

APPENDIX

U.S. NUCLEAR REGULATORY COMMISSION
URANIUM RECOVERY FIELD OFFICE
REGION IV

Inspection Report: 40-8903/92-02

License: SUA-1471

Licensee: Homestake Mining Corporation
P.O. Box 98
Grants, New Mexico 87020

Facility Name: Milan Mill

Inspection At: Grants, New Mexico

Inspection Conducted: November 17, 1992

Inspectors: Dana C. Ward, Project Manager
Paul P. Michaud, Project Manager

Approved: 

Ramon E. Hall, Director
Uranium Recovery Field Office
Region IV

11/27/92
Date

Inspection Summary

Areas Inspected: Routine, announced inspection of the uranium mill decommissioning operations and radiation safety program including: Management Organization and Controls/Operations Review; Operator Training/Retraining; Radiation Protection; Radioactive Waste Management; Transportation of Radioactive Materials; Emergency Preparedness, and Environmental Protection.

Results:

- The inspectors noted that Homestake Mining Corporation had an adequate radiation protection program in effect, and that the reorganization of the radiation safety department directly under the supervision of the Resident Manager appeared to be transitioning smoothly.

Summary of Inspection Findings:

- Open Item 40-8903/9102-01 was closed (paragraph 4 of Section 5).
- Open Item 40-8903/9102-02 was closed (paragraph 1 of Section 6).

Attachments:

- Attachment 1 - Persons Contacted and Exit Meeting

DETAILS**1 SITE STATUS**

During this inspection period Homestake started structural decommissioning of the process building by removing much of the roof and asbestos impregnated insulation from around approximately twenty solution digestion tanks. The licensee plans to be fully engaged in decommissioning by the spring of 1992, weather dependent. The licensee was also active in the construction of an access ramp on the west side of the main tailings pile. This ramp will provide effective access for heavy earth moving equipment to ascend the pile to begin reclamation work on the two former tailings pond areas. The ground-water corrective action program was active with continued collection of tailings sump and well waters for evaporation by the enhanced evaporation system.

2 MANAGEMENT ORGANIZATION AND CONTROLS/OPERATIONS REVIEW (88005, 88020)

The licensee has made changes in the organizational structure in response to the resignation of the previous Radiation Protection Administrator (RPA) in June 1992. Homestake has also instituted a new tracking system to prioritize completion of licensee required tasks.

The Milan Mill was preparing for full mill decommissioning at the time of the inspection. There were 15 employees onsite. The licensee does not expect to see a great increase in actual Homestake employees since the mill decommissioning work will be done by contractors. The highest ranking corporate official at the site was the Resident Manager (RM). The RPA, who was responsible for the facility's radiation safety program, resigned early in the summer. The RM intends to assume the RPA's responsibilities as soon as he acquires sufficient training. During the interim, a contract Radiation Safety Officer (RSO) is being utilized to run the program. The contract RSO spends about two days per week on site working with two Environmental Technicians, who the inspectors noted were well trained in the day to day radiation safety program. The contract RSO also spends much of his onsite time training the RM for his new job responsibilities.

The inspectors were concerned that when the mill goes into full decommissioning activities that the RM would be unable to fulfill his dual duties as RM and RPA. The RM assured the inspectors that he would be able to fulfill these roles and had plans to hire two additional Environmental Technicians when full decommissioning starts, in order to augment his existing staff of two technicians. The RM also outlined a plan whereby he would assign one worker from his staff to act as the main contact person for each contractor conducting decommissioning work. With these two program changes the RM felt confident that he would be able to effectively and efficiently fill the RPA's job function. The licensee was advised that in these situations, close watch would be maintained by the NRC to assure that the radiation safety program does not falter due to lack of attention by the RM/RPO.

The inspectors reviewed the records of inspections and audits performed since the last inspection. The inspection program at the mill consisted of monthly inspections conducted during routine gamma surveys. During decommissioning, inspection frequency was increased to daily. These inspections were conducted by a member of the radiation safety staff. The audit program consisted of monthly reports prepared by the Environmental Technicians which summarized environmental sampling results, radiation exposure records and inspection findings generated during the month. The monthly reports also consistently addressed bioassays and documented any result above 15 ug/l.

