



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

September 3, 2003

Mr. T. W. Hardgrove, Manager
Environmental & Regulatory Services
Pathfinder Mines Corporation
935 Pendell Blvd.
P.O. Box 730
Mills, Wyoming 82644

SUBJECT: NRC INSPECTION REPORT 040-02259/03-001

Dear Mr. Hardgrove:

On August 5, 2003, the NRC completed an inspection at your former Lucky Mc Uranium Mill site in Fremont County, Wyoming. The enclosed report presents the results of that inspection.

This inspection included a review of site status, decommissioning, management organization and controls, radiation protection, radioactive waste, and environmental monitoring. The Lucky Mc site during this inspection interval appeared to have received an appropriate level of management oversight. The inspection findings were presented to you at the conclusion of the onsite inspection. The enclosed report presents the results of that inspection.

Based on the results of this inspection, no violations or deviations were identified; therefore, no response to this letter is required.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, please contact Mr. Louis C. Carson II at (817) 860-8221 or the undersigned at (817) 860-8197.

Sincerely,

/RA/

Jack E. Whitten, Acting Chief
Nuclear Materials Licensing Branch

Docket No.: 040-02259
License No.: SUA-672

Pathfinder Mines Corporation
Former Lucky Mc Uranium Mill

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Enclosure:
NRC Inspection Report
040-02259/03-001

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Pathfinder Mines Corporation
Former Lucky Mc Uranium Mill

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ADAMS: X Yes Initials: lcc
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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No. 040-02259

License No. SUA-672

Report No. 040-02259/03-001

Licensee: Pathfinder Mines Corporation

Facility: Former Lucky Mc Uranium Mill

Location: Fremont County, Wyoming

Date: August 5, 2003

Inspector: Louis C. Carson II, Health Physicist
Nuclear Materials Licensing Branch
Division of Nuclear Materials Safety

Accompanied By: Jacqueline D. Cook, Senior Health Physicist
Nuclear Materials Licensing Branch
Division of Nuclear Materials Safety

Approved By: Jack E. Whitten, Acting Chief
Nuclear Materials Licensing Branch
Division of Nuclear Materials Safety

Attachment: Supplemental Information

EXECUTIVE SUMMARY

Former Lucky Mc Uranium Mill Site
NRC Inspection Report 040-02259/03-001

This inspection included a review of site status and decommissioning activities, management organization and controls, site radiation protection, waste management, and environmental monitoring programs.

Site Decommissioning Status

- The licensee had conducted site activities and decommissioning programs in accordance with the reclamation plan, the license, and applicable NRC regulations (Section 1).
- Site fences were in good condition (Section 1).

Management Organization and Controls

- The licensee had maintained organization and management controls in accordance with requirements of the license. An appropriate number of staff members had maintained oversight of the reclamation activities (Section 2).
- The licensee had reviewed and maintained site procedures in accordance with the license (Section 2).

Radiation Protection

- The licensee had implemented a radiation protection program in accordance with requirements established in 10 CFR Part 20 and the license (Section 3).
- The licensee had maintained occupational exposures for employees well below regulatory limits (Section 3).
- Site security and perimeter postings were appropriate (Section 3).

Environmental Protection and Radioactive Waste Management

- A review of the licensee's 10 CFR 40.65 semiannual effluent reports revealed that the facility had not released any radioactive material into the environment that exceeded the limits established in 10 CFR Part 20 (Section 4).
- The licensee had conducted the environmental monitoring, radioactive waste management, and groundwater corrective action program in accordance with license requirements (Section 4).

Report Details

1 Decommissioning Inspection Procedure for Uranium Mill Sites (87654) and Site Status

1.1 Inspection Scope

The inspector review the site status and decommissioning activities to determine if the licensee had conducted activities in accordance with the reclamation plan, NRC regulations, and the license.

1.2 Observations and Findings

Site Status

The Pathfinder Lucky Mc Mill operated from 1958 until 1988. Decommissioning activities on the mill site began in July 1993. As part of the reclamation process, the licensee characterized 210 acres as the affected windblown contaminated soil area. The licensee completed windblown soil cleanup activities, confirmatory surveys, and soil analyses for radium-226 in May 1997. As part of the cleanup activities approximately 550,000 cubic yards of windblown material were removed and placed at the toe of Tailings Pond 2A. The site had six tailings ponds, three of which (1, 2, and 2A) were used for solid waste tailings disposal, and the other three (3, 3A and 4) were used for solution disposal from groundwater sweep, surface water runoff, and construction waste water.

