NRC FORM 374

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and the applicable parts of Title 10, Code of Federal Regulations, Chapter I, Parts 19, 20, 30, 31, 32, 33, 34, 35, 36, 39, 40, 51, 70, and 71, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. Pathfinder Mines Corporation	3. License Number SUA-442, Amendment No. 58
2. 935 Pendell Boulevard PO Box 730 Mills, Wyoming 82644	4. Expiration Date: Until NRC determines site reclamation is adequate [Applicable Amendment: 32]
	5. Docket No. 40-6622 Reference No.

6. Byproduct Source, and/or Special Nuclear Material	7. Chemical and/or Physical Form	8. Maximum amount that Licensee May Possess at Any One Time Under This License
Uranium	Any	Unlimited

9. Authorized place of use: The licensee's uranium mill facility located in Carbon County, Wyoming.

   [Applicable Amendment: 32]

10. The licensee is hereby authorized to possess byproduct material in the form of uranium waste tailings generated by the licensee's milling operations authorized by this license.

11. For use in accordance with statements, representations, and conditions contained in Sections 4 and 5 of the licensee's application dated November 30, 1994, as modified by the submittal dated December 26, 2002, except where superseded by license conditions below.

    In addition, the site restricted area boundary shall be as shown on the map (Figure 2-2, dated April 2, 1996) accompanying the licensee's April 9, 1996, submittal. Furthermore, the licensee is authorized to discharge from the surficial aquifer collection system to the Area 2/8 reclamation reservoir as proposed in the licensee's April 9, 1996, submittal, and as shown in Exhibit 1.

    Whenever the word "will" is used in the above referenced sections, it shall denote a requirement.

    [Applicable Amendments: 4, 29, 37, 39, 41, 52]

12. DELETED by Amendment No. 32.

13. DELETED by Amendment No. 32.

14. DELETED by Amendment No. 39.

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15. The results of sampling, analyses, surveys and monitoring; the results of calibration of equipment; reports on audits and inspections; all meetings and training courses required by this license; and any subsequent reviews, investigations, and corrective actions, shall be documented. Unless otherwise specified in NRC regulations, all such documentation shall be maintained for a period of at least 5 years.

16. DELETED by Amendment No. 32.

17. DELETED by Amendment No. 39.

18. Release of equipment or packages from the restricted area shall be in accordance with attachment entitled, "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct or Source Materials" dated September 1984.

19. Mill tailings other than samples for research shall not be transferred from the site without specific prior approval of the NRC in the form of a license amendment. The licensee shall maintain a permanent record of all transfers made under the provisions of this condition.

20. In order to ensure that no disturbance of cultural resources occurs in the future, the licensee shall have an archeological and historical artifact survey of areas of its property, not previously surveyed, performed prior to their disturbance, including borrow areas to be used for reclamation cover. These surveys must be submitted to the NRC and no such disturbance shall occur until the licensee has received authorization from the NRC to proceed.

    In addition, all work in the immediate vicinity of any buried cultural deposits unearthed during the disturbance of land shall cease until approval to proceed has been granted by the NRC.

21. The licensee shall conduct an annual survey of land use (private residences, grazing areas, private and public potable water and agricultural wells, and non-residential structures and uses) in the area within five miles (8 km) of any portion of the restricted area boundary and submit a report of this survey to the NRC. This report shall indicate any differences in land use from that described in the last report.

    [Applicable Amendment: 39]

22. The results of all effluent and environmental monitoring required by this license shall be reported in accordance with 10 CFR 40, Section 40.65 with copies of the report sent to the NRC. Monitoring data shall be reported in the format shown in attachment entitled, "Sample Format for Reporting Monitoring Data."

    [Applicable Amendment: 39]

23. DELETED by Amendment No. 32.

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24. The licensee shall immediately notify the NRC Operations Center, by telephone, of any failure to the tailings dam which results in a release of radioactive material and/or of any unusual conditions which if not corrected could lead to such a failure. This requirement is in addition to the requirements of 10 CFR 20.