The inspectors reviewed the standard operating procedures (SOPs) established by the licensee. It was noted during this review that the contract RSO was in the process of revising and updating the procedures. During the inspection Homestake supplied three different binders representing the current SOPs. Many of the procedures were outdated and were no longer necessary for a mill in decommissioning. It was also difficult for the inspectors to determine if all procedures had been reviewed annually. These concerns were brought up at the exit meeting where the RM made a strong commitment that the procedures would be upgraded as expeditiously as possible. The RM also stated that the contract RSO would be retained to continue this work.

The inspectors reviewed the Radiation Work Permits (RWP) issued since the last inspection. The licensee had issued approximately 48 RWPs in that time period mostly for mill decommissioning work. A representative sample of these RWPs was reviewed by the inspectors and found to contain sufficient detail and content to protect the health and safety of radiation workers. It was also noted during the review that urine samples were often required by the RWP and that these results were available in the monthly report file. All urine sample results were noted to be within the acceptable limit.

3 OPERATOR TRAINING AND RETRAINING (88010)

All employees, including contractor personnel, were required to attend introductory and annual refresher radiation safety training. Radiation safety was discussed for approximately two hours of the eight hours of the refresher training. The inspector reviewed licensee records of employee and contractor training attendance, the course outline, and tests administered. All these elements appeared to be in appropriate order and conformed with recommendations contained in Regulatory Guide 8.31. The training also included a discussion on prenatal radiation exposures for all female workers as recommended in Regulatory Guide 8.13.

The inspectors noted that the RM had recently attended off site training which was required by the license. The RM, two Environmental Technicians, one site Chemist and two facility Supervisors were given extensive onsite training by the contract RSO. This attendance of much of the site staff should make the transition for the RM in assuming the RPA's duties much smoother.

4 RADIATION PROTECTION (83822)

The licensee's overall radiation protection program appears to be functioning properly to maintain good health and safety at the facility. Although there

was a possibility for program degradation with the departure of the site RPA this seems to have been avoided. The program appears to have been maintained in a respectable manner which compliments the personnel involved.

4.1 Internal Exposure Determination

The inspectors reviewed records of the internal exposure determination program implemented at the site. Samples were collected weekly from nine locations using Eberline RAS-1 pumps calibrated to draw approximately 50 liters per minute (lpm). The samples were counted in an alpha scintillation counter, and the air pumps calibrated quarterly using a mass flow meter. The licensee has also instituted a program where chemical analysis for uranium was conducted in the onsite chemistry laboratory.

Breathing zone samples were not routinely collected since the last inspection. The licensee only uses breathing zone samplers for RWPs. The samplers were calibrated to draw two lpm using a wet test meter or if necessary a bubble tube. The licensee stated that breathing zone samples were not used for exposure determinations unless they exceeded the values obtained from RAS-1 sampling. All filters were counted for gross alpha using an alpha scintillation counter then chemically analyzed for uranium if the initial values were elevated.

Radon daughter samples were collected quarterly at ten locations. The samples were collected for five minutes at two lpm and analyzed using an instant working level meter. The licensee was in the process of determining if radon sampling would be necessary during mill decommissioning since much of the roof has been removed from the main processing building.

A review of the data indicated that uranium levels were small percentages of the maximum permissible concentrations (MPC) with the exception of a concentration measured on July 7, 1992, at several times the MPC. Radon daughter concentrations were noted to be low with the highest concentration reported at 0.09 working levels. This reading was obtained at the fine ore bins.

4.2 Bioassay and Respiratory Protection

Since the last inspection the licensee has increased urine sampling frequency to monthly from once every two months. Bioassays were also taken as part of the RWP jobs. The samples were shipped to a vendor laboratory for analysis along with spikes and blanks for quality assurance purposes.

A review of the data indicated that all results were less than the initial action level of 15 ug/l uranium. One sample obtained by the licensee on July 15, 1992, for a worker engaged in asbestos removal, found a result of 60 ug/l uranium. The licensee was contacted by telephone from the vendor laboratory as required by the bioassay procedure, and a second sample was collected and sent for analysis. The result of the followup sample was less than 5 ug/l uranium. With the quick turnaround time the licensee determined that the cause of the elevated result was probably contamination. The inspectors believe this to be an appropriate conclusion.

