notice because they were identified by the NRC.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, its enclosures, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not

include any personal privacy or proprietary information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact Marti Poston at 817-200-1181 or the undersigned at 817-200-1156.

Sincerely,

/RA/

Heather J. Gepford, PhD, CHP, Chief  
Materials Licensing and Decommissioning  
Branch  
Division of Nuclear Materials Safety

Docket: 040-08903

License: SUA-1471

Enclosures:

1. Notice of Violation
2. NRC Inspection Report 040-08903/2019-002

cc w/encls:

M. Hunter, New Mexico Environment Department  
S. Rodriguez, New Mexico Environment Department  
B. Tsosie, U.S. Department of Energy

## NOTICE OF VIOLATION

Homestake Mining Co. of California  
Grants, New Mexico

Docket No. 040-08903  
License No. SUA-1471

During an NRC inspection conducted on October 22-24, 2019, two violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

- A. Title 10 of the *Code of Federal Regulations* (10 CFR) 20.1501(c) requires the licensee to ensure that instruments and equipment used for quantitative radiation measurements (e.g., dose rate and effluent monitoring) are calibrated periodically for the radiation measured.

Contrary to the above, from July 22 through October 24, 2019, the licensee failed to ensure that instruments and equipment used for quantitative radiation measurements were properly calibrated for the radiation measured. Specifically, a Ludlum Model 3030 scaler was returned from the vendor with a calibration label and calibration certificate for a different instrument. The licensee did not verify that the instrument returned to them had been calibrated by the vendor, nor request corrected paperwork from the vendor. Further, the licensee returned the potentially uncalibrated instrument to service and used the instrument.

This is a Severity Level IV violation (Section 6.7.d.4).

- B. License Condition 23 of Materials License SUA-1471, Amendment 53, dated April 9, 2019, states, in part, that standard procedures shall be established for all activities involving radioactive materials that are handled, processed, or stored.

Contrary to the above, since March 18, 2019, the licensee failed to establish a standard procedure for an activity involving the handling, processing, and storage of radioactive materials. Specifically, the licensee failed to establish a standard procedure for startup of the reverse osmosis water treatment system, which filters radioactive contaminants from groundwater.

This is a Severity Level IV violation (Section 6.3.d.3).

Pursuant to the provisions of 10 CFR 2.201, Homestake Mining Company is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, Region IV, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken; and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued requiring information as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

Enclosure 1

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Your response will be made available electronically for public inspection in the NRC Public Document Room or in the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days of receipt.

Dated this 22 day of November 2019

**U.S. NUCLEAR REGULATORY COMMISSION  
Region IV**

Docket: 040-08903

License: SUA-1471

Report: 040-08903/2019-002

Licensee: Homestake Mining Company of California

Facility: Grants Reclamation Project

Location: Cibola County, New Mexico

Dates: October 22-24, 2019

Inspectors: Martha R. Poston, Health Physicist  
Materials Licensing and Decommissioning Branch  
Division of Nuclear Materials Safety  
Region IV

Austin C. Roberts, Health Physicist  
Materials Licensing and Decommissioning Branch  
Division of Nuclear Materials Safety  
Region IV

Accompanied by: George Alexander, Risk Analyst  
Risk and Technical Analysis Branch  
Division of Decommissioning, Uranium Recovery and Waste Programs  
Office of Nuclear Material Safety and Safeguards

In Office Support: Ron C. Linton, Project Manager  
Uranium Recovery and Materials Decommissioning Branch  
Division of Decommissioning, Uranium Recovery and Waste Programs  
Office of Nuclear Materials Safety and Safeguards

Approved by: Heather J. Gepford, PhD, CHP, Chief  
Materials Licensing and Decommissioning Branch  
Division of Nuclear Materials Safety  
Region IV

Attachment: Supplemental Inspection Information

## EXECUTIVE SUMMARY

Homestake Mining Company of California  
Grants Reclamation Project  
NRC Inspection Report 040-08903/2019-002

This inspection was a routine, unannounced U.S. Nuclear Regulatory Commission (NRC) inspection of decommissioning activities being conducted at the former Homestake Mining Company mill in Cibola County, New Mexico. In summary, the licensee was conducting decommissioning activities in accordance with license and regulatory requirements, with exceptions as identified below.

### Management Organization and Controls

The licensee had sufficient management and support staff for the work in progress at the site. Site fences, gates and perimeter postings were maintained by the licensee. The licensee implemented daily and weekly inspections and increased the documentation associated with SERP identification in response to the violations identified in the previous inspection. Because the corrective actions were not comprehensive, the previous violations remain open. The licensee had not revised and upgraded site operational procedures since the previous inspection. A violation was identified for failure to develop a site operational procedure associated with startup of the reverse osmosis system. (Section 1.3)

### Radiation Protection/Maintenance and Surveillance

The licensee implemented a radiation protection program that met the requirements of 10 *Code of Federal Regulations* Part 20 and the license. Occupational exposures were small fractions of the regulatory limits. Bioassay sampling and air sampling was performed as required by Radiation Work Permits (RWPs). Radiological survey results indicated that the licensee was controlling contamination. The licensee conducted instrument calibrations and source inventory in accordance with the license and site procedures with one exception. A violation was identified for the failure to ensure radiation measurement equipment was in calibration. A previous violation related to radon flux emanating from the Large Tailings Pile and Small Tailings Pile remains open. (Section 2.3)

### Training

The licensee provided radiation protection training to employees and contractors as required by regulations and the license. The licensee had not completed the radiation safety technician training identified as a corrective action to a violation identified in a previous inspection. Therefore, the violation remains open. (Section 3.3)

### Effluent Control and Environmental Protection

The licensee implemented its environmental and effluent monitoring program in accordance with license requirements. The licensee continued to implement a groundwater monitoring and corrective action program as required by the license; proposed changes to the program were under NRC review. (Section 4.3)

#### Follow-up of Confirmatory Action Letters and Order

Confirmatory Order EA-16-114, Conditions 1, 9 and 11-13 have been evaluated and are determined to be satisfied. Confirmatory Order Conditions 2-8, 10 and 14-16 remain open and will continue to be evaluated by the NRC (Section 5.3).

## **Report Details**

### **Site Status**

The Homestake facility was a conventional uranium mill that operated from 1958-1990. The mill was decommissioned in 1993-1994, and cleanup of the wind-blown tailings was completed in 1995. Tailings generated from milling operations were placed in two impoundments, the large tailings pile (LTP) and the small tailings pile (STP).

