

September 12, 2001

Donna Wichers, General Manager  
Pathfinder Mines Corporation  
P.O. Box 831  
Riverton, Wyoming 82501

SUBJECT: NRC INSPECTION REPORT 40-2259/01-02

Dear Ms. Wichers:

On July 11, 2001, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your former Lucky Mc Uranium Mill site in Fremont County, Wyoming. The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations of activities in progress. The inspection findings were presented to members of your staff at the conclusion of the onsite inspection. The enclosed report presents the results of that inspection. The inspection determined that you have continued to make progress in remediating the site, and activities were being conducted in a safe and effective manner and in accordance with the NRC-approved reclamation plan, the license, and NRC regulations.

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 and its enclosure will be available **electronically** for public inspection in the NRC Public Document Room (PDR) or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

**/RA/**

Melvyn N. Leach, Chief  
Fuel Cycle Licensing Branch  
Division of Fuel Cycle Safety  
and Safeguards  
Office of Nuclear Material Safety  
and Safeguards

Docket No.: 40-2259  
License No.: SUA-672

Pathfinder Mines Corporation  
Former Lucky Mc Uranium Mill

-2-

Enclosure:  
NRC Inspection Report  
40-2259/01-02

cc w/enclosure:  
Mr. Robert Poyser  
COGEMA  
7401 Wisconsin Avenue  
Bethesda, Maryland 20814-3416

Mr. David Finley  
Solid and Hazardous Waste Division  
Department of Environmental Quality  
122 W. 25<sup>th</sup> Street  
Cheyenne, Wyoming 82002

Mr. Mark Moxley  
District II Supervisor  
Land Quality Division  
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Lander, Wyoming 82520

Art Kleinrath, Long-Term  
Surveillance Project Manager  
U.S. Department of Energy  
Grand Junction Project Office  
2597 B  $\frac{3}{4}$  Road  
Grand Junction, Colorado 81503

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Former Lucky Mc Uranium Mill

-3-

bcc w/enclosure (via ADAMS distrib.):  
EWMerschhoff  
MNLeach, NMSS/FCSS/FCLB  
RMWeller, NMSS/FCSS/FCLB  
GSJanosko, NMSS/FCSS/FCLB  
TLJohnson, NMSS/FCSS/FCLB  
DSRom, NMSS/FCSS/FCLB  
DDChamberlain  
LLHowell  
CLCain  
NMLB  
MIS System  
RIV Nuclear Materials File - 5th Floor

DOCUMENT NAME: Draft: G:\FCLUraniumRecoverySection\Pathfinder\10225902.wpd  
Final:Accession No:..ML012620215

NMSS/FCSS/FCLB/UR		NMSS/FCSS/FCLB/UR		NMSS/FCSS/FCLB	
JHLusher		GSJanosko		MNLeach	
09/06/01		09/10/01		09/12/01	

**OFFICIAL RECORD COPY**

**ENCLOSURE**

U.S. NUCLEAR REGULATORY COMMISSION

Docket No. 40-2259

License No. SUA-672

Report No. 40-2259/01-02

Licensee: Pathfinder Mines Corporation

Facility: Former Lucky Mc Uranium Mill

Location: Fremont County, Wyoming

Date: July 11, 2001

Inspector: John H. Lusher, Health Physicist  
Division of Fuel Cycle Safety  
and Safeguards  
Fuel Cycle Licensing Branch  
Uranium Recovery Section

Accompanied by: Terry Johnson, Surface Hydrologist  
Division of Fuel Cycle Safety  
and Safeguards  
Fuel Cycle Licensing Branch  
Uranium Recovery Section

Dan Rom, Geotechnical Engineer  
Division of Fuel Cycle Safety  
and Safeguards  
Fuel Cycle Licensing Branch  
Uranium Recovery Section

Carl Jacobson, Project Manager  
DOE, Grand Junction Office

Approved By: Melvyn N. Leach, Chief  
Fuel Cycle Licensing Branch  
Division of Fuel Cycle Safety  
and Safeguards

Attachment: Supplemental Information  
Photographs

**EXECUTIVE SUMMARY**

Site of Former Lucky Mc Uranium Mill  
NRC Inspection Report 40-2259/01-02

This inspection included a review of the on-site construction status.

**Site Decommissioning Status**

- Site activities and decommissioning programs were being conducted in accordance with the reclamation plan, the license, and applicable NRC regulations (Section 1).
- Site fences were in good condition. Site security and perimeter postings were appropriate (Section 1).

## **Report Details**

### **1 Site Status and Decommissioning for Uranium Mill Sites (87654)**

#### **1.1 Inspection Scope**

The site status and decommissioning activities were reviewed to determine if licensee activities were being conducted in accordance with the reclamation plan, NRC regulations, and the license. A facility tour was performed to verify that site activities were being conducted 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. Additionally, the inspector performed a limited independent radiological survey using an NRC-issued microRoentgen meter (Serial Number 15544, calibration due date of November 29, 2001) that was calibrated to radium-226.

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

##### **a. Site Status**

Pathfinder's Lucky Mc Mill operated from February 1958 until 1988. Decommissioning of the mill site began in July 1993. As part of the reclamation process, 210 acres were characterized as the affected windblown contaminated soil area. Windblown soil cleanup activities, confirmatory surveys, and soil analyses for radium-226 were completed in May 1997. Approximately 550,000 cubic yards of windblown material had been removed and placed at the toe of Tailings Pond 2A. The site has 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) are used for solution disposal. A temporary pond was in use as a pump back treatment system for receiving solutions from excursion well cleanup and groundwater sweep, surface water runoff, and solution water for construction and dust control within the cells. Tailings Ponds 1 and 2 had been regraded, and the interim radon cover was in place. Tailings Pond 2A reached 90 percent consolidation in May 2001 such that regrading, interim covering installation, and radon barrier work were proceeding. The licensee had placed an interim cover on Solution Pond No. 3, and Pond Nos. 1, 2, and 3A were at various stages of having the final radon barrier installed.