The inspectors noted that the licensee had two procedures for respiratory protection. One procedure covered care and maintenance and was in use at the respiratory issuance laboratory. The other procedure was the SOP concerned with policy, respirator use, issuance and training. The licensee had difficulty locating this latter procedure. A review of this procedure could be updated to improve its usefulness. The licensee stated during exit interview that they would improve the effectiveness of this procedure. This will be done as part of the work the licensee committed to in Section 2, paragraph 5 on procedure revisions.

All site personnel who work within the restricted area were issued thermoluminescent dosimeters which were exchanged and read monthly. The licensee has determined the direct radiation exposures were low enough that quarterly exchanges will be made in the future. A review of the data indicated that the highest monthly exposure was under 30 mRem to the whole body.

The licensee also conducts gamma surveys on a monthly frequency throughout the mill area. Nine locations were regularly surveyed. PA areas were reported with identical high readings of 1.8 mR/hr (180 μ R/hr), the roaster area and the digesters.

The inspectors reviewed the licensee's contamination control program, which consisted of weekly surveys in such areas as the change rooms, laboratories, lunch areas and offices. A review of the data indicates that most areas range from 30 to 50 dpm/100 cm², with some areas at 500 dpm/100 cm². The inspectors noted that none of the areas with elevated readings were eating area. Homestake uses 1000 dpm/100 cm² as a cleanup standard, which is required by 10 CFR 20. No lower action level was maintained by Homestake, except for laboratories used for bioassays where 200 dpm/100 cm² was used. No laboratories were noted to have exceeded this action level.

All personnel who leave the restricted area monitor with an alpha survey meter prior to leaving. The survey meter was located at the guard shack. Documentation was maintained of all survey results. Quarterly spot checks were conducted by the radiation protection staff. During the inspection, the inspectors observed personnel frisking at the exit station. One employee found contamination on his pants and promptly went back to the change room and put on clean clothing. It would appear from this action that Homestake personnel take their radiation protection program seriously.

5 RADIOACTIVE WASTE MANAGEMENT (88035)

The inspectors toured the tailings retention system during the inspection. Only small pools of water currently exist in the east and west cells of the main tailings pile. The licensee estimated the depth of water to be less than one foot in the east cell and a few inches in the west cell. Evaporation spray systems were observed to be in operation on the east tailings pile while the west cell had insufficient water depth to run the sprays. The licensee was operating beach sprinkler systems 24 hours per day to the extent possible. The inspectors noted that the sprinkler systems on the embankment berms were operated during day shifts through the summer and when the temperature was above freezing in winter.

The lined evaporation pond has about 10 feet of water. Evaporative sprays were operated within the evaporation pond on a 24-hour a day schedule through the summer and during other times of the year when temperatures were above freezing. A reduction in the amount of water pumped into the pond may be necessary to maintain sufficient capacity for the winter. The pond was receiving about 250 gallons per minute during the time of the inspection.

The licensee performed daily inspections of the tailings management system. The inspections included observations of freeboard, beach widths, and erosion. Site personnel performing the inspections were given regular technical training by a professional engineer.

The inspectors reviewed the soil sampling results obtained from the July 18, 1991, inspection, along with survey results submitted by the licensee as required under License Condition No. 19. During the July 18 inspection it was determined to make the results of the soil sampling an open item for tracking purposes. The analysis of that data confirms that some areas of wind-blown contamination or otherwise deposited tailings remain to be cleaned up. The licensee addressed this issue by stating that until the main tailings pile was stabilized by reclamation work to prevent further blowing, continued cleanup work would be put on hold. The inspectors agree that this would be a prudent course of action since the levels of contamination were very low (normally less than 30 pCi/g) over small areas. Further, the tracking of the progress of site cleanup can best be done under License Condition No. 19, and a final verification survey by this office when reclamation is complete. Therefore, open item (40-8903/9102-01) can be closed.

6 TRANSPORTATION OF RADIOACTIVE MATERIALS (86740)

The inspectors reviewed the records for release of equipment and materials from the site. All released items had been surveyed for removable alpha contamination as well as direct radiation. During an inspection conducted on July 18, 1991, it was noted that the licensee had released equipment from the mine and restricted area by using the same release form. At the time the licensee did not denote on the form where the released items originated, or whether it was a restricted or unrestricted area. The inspectors noted during this inspection that the licensee had instituted a new system where records were being annotated, denoting the origin of the material being released. This closes open item (40-8903/9102-02).