The side slopes of the LTP have been covered with a permanent radon barrier and erosion protection layer. An interim cover is being maintained on top of the LTP. Two lined evaporation ponds are situated on top of the STP. The remainder of the STP is covered with an interim cover. In addition, two water collection ponds were constructed adjacent to the STP. A third evaporation pond was constructed in 2011 to the north of the LTP.

At the time of the inspection, the licensee continued to implement its groundwater corrective action program. The licensee operated injection and recovery wells as well as the reverse osmosis and zeolite cleanup systems. The licensee continued to dispose of wastewater in three evaporation ponds. The licensee recently reduced the groundwater flow rate to decrease evaporation pond levels. The licensee plans to drain evaporation pond EP-1 and conduct liner repairs beginning in April of 2020.

### **1 Management Organization and Controls (Inspection Procedure (IP) 88005)**

#### **1.1 Inspection Scope**

The inspectors reviewed the licensee's oversight and control of licensed activities.

#### **1.2 Observations and Findings**

##### **a. Site Staffing**

The inspectors reviewed site staffing to ensure that the licensee had sufficient staff to implement license requirements. At the time of the onsite inspection, site staffing consisted of 12 employees including the closure manager, senior shift supervisor, shift supervisor, compliance manager, project engineer, hydrogeologist, and five technicians. There was one open technician position at the time of the inspection. Contractors were used as needed to fill positions such as radiation safety officer (RSO) and alternate RSO. Contractors were also used for construction, drilling, electrical, and other routine site work. The inspectors determined the licensee had sufficient management and support staff for the work in progress.

##### **b. Review of Licensee's Change Process**

License Condition 16 of radioactive material license SUA-1471, amendment 52, dated June 15, 2018, states, in part, that before engaging in any activity not previously assessed by the NRC, the licensee shall prepare and record an environmental evaluation of such activity. The licensee's program to evaluate changes was described in Standard Operating Procedure SOP-10, "Procedure for Conducting a Safety and Environmental Review Panel," Revision 6. Since the previous inspection, conducted in



March 18-21, 2019, (Agencywide Documents Access and Management System [ADAMS] Accession No. ML19129A405), the licensee had not conducted any Safety and Environmental Review Panel (SERP) evaluations.

During the March 2019 inspection, the inspectors identified a violation of License Condition 16 requirements associated with the addition of an algacide to the reverse osmosis system (VIO-040-08903/2019-01-001). In the response to the NOV dated August 28, 2019, (ADAMS Accession No. ML19248C356), the licensee committed to the following corrective action: (1) implementation of a weekly site operations meeting to screen upcoming projects, (2) introduction of a pre-screening checklist, and, (3) completion of a SERP evaluation checklist. The inspectors reviewed the status of the corrective actions and determined that the licensee was holding weekly site operations meetings and examined the pre-project checklists. However, the actions were not complete, as the pre-screening checklist had not been incorporated into SOP 10. The violation remains open.

The licensee had completed four SERP screening evaluations using the flowcharts in SOP-10 to determine if an SERP was needed before an activity, test, or experiment was conducted. The inspectors reviewed the SERP screening evaluation documentation and other processes associated with the corrective action committed to in the August 28, 2019 letter. The inspectors verified for those SERP screening evaluations reviewed, the licensee did complete the commitments from the August 28, 2019 response. The inspectors did not identify any activities that were performed that would have required a SERP or a license amendment.

c. Review of Operational Procedures

License Condition 23 states, in part, that standard procedures shall be established for all activities involving radioactive materials that are handled, processed, or stored. The inspectors reviewed selected operating procedures for completeness. The procedures included onsite disposal of wastes, lime plant operations, water sampling and analysis and reverse osmosis (RO) system operations. The inspectors concluded that the licensee had established procedures for the majority of these activities.

During the previous inspection conducted March 18-21, 2019, the inspectors noted that a procedure needed to be developed for startup of the reverse osmosis equipment and related support systems, rather than relying on the operator's manual. At the time of the current inspection, seven months later, the licensee had not developed this procedure as recommended in the previous inspection. The licensee had contracted with two outside companies for the development of this procedure but stated that the contractors had not been able to complete the procedure development, due to the inability to operate the RO system at maximum capacity as the evaporation ponds' capability to deal with the outflow was limited. The licensee indicated that the development of a RO system startup procedure had been indefinitely delayed. The licensee continued to rely on the operations manual, the knowledge of the engineer, and an informal checklist to restart the system. The inspectors determined that the system has been shut down and restarted since the previous inspection. The inspectors concluded that the licensee's failure to develop a procedure for the startup of the RO equipment and related support systems was a violation of License Condition 23 requirements. (VIO-040-08903/2019-02-002).

d. Audits, Inspections, and Reviews

An annual radiation protection and as low as reasonably achievable (ALARA) program audit is required by 10 CFR 20.1101(c) and License Condition 32. In addition, License Condition 42 requires the licensee to submit the audit to the NRC as part of the annual report. The most recent ALARA audit was conducted in February 2019 and was included as Appendix C to the Annual Monitoring Report and Performance Review dated March 29, 2019 (ADAMS Accession Nos. ML19101A377 and ML19101A375). The inspectors reviewed the annual audit during the previous inspection.

License Condition 32 requires, in part, that the licensee shall follow the guidance set forth in Regulatory Guide 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. Regulatory Guide 8.31, Section C.2.3.1, states: "The RSO and the facility foreman should conduct a weekly inspection of all facility areas to observe general radiation control practices and review required changes in procedures and equipment. The RSO or designated health physics technician should conduct a daily walk-through (visual) inspection of all work and storage areas of the facility to ensure proper implementation of good radiation safety procedures, including good housekeeping and cleanup practices that would minimize unnecessary contamination."

The NRC inspectors noted in the previous inspection, conducted March 18-21, 2019 (ADAMS Accession No. ML19129A405), that the licensee had not developed a program to complete the daily and weekly inspections of all facility areas to observe general radiation practices in accordance with Regulatory Guide 8.31 requirements (VIO 040-08903/2019-01-002). In response to this violation, the licensee developed a daily walkdown sheet for the RSTs, however, the inspectors noted that this daily checklist was not used on weekends, holidays, or days when one of the RSTs was not working. The licensee needs to ensure that these daily walkdowns occur each day the systems at the facility are in operations. Therefore, the violation remains open.

e. Site Tour

The NRC inspectors toured the site and observed the LTP, STP, 1200 GPM zeolite system, exterior and interior storage tanks, and reverse osmosis equipment. No significant erosion problems were noted on the tailings cells. The inspectors also reviewed system parameters including flow rates and pressures and concluded that no parameter exceeded its procedural limit. The licensee appeared to be conducting site activities with an emphasis on safety.