The licensee had completed the following reclamation activities since the previous inspection conducted in July 2001: (1) placed radon barriers on Tailings Ponds 1, 2 and 3; (2) maintained tailings impoundments and disposal cells; (3) installed tailings impoundment drainage channels; and (4) the maintained the groundwater corrective action program.

Tailings Pond No. 4 remains as the only the impoundment left to be remediated before the Lucky Mc project is complete, and the license can be terminated. The license plans to begin remediation of Tailings Pond No. 4 during the summer of calendar year (CY) 2004.

A facility tour was performed by the inspectors to verify that the licensee had conducted site activities in accordance with applicable regulations and the license, and to ensure that controls were adequate to protect the health and safety of workers and the public. During the inspector's tour, fences and gates were observed to be in good condition. No problem areas or health or safety hazards were identified during the site tour. The inspector noted that access to the site was being controlled in accordance with License Condition (LC) 11.

1.3 Conclusions

Site decommissioning activities that were conducted by the licensee since the last inspection were in accordance with the reclamation plan, applicable license conditions, and regulatory requirements. Site fences were observed by the inspector to be in good condition. No health or safety hazards were identified.

2 Management Organization and Controls (88005)

2.1 Inspection Scope

The organization structure was reviewed by the inspector to ensure that the licensee had maintained an effective organization with defined responsibilities and functions. The licensee's standard operating procedures (SOPs) were reviewed, and the implementation of these procedures by the licensee was assessed by the inspector to evaluate the effectiveness of such controls on site activities.

2.2 Observations and Findings

The licensee's functional organization since the last inspection was compared with the organization referenced in the license. One major staffing change had occurred in the site organization. The organization structure remained unchanged since the previous inspection. However, the inspector noted that the licensee had assigned the Manager, Environmental Compliance and Regulatory Services also the duties and responsibilities of the radiation safety officer (RSO). At the time of this inspection, one Pathfinder employee remained onsite and four contract workers operated the construction equipment. The inspector determined that the licensee had maintained an appropriate staff of workers for conducting site remediation activities.

License Condition 33 requires, in part, that the licensee establish SOPs for environmental monitoring and instrument calibrations. The inspector reviewed the SOPs developed for the current site activities and found them to be of sufficient detail given the limited scope of work currently in progress at the site. The license requires an annual review of procedures by the licensee. The CY 2002 annual review was last completed by the licensee in January 2003.

2.3 Conclusions

The organization structure was consistent with the requirements of the license. An appropriate number of staff had maintained adequate oversight of reclamation activities. Site procedures were reviewed and maintained by the licensee in accordance with the license.

3 Radiation Protection (83822)

3.1 Inspection Scope

The purpose of this portion of the inspection effort was to determine if since the last inspection the licensee's radiation protection program had remained in compliance with requirements established in the license and 10 CFR Part 20.

3.2 Observations and Findings

The inspector determined that the licensee had secured licensed material within the site property as required by 10 CFR 20.1801. During the site tour the inspector noted that the licensee has posted site fences with radioactive material signs as required by 10 CFR 20.1902. The inspector performed independent radiological surveys using an NRC-issued microRoentgen meter (Serial Number 15540, calibration due date of March 2, 2004) that was calibrated to radium-226. Gamma exposure rate measurements obtained by the inspector around the site ranged from 25 to 100 microRoentgen/hour.

License Condition 15 requires, in part, that the licensee document 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. The inspector's review of these records demonstrated the licensee is in compliance with the license.

License Condition 37 requires, in part, that the licensee conduct an annual as low as is reasonably achievable (ALARA) audit. The licensee's most recent ALARA audit was conducted for CY 2002. The inspector determined the audit was adequate for the activities conducted during CY 2002. No significant safety issues or trends were identified.

Dosimeters were issued by the licensee to site employees and contractors during CY 2002. Dosimeter data maintained by the licensee demonstrated that worker radiation exposures had not exceeded 10 millirems/year. A National Voluntary Laboratory Accreditation Program accredited dosimetry vendor provided the dosimeters and performed dosimetry analysis for the licensee. The inspector concluded that personnel exposures were less than 10 percent of the 10 CFR Part 20 limits.