7 EMERGENCY PREPAREDNESS (88050)

The site fire protection system consisted of portable fire extinguishers located in the various support structures and the main office complex. A hydrant system connected to two holding tanks containing 260,000 gallons collectively of reserve water was also available. The mill structure no longer has a fire protection system. All tanks have been drained and the mill is constructed of nonflammable materials. The local volunteer fire department from Milan, which is less than five miles away would be the primary fire fighting force for the mill. To maintain emergency response, the Resident Manager conducts regular fire alarm checks each month.

The inspectors reviewed the facility's emergency procedures. All procedures appeared to be in appropriate order. The facility maintains an emergency crew that includes all site employees. The mill has an ambulance which was operationally checked regularly. First aid kits were located in all occupied buildings.

8 ENVIRONMENTAL PROTECTION (88045)

The licensee's environmental monitoring program includes continuous air particulate sampling at six locations. Sample filters were exchanged weekly and composited for quarterly analysis offsite. Equipment calibrations for the continuous samplers were conducted weekly using a manometer.

Passive alpha track detectors were used to measure radon concentrations at each environmental site. These detectors were exchanged quarterly. Thermoluminescent dosimeters were placed at each of the six environmental stations and were exchanged on a quarterly schedule. Soil and vegetation samples were collected annually at the six environmental stations. Ground-water samples were collected at a number of monitoring wells in accordance with license requirements.

Environmental monitoring data were submitted to the NRC in accordance with 10 CFR 40.65 and the license. A review of the data for the first half of 1992 found no concerns.

ATTACHMENT 1

1 PERSONS CONTACTED

1.1 Licensee Personnel

- *F. Craft, Resident Manager
- *M. Mazon, Environmental Technician
- A. Venable, Environmental Technician

1.2 Contractor Personnel

- *N. Savignac, Radiation Safety Officer

1.3 NRC Personnel

- *D. Ward, Project Manager
- *P. Michaud, Project Manager

*Denotes personnel that attended the exit meeting.

2 EXIT MEETING

An exit meeting was conducted on November 17, 1992. During this meeting, the inspectors reviewed the scope and findings of the report. The licensee did not identify as proprietary, any information provided to, or reviewed by the inspectors.

IFS Data Entry Form

Reviewed By: _____

Date: 1/1Site/Name: HOMESTAKEReport Transmittal Date: 11/27/92Lead Inspector: A14Responsible Org. Code: 4302Report End Date: 11/17/92

Region: _____

Report NBR
A 92-02Docket NBR
40-8903Materials Only
License NBR
SUA-1471*Docket Name

B _____

C _____

Update? (Y/N): _____ Opened IR/LEF/P21 LOG/IFS Number: _____

***Sequence NBR: 01 Item Type: _____ **Severity: _____ **Supplement: _____

Status	*UPD I/R	*Proj. Closeout	*Actual Closeout	Materials Only		
				10 CFR	License Cond.	Tie Down
A	_____	____/____/____	____/____/____	_____	_____	_____
B	_____	____/____/____	____/____/____	_____	_____	_____
C	_____	____/____/____	____/____/____	_____	_____	_____

Title: _____ (55 character width)

*Closeout Org: _____ *Closeout EMP: _____ *Contact EMP: _____ *Procedure: _____ *Functl Area: _____

*Cause CD: _____ **EA Number: _____ **NOV/NNC Issue Date: ____/____/____

Text: _____

Update? (Y/N): _____ Opened IR/LEF/P21 LOG/IFS Number: _____

***Sequence NBR: 02 Item Type: _____ **Severity: _____ **Supplement: _____

Status	*UPD I/R	*Proj. Closeout	*Actual Closeout	Materials Only		
				10 CFR	License Cond.	Tie Down
A	_____	____/____/____	____/____/____	_____	_____	_____
B	_____	____/____/____	____/____/____	_____	_____	_____
C	_____	____/____/____	____/____/____	_____	_____	_____

Title: _____ (55 character width)

*Closeout Org: _____ *Closeout EMP: _____ *Contact EMP: _____ *Procedure: _____ *Functl Area: _____

*Cause CD: _____ **EA Number: _____ **NOV/NNC Issue Date: ____/____/____

Text: _____

* Optional Fields.

** Severity, Supplement, and NOV/NNC only applicable for Violations; EA Number only applicable for Apparent Violations.

*** Sequence NBR is not applicable for docket related/P21, LER, or non-docket related items.

ITEMS CONTINUED? (Y/N): N