During the site tour, the NRC inspectors conducted independent radiological surveys using a Ludlum Model 19 survey meter (NRC No 015518, calibrated to Ra-226, calibration due date 11/09/19). With a background of approximately 12 microroentgen per hour ( $\mu\text{R/hr}$ ), the ambient gamma radiation levels on top of the LTP in the vicinity of the 1200 GPM zeolite system were observed to be 27  $\mu\text{R/hr}$ . Exposure rates within the reverse osmosis building were 12-15  $\mu\text{R/hr}$ . The reverse osmosis unit inside the building and various tanks inside and outside the reverse osmosis building were also 12-15  $\mu\text{R/hr}$ . No area was identified that was required to be posted as a radiation area ( $\geq 5000 \mu\text{R/hr}$ ).

### 1.3 Conclusions

The licensee had sufficient management and support staff for the work in progress at the site. Site fences, gates and perimeter postings were maintained by the licensee. The licensee implemented daily and weekly inspections and increased the documentation associated with SERP identification in response to the violations identified in the previous inspection. Because the corrective actions were not comprehensive, the previous violations remain open. The licensee had not revised and upgraded site operational procedures since the previous inspection. A violation was identified for failure to develop a site operational procedure associated with startup of the reverse osmosis system.

## 2 **Radiation Protection (IP 83822)**

### 2.1 Inspection Scope

The inspectors reviewed the licensee's radiation protection program, including instrument calibrations, to verify compliance with 10 CFR Part 20 and license requirements.

### 2.2 Observations and Findings

#### a. Radiation Protection Program

The licensee's Manual of Standard Practices provides instructions for implementing the various aspects of the radiation protection program. At the time of the inspection, the radiation protection program consisted of external occupational dose monitoring, bioassays, contamination surveys, radiation work permits (RWPs), instrument calibrations, and worker training. As required by RWPs, the licensee implemented internal monitoring, respiratory protection and breathing zone air sampling.

Since the previous inspection, the following RWPs were issued:

- RWP 2-2019      EP-1 Re-lining (DRAFT – not issued due to deferment of activity)
- RWP 3-2019      Sonic drilling into LTP and STP for geochemical study
- RWP 4-2019      Removal of Pipes, Dead Heads, & Transfer Pumps around EP-1
- RWP 5-2019      Geochemical Testing of Soils and Tailings Material
- RWP 6-2019      Collection Liner Repair
- RWP 7-2019      Cleanup of Algae in 1200 GPM Zeolite System
- RWP 8-2019      Drilling Offsite into Plume to Test for Geochemical Soils
- RWP 9-2019      Survey of Collection Ponds
- RWP 10-2019      Reverse Osmosis/EP-1 Maintenance (Lime/Scale removal)
- RWP 11-2019      Collection Ponds Restricted Area (Sludge and Liner removal)

The inspectors reviewed the RWP documentation, controls, and personnel protective equipment requirements and concluded that the requirements were appropriate for the scope of work described. Required training was documented, bioassays conducted, and the majority of the required surveys (personnel and materials/equipment) were conducted as specified in the RWPs. The inspectors noted in several of the RWPs that were reviewed by the Radiation Safety Officer/Alternative Radiation Safety Officer

(RSO/ARSO) prior to closure that some surveys were missing or information in the RWP package was incomplete. For example, the inspectors noted that RWP 11-2019 required daily personnel surveys and daily BZ sampling, but the RWP package documentation had days with only personnel surveys and no BZ sampling or days with BZ sampling and no personnel surveys. The inconsistencies in the data should have been identified and explained as part of the RWP review and closure process.

The NRC inspectors reviewed the licensee's personnel monitoring program for the first three quarters of 2019. During 2019 year-to-date (YTD) employees, contractors, and vendors were monitored for external dose using optically stimulated luminescent dosimeters. The maximum dose reported for YTD 2019 for any individual was 7 millirem, assigned to a drilling vendor. The inspectors identified that for both second and third quarter of 2019 there were dosimeter badges that were identified as "Lost" but that the RSO or ARSO had taken no action to estimate the dose for the individuals who had lost their badges.

Bioassay and breathing zone air sampling were used to assess internal dose. Based on previous radiological sampling and modeling, the majority of dose assigned to staff results from inhalation of airborne particulates. Based on the breathing zone air sampling results and the bioassay results reviewed by the inspectors, doses are expected to be below the criterion requiring occupational monitoring.

b. Instrument calibrations

The licensee maintained radiological survey instrumentation to implement its radiation protection program. This equipment was used to measure exposure rates, surface contamination, and removable contamination levels. With one exception, noted below, instrumentation was calibrated annually. The calibrated instruments in use were appropriate for the type of survey being performed.

The NRC inspectors noted that one Ludlum Model 3030 scaler (serial number 210768) was returned from the vendor with a calibration label and calibration certificate for a different serial number (serial number 210278). The licensee indicated they had been aware of the discrepancy since July 22, 2019, when the instrument was returned from the vendor. The licensee did not verify that the instrument returned to them had been calibrated by the vendor, nor request correct paperwork from the vendor. The site returned the scaler to use and the licensee was using it at the time of the inspection.

Title 10 CFR 20.1501(c) requires the licensee to ensure that instruments and equipment used for qualitative radiation measurements (e.g., dose rate and effluent monitoring) are calibrated periodically for the radiation measured. The inspectors concluded that the licensee's failure to verify the calibration of this instrument and correct the associated documentation prior to returning the instrument to service was a violation of 10 CFR 20.1501(c) (VIO-040-08903/2019-02-002).