    [Applicable Amendment: 39]

25. Before engaging in any activity not previously assessed by the NRC, the licensee shall prepare and record an environmental evaluation of such activity. When the evaluation indicates that such activity may result in a significant adverse environmental impact that was not assessed or that is greater than that assessed, the licensee shall provide a written evaluation of such activities and obtain prior approval of the NRC in the form of a license amendment.

26. DELETED by Amendment No. 51.

27. The licensee shall maintain an NRC-approved financial surety arrangement, consistent with 10 CFR 40, Appendix A, Criteria 9 and 10, adequate to cover the estimated costs, if accomplished by a third party, for decommissioning and decontamination of the mill and mill site, reclamation of any tailings or waste disposal areas, ground water restoration as warranted and the long-term surveillance fee. Within three months of NRC approval of a revised reclamation/decommissioning plan, the licensee shall submit, for NRC review and approval, a proposed revision to the financial surety arrangement if estimated costs in the newly approved plan exceed the amount covered in the existing financial surety. The revised surety shall then be in effect within 3 months of written NRC approval.

    Annual updates to the surety amount, required by 10 CFR 40, Appendix A, Criteria 9 and 10, shall be submitted to the NRC at least 3 months prior to the anniversary date which is designated as December 15 of each year. If the NRC has not approved a proposed revision to the surety coverage 30 days prior to the expiration date of the existing surety arrangement, the licensee shall extend the existing surety arrangement for 1 year. Along with each proposed revision or annual update, the licensee shall submit supporting documentation showing a breakdown of the costs and the basis for the cost estimates with adjustments for inflation, maintenance of a minimum 15 percent contingency fee, changes in engineering plans, activities performed and any other conditions affecting estimated costs for site closure. The basis for the cost estimate is the NRC-approved reclamation/decommissioning plan or NRC-approved revisions to the plan.

    Pathfinder Shirley Basin's currently approved surety, Irrevocable Letter of Credit, issued by Credit Industriel et Commercial, New York Branch, in favor of the NRC, shall be continuously maintained in an amount not less than $4,035,628 for the purpose of complying with 10 CFR Part 40, Appendix A, Criteria 9 and 10, until a replacement is authorized by the NRC.

    [Applicable Amendments: 12, 14, 17, 21, 26, 28, 33, 35, 38, 42, 44, 46, 52, 54, 56, 58]

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28. Prior to termination of this license, the licensee shall provide for transfer of title to byproduct material and land, including any interests therein (other than land owned by the United States or the State of Wyoming), which is used for the disposal of such byproduct material or is essential to ensure the long term stability of such disposal site to the United States or the State of Wyoming, at the State's option.

29. DELETED by Amendment No. 32.

30. DELETED by Amendment No. 39.

31. DELETED by Amendment No. 52.

32. DELETED by Amendment No. 52.

33. Standard written operating procedures (SOPs) shall be established for environmental monitoring, bioassay analyses, and instrument calibrations. An up-to-date copy of each written procedure shall be maintained on file by the Radiation Safety Officer (RSO).

    All written procedures shall be reviewed and approved in writing by the RSO before implementation and whenever a change in procedure is proposed to ensure that proper radiation protection principles are being applied. In addition, the RSO shall perform a documented review of all existing operating procedures at least annually.

    [Applicable Amendment: 39]

34. Radiation monitoring equipment shall be calibrated after repairs and at least annually or at the manufacturer's suggested interval, whichever is sooner, and checked for proper operation using a radiation check source prior to use.

    [Applicable Amendments: 18, 39, 52]

35. In addition to the training program as outlined in Section 5.3 of the license application, the licensee shall conduct and document the attendance at bi-monthly safety meetings for all restricted area facility employees.