License Condition 18 requires, in part, that the licensee not release contaminated material above the limits specified in "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct or Source Materials." The inspector reviewed contamination survey records from the beginning of CY 2002 to July 2003 for equipment and vehicles that the licensee had released for unrestricted use. In general, the licensee had only surveyed vehicles and equipment that were in close contact with radioactive material. The inspectors review of these records indicated that the licensee had not released any equipment or vehicles from the site for unrestricted use with removable or fixed contamination in excess of the release limits specified in License Condition 18.

3.3 Conclusions

The licensee had implemented a radiation protection program that met the requirements of 10 CFR Part 20 and the license.

4 **Radioactive Waste Management (88035) and Environmental Protection (88045)**

4.1. Scope

The inspector reviewed the licensee's radioactive waste management and environmental programs to determine compliance with applicable requirements specified in the license.

4.2 Observations and Findings

License Condition 21 requires, in part, that the licensee conduct an annual survey of land use in areas within 5 miles of the former mill and submit a report to the NRC each year. The Land Use Survey Report describes any significant land use changes by private residences, non-residential structures, grazing areas, and potable water and wells. The inspector reviewed the licensee's 2002 Land Use Survey Report submitted on September 5, 2002, to the NRC. The inspector reviewed the report and determined that the licensee had not identified any significant changes in land use since the last reporting period. The licensee's 2002 Land Use Survey Report was determined to be in compliance with LC 21.

License Condition 22 requires, in part, that the licensee submit semi-annual reports of radiological effluent, environmental data, and determine the annual dose equivalent to the public pursuant to 10 CFR 40.65. The inspector reviewed the licensee's 10 CFR 40.65 semi-annual reports that were submitted to the NRC on September 5, 2002, for first half of CY 2002 and February 26, 2003, for the second half of CY 2002. The inspector determined that the licensee had submitted the semi-annual reports in a timely manner and these reports provided relevant data for the facility.

The semi-annual reports stated that the licensee had collected airborne radioactivity samples at five stations. The licensee on a quarterly basis had analyzed composite air sample filters for natural uranium, thorium-230, radium-226, lead-210, and radon-222. All measurable concentrations were significantly less than the effluent concentration limits listed in 10 CFR Part 20, Appendix B, Table II.

The licensee had measured direct gamma exposure rates at each of the five sample stations using environmental thermoluminescent dosimeters (TLDs). The TLDs were changed out on a quarterly basis. Ambient gamma radiation levels at five TLD locations around the site for CY 2002 ranged from 7 millirems/quarter to 47 millirems/quarter, with background subtracted. The inspector determined that potential radiation exposure to any member of the public from licensed material were well below the 100 millirems/year limit.

License Condition 60 requires, in part, that the licensee implement a groundwater compliance monitoring program. Groundwater monitoring data reviewed by the inspector from the beginning of CY 2002 and to the date of this inspection in 2003 indicated no significant trends in the groundwater quality. The groundwater, effluent, and environmental monitoring data for CY 2002 and the first half of CY 2003 indicated the dose to the nearest resident had not exceeded the 100 millirems/year dose limit for the public specified in 10 CFR 20.1301.

License Condition 34 requires, in part, that the licensee implement a dike inspection program at Tailings Pond No. 4. The inspector reviewed Tailings Pond No. 4 inspection records and conducted a tour of the tailings impoundment areas, evaporation pond, and dam areas. No dike embankment problems were noted in the records reviewed or during the inspectors tour.

4.3. Conclusion

The environmental monitoring, radioactive waste management, and groundwater corrective action programs conducted by the licensee since the last inspection were in accordance with the requirements of the license.

5 Exit Meeting Summary

The inspectors presented the inspection results to the representatives of the licensee at the conclusion of the inspection on August 5, 2003. Licensee representatives acknowledged the findings as presented. The participants did not identify any information provided to, or reviewed by, the inspectors as proprietary.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

Licensee

T. Hardgrove, Coordinator of Mine Environmental Affairs/Radiation Safety Officer

ITEMS OPENED, CLOSED AND DISCUSSED

Opened

None

Closed

None

Discussed

None

INSPECTION PROCEDURES USED

87654	Decommissioning of Uranium Mills
88005	Management Organization and Controls
83822	Radiation Protection
88035	Radioactive Waste Management
88045	Environmental Monitoring

LIST OF ACRONYMS USED

ALARA	as low as is reasonably achievable
CFR	Code of Federal Regulations
CY	calendar year
LC	license condition
RSO	radiation safety officer
SOP	standard operating procedures
TLD	thermoluminescent dosimeter