The licensee used an automated spreadsheet to complete some sections of Form EDF-5, its survey results form. The licensee used this form to record the results of surveys associated with onsite waste disposals, offsite water transfers, routine building surveys and other operations. The spreadsheet was programmed to automatically convert counts per minute (cpm) to disintegrations per minute (dpm) by applying background cpm, instrument efficiency, and surface efficiency. The spreadsheet compared survey results to a table of site activity limits and displayed "PASS" or "FAIL" depending on whether one or more limits was exceeded. The inspectors examined the form and confirmed that the formulas and conditional formatting in the spreadsheet were appropriate. However, the inspectors noted that the licensee used the spreadsheet to calculate instrument efficiency and minimum detectable activity each day based on the results of the daily functional check of the survey instruments. The inspectors indicated to the licensee radiation safety technicians that this practice was inappropriate, and the instrument efficiency and minimum detectable activity were determined during instrument calibration. The inspectors reviewed past EDF-5 forms and recalculated the activity levels in the licensee's survey results using the corrected instrument efficiency values (i.e. from the prior calibration) and determined that the licensee's use of the spreadsheet did not result in an actual release of an area or materials that exceeded activity limits.

c. Exceedance of Radon Flux

As documented in inspection report IR 040-08903/2016-01 (ADAMS Accession No. ML17088A761), the licensee was cited for failure to collect a sufficient number of radon flux samples, to correctly calculate the radon flux average value and to maintain the radon flux emanating from the LTP below the standard specified in the license and regulations. This violation and the licensee's proposed corrective action have been discussed in multiple documents.

Most recently, the licensee submitted a request to NRC proposing a methodology for determining public dose from radon on August 20, 2018 (ADAMS Accession No. ML18240A143). The NRC rejected the proposed methodology for determining public dose from radon via letter dated August 30, 2019 (ADAMS Accession No. ML19239A165) stating that the response "does not provide the information necessary for a finding of reasonable assurance of adequate protection." The NRC had specific concerns related to unmonitored sources of radon in the air effluent not being factored into the public dose. The licensee has not submitted a revised public dose methodology or exemption request for License Condition 36.E in response to the August 30, 2019 letter. This violation remains open (VIO-040-08903/2016-01-001).

## 2.3 Conclusions

The licensee implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license. Occupational exposures were small fractions of the regulatory limits. Bioassay sampling and air sampling were performed as required by RWPs. Radiological survey results indicated that the licensee was controlling contamination. The licensee conducted instrument calibrations and source inventory in accordance with the license and site procedures with one exception. A violation was identified based on failure to ensure radiation measurement equipment was in calibration. A previous violation related to radon flux emanating from the LTP and STP remains open.

## 3 **Training (IP 88010)**

### 3.1 Inspection Scope

The inspectors evaluated whether the licensee had established a written training program and procedures as required by license and regulatory requirements.

### 3.2 Observations and Findings

License Condition 32 states, in part, that the licensee shall follow the guidance set forth in Regulatory Guide 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. Regulatory Guide 8.31, Section C.2.5 states, in part, all new employees should be instructed by means of an established course in the inherent risks of exposure to radiation and the fundamentals of protection against exposure to uranium and its progeny before beginning their jobs.

The licensee provided this training via electronic presentation. The presentation included radiation regulations, basics of radiation, radiation measurements, radiation dose to people, and the expected occupational dose. The licensee's records indicated that orientation and initial training was provided to new employees/contractors in calendar years 2018 and 2019. The licensee conducted annual refresher training to site workers in December 2018. Safety meetings were conducted weekly and included discussion of various safety topics and procedure changes.

The licensee refers to its health physics technicians as radiation safety technicians (RSTs). The licensee had two individuals identified as RSTs. Regulatory Guide 8.31, Section C.2.4.2.2, provides the requirements for education, training, and experience for the RSO and health physics technicians. During the previous inspection, the NRC inspectors noted that the RSTs did not meet the training requirements of at least 3 months of specialized training (up to 1 month may be on-the-job training) in radiation health protection relevant to U.S. facilities, as required by Regulatory Guide 8.31. The licensee's failure to ensure that the RSTs had the specialized training requirements specified in Regulatory Guide 8.31 prior to assigning the individuals to the positions was identified as violation of License Condition 32 requirements (VIO 040-08903/2019-01-002). During this inspection, the NRC inspectors reviewed the status of the corrective actions implemented in response to this violation. It was determined that the licensee had not completed all the RST training proposed as its

corrective action. Specifically, the licensee had scheduled one of the RSTs to complete a 40 hour RSO course in December of 2019. Therefore, the violation remains open.

The NRC inspectors reviewed the training paperwork at the site and confirmed that fire drill training was conducted for all staff on March 22, 2019 and August 1, 2019. The licensee also conducted Regulatory and SERP Training on September 13, 2019, Tornado and Storm Response Training on August 1, 2019 and Regulatory Training for senior staff on May 6, 2019. The inspectors reviewed the content of the training and found it to be acceptable.

### 3.3 Conclusions

The licensee provided radiation protection training to employees and contractors as required by regulations and the license. The licensee has not completed the RST training identified as a corrective action to a violation identified in a previous inspection. Therefore, the violation remains open.

## 4 **Effluent Control and Environmental Protection (IP 88045)**

### 4.1 Inspection Scope

The inspectors reviewed the licensee's effluent monitoring, environmental protection, and groundwater monitoring and corrective action programs to ensure compliance with license and regulatory requirements.

### 4.2 Observations and Findings

#### a. Effluent and Environmental Monitoring Program

License Conditions 10, 15 and 23 specify the effluent and environmental monitoring program requirements. Details about the program are provided in licensee's Manual of Standard Practices. The NRC inspectors compared the program in operation during the first half of 2019 to the requirements specified in the license. The inspectors concluded the licensee implemented the environmental monitoring program as required by the license.

License Condition 15 requires the licensee to report the results of the effluent and environmental monitoring program on a semi-annual basis to the NRC. The NRC inspectors reviewed the first semi-annual report for 2019 dated August 30, 2019 (ADAMS Accession No. ML19247C828); it is anticipated that the semi-annual report for the second half of CY2019 will be available in March of 2020. The inspectors concluded the licensee collected the required number of samples and reported the sample results. None of the results exceeded license or regulatory limits.

The licensee conducted air particulate sampling at seven locations, including the two nearest residences and one background station. The licensee continuously sampled the air for concentrations of natural uranium, radium-226, and thorium-230. The licensee's records indicated that air particulates remained at or below 20 percent of the applicable effluent concentration limits since the previous inspection. The inspectors observed the material condition of the high volume air particulate sampler at Station HMC-1 and

verified that it was being maintained in satisfactory working condition. The licensee recorded weekly air sampling results in a computer spreadsheet which uses formulas to perform calculations such as converting cubic feet to milliliters and summing weekly sampling volumes for the entire quarter. The inspectors examined the spreadsheet and confirmed the formulas were appropriate.