    [Applicable Amendment: 39]

36. The annual ALARA report and recommendations by the Audit Committee to the Mine Manager shall include a determination of the following:

    A. If there are any upward trends developing in personnel exposures for identifiable categories of workers or types of operations or effluent releases;

    B. If exposures and effluents might be lowered under the concept of as low as reasonably achievable;

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C. If equipment for effluent and exposure control is being properly used, maintained, and inspected; In addition, the RSO shall be one of the members of the annual Audit Committee. A copy of the ALARA report shall be submitted to the NRC, no later than 1 month after it was submitted to the Mine Manager.

[Applicable Amendment: 39]

37. The licensee is authorized to construct 2 temporary solution storage/evaporation ponds (Pond 1 and Pond 2) within the confines of the No. 5 Tailings Pond basin as specified in the licensee's amendment application by letters dated July 13, and July 19, 2000. The licensee shall maintain a minimum of 4.0 feet of freeboard in Pond 1 and a minimum of 2.0 feet of freeboard in Pond 2.

[Applicable Amendment: 50, 52]

38. DELETED by Amendment No. 52.

39. DELETED by Amendment No. 39.

40. DELETED by Amendment No. 22.

41. DELETED by Amendment No. 52.

42. In addition to the bioassay program described in Section 5.5.4 of the license application, the licensee shall comply with the following:

A. Anytime an action level of 15 ug/l uranium for urinalysis or 9 nCi of natural uranium for in vivo measurement is reached or exceeded, the licensee shall document the corrective actions which have been performed in accordance with Revision 1 of Regulatory Guide 8.22, dated August 1988. This documentation shall be submitted to the NRC, as part of the semiannual report required by 10 CFR 40.65.

B. Anytime an action level of 35 ug/l for two consecutive specimens or 130 ug/l uranium for one specimen for urinalysis or 16 nCi uranium for an in vivo measurement is reached or exceeded, the licensee shall document the corrective actions which have been performed in accordance with Revision 1 of Regulatory Guide 8.22. This documentation shall be submitted to the NRC, within 30 days of exceeding the action level.

C. DELETED by Amendment No. 39.

D. DELETED by Amendment No. 39.

[Applicable Amendments: 11, 24, 39]

43. DELETED by Amendment No. 52.

44. DELETED by Amendment No. 52.

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45. DELETED by Amendment No. 39.

46. In accordance with the licensee's submittals dated November 2, 1984, and April 13 and September 23, 1992, the licensee is hereby authorized to dispose of byproduct material generated onsite or at other licensed facilities, subject to the following:

    A. Disposal of up to 10,000 cubic yards of byproduct material per year from generators other than in situ leach facilities is authorized provided that written approval is obtained from the NRC for each specific generator prior to disposal. Information submitted in support of a specific disposal request shall include the physical, radiological, and chemical characteristics of the byproduct material and shall address potential impacts to the tailings reclamation plan.

    Disposal of byproduct material from in situ leach facilities does not require specific authorization from the NRC.

    B. All contaminated equipment shall be dismantled, crushed, or perforated to minimize void spaces. Barrels containing materials other than soil or sludges shall be emptied into the disposal area and the barrels crushed. Barrels containing soil or sludges shall be verified to be full prior to disposal. Barrels not completely full shall be filled with tailings or soil.

    C. No material other than soils shall be buried closer than 100 feet from the centerline of Tailings Dam No. 5. The material shall be covered with clean fill material within 30 days of disposal.

    D. Written procedures shall be established to describe the inspection and disposal of byproduct material. The procedures shall assign specific responsibilities for all activities, including program oversight.

    E. All disposal activities shall be documented. The documentation shall include descriptions of the byproduct material and the disposal locations, as well as all actions required by this condition.