Reclamation activities in progress during this inspection included: (1) placing a radon barrier on Tailings Ponds 1, 2 and 4: (2) maintenance of tailings impoundments and disposal cells, (3) digging tailings impoundment drainage channels, and (4) the continuation of a groundwater corrective action program.

b. Site Tour

During the inspector's tour, fences and gates were observed to be in good condition and were properly posted. The inspector determined that licensed material was secure within the site property as required by 10 CFR 20.1801 and fences were posted with radioactive material signs as required by 10 CFR 20.1902.

Gamma exposure rate measurements obtained by the inspector around the site ranged from 25 to 100 microRoentgen/hour. No problem areas were identified, and no health or safety hazard was identified during the site tour. Access to the site was being controlled in accordance with License Condition (LC) 11.

1.3 Conclusions

Site decommissioning activities were reviewed and found to have been conducted in accordance with the reclamation plan, applicable license conditions, and regulatory requirements. Site fences and perimeter postings were in good condition. No health or safety hazards were identified.

**2 On-site Construction (88001)**

2.1 Inspection Scope

The NRC conducted an erosion control and geotechnical review to determine whether problems with the tailings impoundment construction or erosion controls existed such that damage or deterioration needed repair. The geotechnical engineering evaluation included both physical observations of the reclaimed impoundment and dam and a review of testing and inspection records.

The inspector observed on-site conditions related to the erosion protection requirements identified in applicable license conditions. The inspectors toured the site with licensee representatives and discussed the production, placement, and testing of the erosion protection materials. Additionally, the inspector also evaluated a riprap test section that had been constructed by the licensee as a visual guide for future rock placement in the diversion channels, and discussed future design changes that the licensee plans to submit for staff review.

2.2 Observations and Findings

a. Erosion Protection

The review indicated that all required tests were performed, as required. The review also indicated that all specifications were met. The evaluation indicated that the rock had been placed in a manner such that the minimum rock layer thickness requirements were met.

Based on visual observations, the inspector indicated that the rock placement should be somewhat more uniform, with less segregation of fine materials.

The licensee indicated that changes will be made to the design in several areas. No commitments were made regarding schedules during these discussions.

b, **Geotechnical**

There was no apparent cover cracking or distress observed. The earthen cover was free of undulation, consistent with the quality of the work. The sideslopes were stable on July 11, 2001. Substantial reclamation work remains to be completed.

The records appeared to be satisfactory, and indicated that those areas which initially failed to meet required compaction criteria were re-worked until satisfactory density could be attained. Density test frequencies met the requirements of the reclamation plan.

The former tailings dam is substantially dewatered at the surface; however, internal dikes still control evaporation pond water and the main structure has not been breached. The dam is to remain on the Dam Safety Inspection list at this time.

2.3 **Conclusions**

On the basis of the observations and records review, the inspector determined that the reclamation is being accomplished in accordance with the requirements of the approved reclamation plan.

**3 Exit Meeting Summary**

The inspector presented the inspection results to licensee representatives at the conclusion of the inspection on July 11, 2001. The licensee representative acknowledged the findings as presented. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspector.



**ATTACHMENT**

**PARTIAL LIST OF PERSONS CONTACTED**

Licensee

T. Hardgrove, Coordinator of Mine Environmental Affairs

**ITEMS OPENED, CLOSED AND DISCUSSED**

Opened

None

Closed

None

Discussed

None

**INSPECTION PROCEDURES USED**

87654	Decommissioning of Uranium Mills
88001	On-site Construction

**LIST OF ACRONYMS USED**

DOE	Department of Energy
CFR	Code of Federal Regulations
LC	license condition
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
PDR	Public Document Room
PLM	Pathfinder Lucky Mc



Pathfinder  
Upper  
Channel  
North West

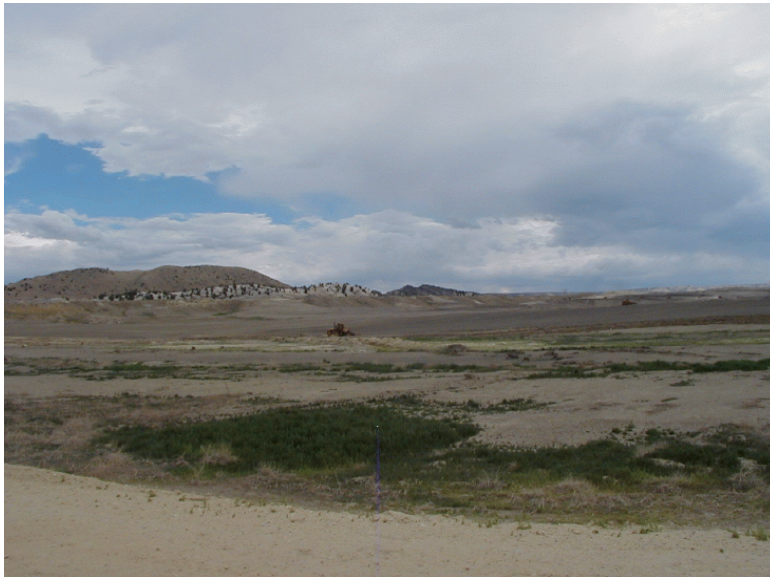


Lucky Mc  
Drainage  
Looking

Placement of Clay liner in Drainage Channel on Ponds 2 & 3 Looking North



Placement of  
Material in Pond



Contaminated  
#3 Looking West

On Pond #4 Dam Looking North East at Pond #4 Bottom