By letter dated December 16, 2015 (ADAMS Accession No. ML15264B052), the NRC staff requested additional information about the licensee's 2014 public dose assessment methodology. The licensee responded by letter dated January 19, 2016 (ADAMS Accession No. ML16033A407). The NRC issued a second request for additional information by letter dated July 31, 2018 (ADAMS Accession No. ML18159A366), and the licensee responded to this second request by letter dated August 20, 2018 (ADAMS Accession No. ML18240A143). The NRC Staff rejected the public dose assessment methodology proposed by the site via letter dated August 30, 2019 (ADAMS Accession No. ML19239A165). Specifically, the NRC had concerns related to the unmonitored radon sources at the site and their contribution to the air effluent and subsequently the public dose. As of the date of this inspection, the licensee had not responded to these concerns.

b. Groundwater Monitoring and Corrective Action Program

License Condition 35 states that the licensee shall implement a groundwater compliance monitoring program to assess the performance of the groundwater restoration program. The inspectors reviewed the licensee's control and operation of various site systems used to implement the groundwater corrective action program.

The licensee continued to operate a number of extraction and injection wells. The discharge from offsite extraction wells was routed to the zeolite system for filtration of uranium from the water, while the discharge from onsite extraction wells was routed to the reverse osmosis system for cleanup. The treated water from the zeolite and reverse osmosis systems was mixed with fresh water from the San Andres aquifer in the post treatment tank and injected into the subsurface aquifers, as shown in Figure 2.1-6 from the 2018 Annual Monitoring Report/Performance Review dated March 29, 2019 (ADAMS Accession No. ML19101A377 and ML19101A375).

Based on Table 3.1-10 of the 2019 Semi-Annual Monitoring Report, the zeolite systems operated at an average flow rate of 209 gpm, and the reverse osmosis system operated at an average of 362 gpm for the first half of 2019. These flow rates continue to be well below the total design capacity of 2,700 gpm. The licensee is currently upgrading Clarifier 1 to improve operational efficiency. The licensee explained that the reduced flow rates continued as a result of several issues, including evaporation pond limitations and equipment problems.

The licensee continued to experience problems with algae growth in the zeolite beds. The licensee discussed that algae was being removed prior to the regeneration cycle and that they are adding bubblers to the zeolite beds in an effort to reduce algae growth. Removed algae and weeds are placed in the burial trenches.

As discussed in NRC Inspection Report 040-08903/2018-002 dated November 26, 2018 (ADAMS Accession No. ML18303A199), the licensee experienced several unplanned



releases into groundwater involving the re-injection of water with concentrations of uranium and molybdenum above the groundwater protection standards specified in License Condition 35.B. After the releases, the licensee implemented enhanced sampling. The enhanced sampling included daily conductivity measurements, weekly measurements using a kinetic phosphorescence analyzer to detect uranium, and a Hach meter to monitor molybdenum concentrations. The licensee also started reviewing preliminary laboratory results to more quickly identify any potential exceedances. The licensee stated they had not observed any exceedances of the groundwater protection standards with re-injection water since the March-April 2018 time frame. However, during this inspection, NRC staff reviewed sampling results and observed that the enhanced sampling techniques had not continued. By letter dated October 28, 2019 (ADAMS Accession No. ML19289B451), NRC audited HMC's analysis of the impact of exceedance of groundwater protection standards in injection water (ADAMS Accession No. ML18159A037). As part of that audit, NRC recommended additional monitoring with increased frequency to provide early indications on potential exceedances, including: (1) daily conductivity measurements, (2) weekly measurements using a kinetic phosphorescence analyzer to detect uranium, (3) monitoring of molybdenum concentrations with a Hach meter, and (4) the review of preliminary laboratory results to mitigate exceedances of the groundwater protection standards in injection water as documented in NRC Inspection Report 040-08903/2018-02, dated November 26, 2018 (ADAMS Accession No. ML18303A199), be reflected in HMC's onsite procedures.

The NRC recently approved the licensee's groundwater monitoring plan license amendment on November 11, 2019 (ADAMS Accession No. ML19217A352). The NRC is also reviewing the licensee's zeolite water treatment system license amendment request (ADAMS Accession No. ML17361A007). The NRC's conclusions about the zeolite water treatment system will be presented to the licensee under separate correspondence.

c. Land Use Survey

License Condition 42 specifies that a land use survey be conducted and submitted in the annual report to the NRC. The NRC inspectors reviewed the most recent land use survey included as Appendix E to the annual report dated March 29, 2019 (ADAMS Accession Nos. ML19101A377 and ML19101A375) as documented in Inspection Report 040-8903/2019-001 dated June 12, 2019 (ADAMS Accession No. ML19129A405).

4.3 Conclusions

The licensee implemented its environmental and effluent monitoring program in accordance with license requirements. The licensee implemented a groundwater monitoring and corrective action program as required by the license; changes to the program are under NRC review. The licensee conducted an annual land use survey and reported the results to the NRC in the annual monitoring report and performance review as required by the license.

## **5 Follow-up of Confirmatory Action Letters or Orders (IP 92703)**

### **5.1 Inspection Scope**

On March 28, 2017, the licensee agreed to, and was issued, Order EA-16-114 (ADAMS Accession Package No. ML17060A752) as a result of alternative dispute resolution mediation. Section V of the Order includes 16 conditions with actions the licensee is required to implement. Provided below is a summary of the status of the 16 conditions.

### **5.2 Observations and Findings**

#### **a. Condition 1**

Condition 1 requires, in part, that the licensee submit its root cause protocol (RCP) to an independent third-party consultant with expertise in root cause analysis (RCA) and provide a copy of the independent third party reviewed analysis protocol to the NRC within 120 days of issuance of the Order. The RCP submitted to the NRC will identify any changes made by the independent third-party reviewer and include a qualification statement for the third-party reviewer. This protocol will be used to complete Conditions 2, 3, and 4 of the Order.

On July 26, 2017, the licensee submitted a RCP containing edits from an independent third-party consultant, and a qualification statement from the consultant (ADAMS Accession No. ML17212A026). The licensee and its third-party consultant stated that they will use the “Five Whys Method” to determine the underlying factor or condition contributing to a non-compliance or other identified problem. During the September 2017 inspection, documented in NRC Inspection Report 040-08903/2017-002 dated December 20, 2017 (ADAMS Accession No. ML17353A414), the inspectors determined that the “Five Whys Method” was adequate for use as the RCP.