    [Applicable Amendments: 1, 31, 34]

47. Alternate Concentration Limits for chloride, radium-226 and 228, selenium, sulfate, thorium-230, total dissolved solids (TDS), and uranium were approved based on licensee submittals of April 3, 2000, June 1, 2000, August 29, 2001, October 15, 2001, August 21, 2002, November 21, 2002, June 18, 2003, September 26, 2003, November 14, 2003, and January 11, 2005. The licensee shall implement a ground-water compliance monitoring program containing the following:

A. Sample point of compliance (POC) monitoring wells NP01 and RPI-19B; wells P-6, MC-7, RPI-8A, MC-10, RPI-10, MC-11, MC-14 (background), RPI-14, RPI-16A, RPI-18A, RPI-20A, RPI-21B; and five locations in Spring Creek: SW-1A (background), SC-2 (POE), WEIR-2, SC-10 (POE), and POE-DS (downstream) at the following frequencies and parameters:

    i. For the first 1.5 years after deactivating the corrective action system, all wells and Spring Creek sample locations listed in License Condition 47.A shall be sampled bi-monthly for the following parameters: arsenic,

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barium, beryllium, cadmium, chromium, chloride, gross alpha, lead, molybdenum, nickel, nitrate, radium-226 and 228, selenium, sulfate, thorium-230, TDS, and uranium, and field parameters (pH, conductivity, and water level (ground water only)).

ii. After the first 1.5 years of ground-water and surface water sampling, all wells and Spring Creek sample locations listed in License Condition 47.A shall be sampled quarterly for all the parameters listed in paragraph A.i. above.

B. Comply with the following ground-water protection standards at point of compliance wells NP01 and RP-19B, with background being recognized in well MC14:

At well RPI-19B: arsenic = 0.05 mg/l, barium = 1.0 mg/l, beryllium = 0.02 mg/l, cadmium = 0.01 mg/l, chromium = 0.05 mg/l, chloride = 3,712 mg/l, gross alpha = 15 pCi/l, lead = 0.05 mg/l, molybdenum = 0.10 mg/l, nickel = 0.05 mg/l, radium-226 and 228 = 13.76 pCi/l, selenium = 0.163 mg/l, sulfate = 5,056 mg/l, thorium-230 = 5.76 pCi/l, TDS = 12,641 mg/l, uranium = 4.45 mg/l.

At well NP01: arsenic = 0.05 mg/l, barium = 1.0 mg/l, beryllium = 0.02 mg/l, cadmium = 0.01 mg/l, chromium = 0.05 mg/l, chloride = 3,275 mg/l, gross alpha = 15 pCi/l, lead = 0.05 mg/l, molybdenum = 0.10 mg/l, nickel = 0.05 mg/l, radium-226 and 228 = 12.70 pCi/l, selenium = 0.158 mg/l, sulfate = 4,612 mg/l, thorium-230 = 5.53 pCi/l, TDS = 11,529 mg/l, uranium = 4.40 mg/l.

C. Submit, by March 1 and September 1 of each year, a ground-water monitoring report. The report shall contain results of ground-water and surface water sampling, a ground-water contour map for each sampling period, iso-concentration maps for chloride, radium-226 and 228, selenium, sulfate, thorium-230, TDS, and uranium; graphs illustrating concentration versus time for chloride, radium-226 and 228, selenium, sulfate, thorium-230, TDS, and uranium for wells MC-14, RPI-14, NP01, RPI-19B, RPI-18A, and surface water sampling locations SW-1A, SC-2, and POE-DS.

D. If a ground-water protection standard (as presented in License Condition 47.B) at the point of compliance is exceeded, the licensee shall notify the NRC within 30 days and shall increase the sampling frequency to monthly, until it is determined by the NRC staff, that a true exceedance has occurred. If NRC staff determine that a true exceedance has occurred, the licensee shall either restart the corrective action system, per License Condition 47.E, or otherwise comply with the requirements of 10 CFR 40, Appendix A, Criterion 5D, if the corrective action system has been removed. If NRC staff determine that a true exceedance has not occurred, the licensee shall revert back to the monitoring frequency specified in License Condition 47.A.