Condition 1 of the Order is considered to be satisfied.

#### **b. Condition 2**

Condition 2 requires, in part, that within 30 days of submitting the RCP to the NRC, the licensee will use the RCP to analyze the reasons for the five apparent violations documented in the NRC’s October 4, 2016, letter (ADAMS Accession No. ML16251A526). In addition, the licensee will submit any proposed corrective actions to the NRC for review and approval within 60 days of completing the RCA.

The licensee requested an extension in submission of the RCA of the five apparent violations by letter dated August 23, 2017 (ADAMS Accession No. ML17237C046). The NRC granted approval to extend the submittal due date to September 15, 2017, by email dated August 24, 2017 (ADAMS Accession No. ML17243A234). The NRC subsequently provided formal approval of the extension request by letter dated October 19, 2017 (ADAMS Accession No. ML17241A299). The October 19, 2017, letter also acknowledged receipt of the licensee’s September 15, 2017, RCA of the five apparent violations (ADAMS Accession No. ML17263A125). The licensee concluded that the common root cause for each of the five apparent violations was lack of communication

by licensee management to other licensee staff and corporate managers, and a lack of understanding of regulatory compliance by the licensee's management.

The licensee submitted the corrective action plan for the five apparent violations to the NRC by letter dated November 14, 2017 (ADAMS Accession Package No. ML17320A118). The licensee also provided an update for the corrective action plan by letter dated July 17, 2018 (ADAMS Accession No. ML18200A068).

Condition 2 of the Order will remain open until the NRC has reviewed and approved the licensee's proposed corrective actions.

c. Condition 3

Condition 3 of the Order requires, in part, the licensee to complete an assessment of all activities to determine whether the activities are authorized and are being conducted in compliance with NRC requirements. By letter dated November 17, 2017 (ADAMS Accession No. ML17325B023), the licensee requested an extension until September 3, 2018, for the submittal of the self-assessment. The NRC granted the extension request by letter dated December 26, 2017 (ADAMS Accession No. ML17340B340). By letter dated August 31, 2018 (ADAMS Accession No. ML18248A265), the licensee submitted its self-assessment to the NRC. The licensee's self-assessment is currently being reviewed by the NRC.

Condition 3 of the Order will remain open until the NRC has completed its review of the licensee's self-assessment and has determined that it includes the required information.

d. Condition 4

Condition 4 of the Order requires, in part, the licensee to engage an independent third-party consultant to review and evaluate the self-assessment as described in Condition 3 of the Order. Condition 4a states that the licensee must submit the name and qualifications of the consultant for NRC approval within 30 days of issuance of the Order; Condition 4b requires the licensee to provide the consultant with a copy of the self-assessment within 120 days of the self-assessment; and Condition 4c requires the licensee to provide the consultant's review of the self-assessment within 120 days of when the consultant received it for review. Condition 4d states that the NRC will perform an audit of the assessment and the consultant's report. The licensee will be required to incorporate any NRC audit findings. Finally, Condition 4e states that the licensee will maintain copies of all reports at the site for NRC inspection.

The licensee submitted correspondence dated April 14, 18, and 24, 2017, to provide the names and qualifications of the third-party consultant for NRC approval (ADAMS Accession Nos. ML17108A258, ML17110A207, and ML17115A424). The NRC approved the consultants by correspondence dated April 19 and May 3, 2017 (ADAMS Accession Nos. ML17114A106 and ML17138A303). The inspectors verified that Condition 4a has been satisfied and is considered complete.

By letter dated August 31, 2018 (ADAMS Accession Nos. ML18248A259 and ML18248A260), the licensee submitted its self-assessment to the NRC for review. This satisfies Conditions 4b and 4c; however, Condition 4d will remain open and cannot be

completed until the self-assessment has been audited by the NRC. The licensee continued to maintain copies of the reports at the site for NRC review in accordance with Condition 4e.

Conditions 4a, 4b, and 4c have been satisfied. Condition 4d of the Order remains open pending NRC review of the self-assessment.

e. Condition 5

Condition 5 of the Order requires, in part, that any changes or additions to the license or procedures resulting from this Order will be submitted to the NRC as a license amendment request for NRC approval or an update to the appropriate licensee procedure after notification of the NRC. All license amendment requests will be submitted to the NRC within 60 days of receiving the results of the NRC's audit.

The NRC's review of the RCA and the audit of the self-assessment is not complete; therefore, the licensee has not submitted any license amendments as a result of the RCA or the self-assessment. The licensee submitted a license amendment request on December 5, 2018, related to radiation safety titled, "Homestake Mining Company of California - Grants Reclamation Project- Request for Amendments to License No. SUA-1471 to Clarify and Update Current License Conditions and Commitments" (ADAMS Accession No. ML18346A085). On April 12, 2019, the licensee withdrew the amendment request (ADAMS Accession No. ML19109A110). By letter dated June 19, 2019 (ADAMS Accession No. ML19183A432), HMC submitted an updated license amendment request with the intent of clarifying and updating current license conditions and commitments. On October 4, 2019 (ADAMS Accession No. ML19256B148), the NRC determined the updated license amendment request did not provide sufficient information necessary for a detailed technical review. The licensee has not submitted any requests or notified the NRC of any proposed updates to the procedures beyond the updated procedures directly required by the Order.

Condition 5 of the Order remains open.

f. Condition 6

Condition 6 of the Order requires, in part, the licensee to submit a revised groundwater corrective action program to the NRC by the end of calendar year 2018, including amendments to the license approved by that date. The licensee's November 17, 2017, letter (see Condition 3 above) expressed uncertainty in meeting the current due date of December 31, 2018, for submission of the revised corrective action program due to the extended time frame needed to complete the self-assessment discussed in Condition 3 of the Order.

On October 11, 2018, the licensee requested that the due date for the revised groundwater corrective action program be extended from January 1, 2019, to December 18, 2019 (ADAMS Accession No. ML18289A400). Based on review of the information provided by the licensee, the NRC granted the extension request to allow the groundwater corrective action program to be submitted on or before December 18, 2019 (ADAMS Accession No. ML18355A893).

Condition 6 remains open and cannot be completed until the revised groundwater corrective action program has been submitted to the NRC.

g. Condition 7

Condition 7 of the Order requires, in part, that the licensee conduct initial and annual refresher training for all individuals (employees and vendors, commensurate with their duties) engaged in licensed activities. Section (a) of this condition required initial and annual training to address awareness and understanding of regulatory and license requirements, including but not limited to informing licensee employees of the jurisdiction of the NRC, the U.S. Environmental Protection Agency, and the New Mexico Environment Department over the Grants Reclamation Project site. Section (b) of this condition required the licensee to maintain documentation for each training session conducted, which will include a summary of the contents of the training and individual attendance.

Condition 7 remains open since the licensee will continue to provide initial and refresher training until the Confirmatory Order has been terminated by the NRC.

h. Condition 8

Condition 8 of the Order requires, in part, the licensee to use the mass balance methodology described in the revised 2012 groundwater corrective action program submittal to complete an analysis of the re-injection system's impact to the time estimate for completion of the groundwater corrective action program. The analysis was required to be completed within 120 days of issuance of the Order, and the licensee was required to discuss the methodology, data, and analysis with the NRC, no less than 30 days prior to its finalization of the re-injection analysis.

The licensee and the NRC discussed the methodology, data, and analysis during a teleconference on June 26, 2017, and during a follow-up teleconference on June 27, 2017. Notes summarizing the discussions during the teleconferences on June 26 and 27, 2017, as well as the licensee's presentations are publicly available (ADAMS Accession No. ML17352B067).

The licensee submitted the impact analysis for the re-injection system and exceedance apparent violations by letter dated July 26, 2017 (ADAMS Accession Package No. ML17212A010). Condition 8 of the Order requires NRC to perform an audit of the analysis and provide in writing the NRC audit results, including any recommended changes. The NRC inspectors completed an audit of the July 26, 2017, submission in a letter dated October 22, 2019 (ADAMS Accession No. ML19221B533), and provided three recommendations.

Condition 8 of the Order remains open pending the licensee's incorporation of the audit results as described in Condition 5 of the Order.

i. Condition 9

Condition 9 of the Order requires, in part, that within 30 days from issuance of the Order, the licensee will perform adjustments to the operations of the reverse osmosis plant to ensure compliance with the groundwater protection standards. The licensee was also required to evaluate the procedure required by License Condition 23 to ensure the process is adequate to reduce constituent concentrations to values below the groundwater protection standards listed in License Condition 35.B before discharge.

The licensee notified the NRC by letter dated April 27, 2017 (ADAMS Accession No. ML17121A311), that adjustments were made to the treatment system to better ensure license compliance. The letter further stated that the requirements prescribed by License Condition 23 were evaluated during the development of the adjustment, and the adjustment was determined to be effective at the reverse osmosis plant by increasing the fresh water used for blending. The inspectors reviewed the revised procedure and determined that the operational adjustments made at the reverse osmosis plant were adequate for reducing effluent discharge to below the groundwater protection standards. As documented in Inspection Report 040-08903/2017-002 (ADAMS Accession No. ML17353A414), the requirement under Condition 9 of the Order to perform adjustments to the operations of the reverse osmosis plant and evaluate the procedure required by License Condition 23 was satisfied.

Condition 9 of the Order is considered to be satisfied.

j. Condition 10

Condition 10 of the Order requires, in part, an analysis by the licensee using the methodology described in NUREG-1620, "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," to determine the impact of exceedances discharged from the reverse osmosis plant as documented in the NRC's October 4, 2016, letter (ADAMS Accession No. ML16251A526). The analysis was to be completed within 120 days of issuance of the Order, and the licensee was required to discuss the methodology, data, and analysis with the NRC, no less than 30 days prior to its finalization of the re-injection analysis. The NRC will then perform an audit of the analysis, and provide the licensee with the audit results, including any recommended changes. The licensee will incorporate NRC audit results as described in Condition 5 of the Order.

The licensee discussed the methodology, data, and analysis with the NRC during a teleconference on June 26, 2017, and during a follow-on teleconference on June 27, 2017. Notes summarizing the discussions during the teleconferences on June 26-27, 2017, as well as the licensee's presentations are publicly available (ADAMS Accession No. ML17352B067). The licensee submitted the impact analysis for the re-injection system and exceedance apparent violations by letter dated July 26, 2017 (ADAMS Accession Package No. ML17212A010). Condition 10 of the Order requires the NRC to perform and audit of the analysis and provide in writing the NRC audit results, including any recommended changes. The NRC staff completed its audit of the July 26, 2017, submission in a letter dated October 29, 2019 (ADAMS Accession No. ML19289B451) and provided one recommendation.

Condition 10 of the Order remains open pending the licensee's incorporation of the audit results as described in Condition 5 of the Order.

k. Condition 11

Condition 11 of the Order directly modified License Condition 35.C when the Order was issued on March 28, 2017.

Condition 11 of the Order is considered to be satisfied.

l. Condition 12

Condition 12 of the Order requires, in part, that the licensee develop written procedures to ensure that monthly composite samples are obtained from Sampling Point 2 (SP2), and to ensure that results of those monthly composite samples are reported in the semi-annual and annual reports as required by License Conditions 15 and 42. The licensee was required to submit these procedures to the NRC within 120 days of issuance of the Order.

Written procedures for monthly sampling of Sampling Point SP2 were submitted to the NRC by letter dated July 26, 2017 (ADAMS Accession No. ML17212A025). The inspectors previously reviewed the revised procedure and determined that it was adequate to ensure that monthly composite samples will be obtained from Sample Point SP2. Further, the inspectors noted that the results of the monthly samples were reported in the most recent semi-annual report dated March 5, 2019 (ADAMS Accession No. ML19064B127).

Condition 12 of the Order is considered to be satisfied.

m. Condition 13

Condition 13 of the Order directly modified License Condition 15 when the Order was issued on March 28, 2017. This change provided clarifying language for when the semi-annual effluent and environmental monitoring reports are due.

Condition 13 of the Order is considered to be satisfied.

n. Condition 14

Condition 14 of the Order requires, in part, that the licensee identify sources of supply water, soil and groundwater data, and associated reports, and use that data to develop a land application assessment of any impacts due to the use of the irrigation water containing byproduct material to past, current, or foreseeable future uses of the land application areas.

The land application assessment will establish background concentrations, remedial action levels (radiological dose and non-radiological risk), and current concentrations of the contaminants of concern in its license at all areas used for land application. The land application assessment will also identify and assess impacts from soil pore water data at the land application areas. Additionally, the licensee was required to take

immediate action to ensure that the land application areas were not being used to produce crops for human consumption. The land application assessment was required to be submitted within 180 days of issuance of the Confirmatory Order.