E. The licensee shall not remove any equipment that is part of the current corrective action system for at least 1 year after deactivating the system. After 1 year, the licensee may request a license amendment to remove the corrective action system equipment. Along with the license amendment request, the licensee shall provide ground-water monitoring data supporting the request to remove corrective action equipment. If NRC staff determine that an exceedance has occurred per License Condition 47.D, the corrective action system will be reactivated until three consecutive monthly samples indicate that the exceedances have been remediated.

[Applicable Amendments: 3, 7, 13, 15, 19, 22, 39, 57]

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48. DELETED by Amendment No. 32.

49. Notification to NRC under 10 CFR 20.2202, 10 CFR 40.60, and specific license conditions should be made as follows:

Required written notice to NRC under this license should be given to: Chief, Fuel Cycle Facilities Branch, Division of Fuel Cycle Safety and Safeguards, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555.

[Applicable Amendment: 39]

50. The licensee shall complete site reclamation in accordance with the approved reclamation plan, in accordance with the following schedule.

A. To ensure timely compliance with target completion dates established in the Memorandum of Understanding with the Environmental Protection Agency (56 FR 55432, October 25, 1991), the licensee shall complete reclamation to control radon emissions as expeditiously as practicable, considering technological feasibility, in accordance with the following schedule:

(1) Windblown tailings retrieval and placement on the tailings pile - December 31, 1997.

(2) Placement of the interim cover to decrease the potential for tailings dispersal and erosion December 31, 2001.

(3) Placement of final radon barrier designed and constructed to limit radon emissions to an average flux of no more than 20 $pCi/m^2/s$ above background - December 31, 2006.

B. Reclamation, to ensure required longevity of the covered tailings and ground-water protection, shall be completed as expeditiously as is reasonably achievable, in accordance with the following target dates for completion:

(1) Placement of erosion protection as part of reclamation to comply with Criterion 6 of Appendix A of 10 CFR Part 40 - December 31, 2006.

C. Any license amendment request to revise the completion dates specified in Section A must demonstrate that compliance was not technologically feasible (including inclement weather, litigation which compels delay to reclamation, or other factors beyond the control of the licensee).

D. Any license amendment request to change the target dates in Section B above, must address added risk to the public health and safety and the environment, with due consideration to the economic costs involved and other factors justifying the request such as delays caused by inclement weather, regulatory delays, litigation, and other factors beyond the control of the licensee.

[Applicable Amendments: 40, 43, 48, 52, 57]

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51. The licensee shall reclaim the tailings disposal area in accordance with the submittal by letter dated May 22, 1996, titled Shirley Basin Mine Tailings Reclamation Plan, Source Material License No. SUA-442, Volumes I and II, as modified by letters dated November 20, 1996; May 29, September 10, and November 24, 1997; March 6, and July 21, 1998; April 9, and September 8, 1999; October 16, 2001; August 9, 2002; with the exception of changes specifically identified in letters dated October 16, 2001, August 9, 2002, and May 7, 2004; the licensee shall construct the erosion-protection features as approved on November 16, 1999; and subject to the following:

A. DELETED by Amendment No. 55.

B. DELETED by Amendment No. 55.

C. A completion report, including as-built drawings, verifying that reclamation of the site has been performed according to the approved plan, shall be provided within 6 months of the completion of construction. The report shall also include summaries of the quality assurance and control testing results to demonstrate that the approved specifications were met. Also, the report shall demonstrate that the average Ra-226 value in the tailings cover does not exceed the approved site background value.

D. Provide confirmation of the radon flux model with the radon flux measurement results. The model should be based on the average radon barrier placement values for density. The moisture values in the cover and upper tailings should be reduced by 20 percent, or another justified value, to reflect long-term drying. Also, possible freeze-thaw damage shall be reflected in the porosity and density values for all affected layers.

[Applicable Amendments: 45, 47, 49, 53, 55]

52. DELETED by Amendment No. 52.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Dated: 1/04/06

\RA\

Gary S. Janosko, Chief
Fuel Cycle Facilities Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

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