As described in Section 4.2 of NRC Inspection Report 040-08903/2018-002 dated November 26, 2018 (ADAMS Accession No. ML18303A199), the licensee submitted the land application assessment to the NRC by letter dated September 25, 2017 (ADAMS Accession No. ML17270A066). By memorandum dated June 16, 2017 (ADAMS Accession No. ML17328A507), the licensee provided verification that they were not using the former irrigation areas to produce crops for human consumption. A proposed final status survey plan for release of the former land application areas was submitted by letter dated November 14, 2017 (ADAMS Accession No. ML17340A406). The data obtained for the final status survey was intended to augment the existing soil data within the land application impact assessment that was submitted on September 25, 2017. The licensee subsequently submitted the final status survey report, documenting the results of the final status survey, to the NRC by letter dated July 2, 2018 (ADAMS Accession Nos. ML18186A567 and ML18186A568).

However, the NRC issued a request for additional information by letter dated August 17, 2018 (ADAMS Accession No. ML18205A460), in part, to ask the licensee about the radiological status of the piping and equipment used to support the irrigation activities. The licensee responded to the NRC request by letter dated September 20, 2018 (ADAMS Accession No. ML18269A123).

During the week of August 27, 2018, an NRC inspector and contractors from the Oak Ridge Institute of Science and Education performed a confirmatory survey of the land application areas. The results from this survey were provided to the NRC staff in a report dated February 12, 2019 (ADAMS Accession No. ML19046A072). The NRC staff is currently reviewing the licensee's land application assessment reports and the confirmatory survey report submitted by the NRC's contractor.

Condition 14 of the Order remains open pending NRC review of the licensee's submittals, the results of the final status survey, and the results of the NRC's confirmatory survey.

o. Condition 15

Condition 15 of the Order requires, in part, that if the results of the analysis discussed in Condition 14 of the Order indicate that radiological doses and non-radiological risks are in excess of the NRC-approved remedial action levels, the licensee will propose appropriate measures to control both use and access to the impacted areas, a corrective action plan if necessary to achieve the NRC-approved remedial action levels, and final status survey plans to demonstrate that the radiological doses and non-radiological risks are below NRC-approved remedial action levels.

Condition 15 of the Order remains open pending NRC review of the licensee's submittals, the results of the final status survey, and the results of the NRC's confirmatory survey.



p. Condition 16

Condition 16 of the Order requires the licensee to provide an integrated table that sets forth all actions taken pursuant to the Order. An updated integrated table will be provided semi-annually, until all license and procedure changes under the Order are completed. The most recent integrated table was submitted to the NRC by letter dated January 30, 2019 (ADAMS Accession No. ML19032A026). HMC submitted an integrated table to the NRC by letter dated January 30, 2019 (ADAMS Accession No. ML19032A026) and September 16, 2019 (ADAMS Accession No. ML19261A020).

Condition 16 of the Order will remain open until all license and procedure changes under the Order are completed.

5.3 Conclusions

Confirmatory Order EA-16-114 Conditions 1, 9, and 11-13 have been evaluated and are determined to be satisfied. Confirmatory Order Conditions 2-8, 10, and 14-16 remain open with pending actions and will continue to be evaluated by the NRC.

**6 Exit Meeting Summary**

The inspectors presented the inspection results to the licensee's representatives at the conclusion of the onsite inspection on October 24, 2019. During the inspection, the licensee did not identify any information reviewed by the inspectors as proprietary that was included in the report.

## **SUPPLEMENTAL INSPECTION INFORMATION**

### **Partial List of Persons Contacted**

#### Licensee

W. Archuleta, Senior Shift Supervisor, Homestake Mining Co.  
A. Arguello, Hydrologist, Homestake Mining Co.  
B. Bingham, Site Compliance Manager, Homestake Mining Co.  
R. Shirley, Project Engineer, Homestake Mining Co.  
D. Pierce, Closure Manager, Homestake Mining Co.  
K. Martinez, Radiation Control Technician, Homestake Mining Co.  
R. Whicker, Radiation Protection Administrator, Environmental Restoration Group, Inc.

### **Inspection Procedures (IPs) Used**

IP 83822	Radiation Protection
IP 88005	Management Organization and Controls
IP 88010	Training/Retraining
IP 88045	Effluent Control and Environmental Protection
IP 92703	Follow-up of Confirmatory Action Letters or Orders

### **Items Opened, Closed and Discussed**

#### Opened

040-08903/2019-02-001	VIO	Failure to maintain instrument calibration
040-08903/2019-02-002	VIO	Failure to develop SOP for activities involving radioactive material

#### Closed

None

#### Discussed

040-08903/2016-01-001	VIO	Exceedance of radon flux limit from LTP
040-08903/2019-01-001	VIO	Failure to conduct environmental evaluation
040-08903/2019-01-002	VIO	Failure to implement Regulatory Guide requirements
040-08903/2019-01-003	VIO	Failure to have procedure for incident/event reporting

### **List of Acronyms Used**

ADAMS	Agencywide Documents Access and Management System
ALARA	As Low As Reasonably Achievable
ARSO	Alternate Radiation Safety Officer
CFR	Code of Federal Regulations
CO	Confirmatory Order
gpm	gallons per minute
HMC	Homestake Mining Company
IP	Inspection Procedure
LTP	large tailings pile
μR/hr	microRoentgen per hour
NRC	U.S. Nuclear Regulatory Commission
RCA	Root Cause Analysis
RCP	Root Cause Plan
RSO	Radiation Safety Officer
RST	Radiation Safety Technician
RWP	radiation work permit
SERP	Safety and Environmental Review Panel
STP	small tailings pile
VIO	violation

NRC INSPECTION REPORT 040-08903/2019-002 AND NOTICE OF VIOLATION – DATED  
NOVEMBER 22, 2019

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ADAMS ACCESSION NUMBER: ML19323F639

<input checked="" type="checkbox"/> SUNSI Review By: MRP	ADAMS: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Sensitive <input checked="" type="checkbox"/> Non-Sensitive	<input type="checkbox"/> Non-Publicly Available <input checked="" type="checkbox"/> Publicly Available	Keyword NRC-002
OFFICE	RIV:DNMS/MLDB	NMSS:DUWP	NMSS:DUWP	C:MLDB
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