

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, 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		3. License Number	SUA-551, Amendment No. 54
1. Petrotomics Company P.O. Box 8509 Shirley Basin, WY 82615	2. [Applicable Amendments: 29]	4. Expiration Date	Until NRC determines that site reclamation has been completed [Applicable Amendments: 29]
		5. Docket or Reference No.	40-6659
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 milling facilities located in Carbon County, Wyoming.			
10. The licensee is hereby authorized to possess byproduct material in the form of uranium waste tailings generated by the licensee's milling operations. [Applicable Amendments: 10]			
11. For use in accordance with statements, representations, and conditions contained in the License Condition 11 Summary submitted by letter dated October 7, 1996, except where superseded by license conditions below.			
Whenever the word "will" is used in the above referenced sections it shall denote a requirement.			
[Applicable Amendments: 8, 9, 10, 21, 35, 42, 54]			
12. DELETED by Amendment No. 10.			
13. DELETED by Amendment No. 10.			
14. 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.			
15. DELETED by Amendment No. 10.			

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16. Release of equipment or packages from the restricted area shall be in accordance with the attachment to SUA-551 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.

[Applicable Amendments: 8]

17. Mill tailings other than samples for research or analysis 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.
18. 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.

19. The licensee shall conduct an annual survey of land use (private residences, grazing areas, private and public potable water and agricultural wells, and nonresidential 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.
20. 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 the attachment to SUA-551 entitled, "Sample Format for Reporting Monitoring Data."
21. The licensee shall immediately notify the NRC by telephone and telegraph, of any failure to the tailings dam or tailings discharge and solution return system 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.
22. 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.

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23. 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, for reclamation of any tailings or waste disposal areas, ground water restoration as warranted and the long-term surveillance fee.

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 June 1 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. The attachment entitled, "Recommended Outline for Site Specific Reclamation and Stabilization Cost Estimates," outlines the minimum considerations used by the NRC in the review of site closure cost estimates. Reclamation/decommissioning plans and annual updates should follow this outline.

Petrochemicals' currently approved surety instruments, Irrevocable Standby Letters of Credit Number NMS232017 and NMS232321, issued by Wells Fargo Bank, N. A. of California, shall be continuously maintained in an amount no less than \$5,651,723 for the purpose of complying with 10 CFR 40, Appendix A, Criteria 9 and 10, until a replacement is authorized by the NRC.

[Applicable Amendments: 3, 8, 10, 13, 24, 27, 32, 34, 39, 43, 45, 47, 48, 50, 51]

24. 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.
25. DELETED by Amendment No. 12.
26. DELETED by Amendment No. 10.
27. The tailings impoundment area shall not be expanded by raising the height of the present dam or constructing a new dam without specific prior approval of the NRC in the form of a license amendment. In addition, waste other than tailings shall not be disposed of in the tailings impoundment without written approval by the NRC in the form of a license amendment.

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28. Deleted by Amendment No. 42.
29. Standard written operating procedures (SOP's) shall be established for environmental monitoring and instrument calibrations. An up-to-date copy of each written procedure shall be maintained on file by the RSO.

All procedures shall be reviewed and approved in writing by the RSO before implementation and whenever a change in procedure is proposed. In addition, the RSO shall perform a documented review of all existing operating procedures at least annually.

[Applicable Amendments: 8, 10]

30. DELETED by Amendment No. 29.
31. DELETED by Amendment No. 21.
32. DELETED by Amendment No. 11.
33. DELETED by Amendment No. 10.
34. The licensee shall implement the general emergency action plan as described in Section 6, excluding Section 6.4, of their June 4, 1985 submittal.

[Applicable Amendments: 5, 8, 9]

35. DELETED by Amendment No. 18.
36. DELETED by Amendment No. 10.
37. DELETED by Amendment No. 10.
38. DELETED by Amendment No. 10.
39. DELETED by Amendment No. 10.
40. DELETED by Amendment No. 10.
41. The license shall implement the revised environmental and effluent monitoring program dated February 10, 1994.

- A. DELETED by Amendment No. 21.
- B. DELETED by Amendment No. 26.
- C. DELETED by Amendment No. 26.
- D. DELETED by Amendment No. 26.

[Applicable Amendments: 9, 11, 14, 15, 16, 17, 21, 23, 25, 26, 42]

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42. DELETED by Amendment No. 10.
43. DELETED by Amendment No. 10.
44. DELETED by Amendment No. 10.
45. DELETED by Amendment No. 10.
46. DELETED by Amendment No. 10.
47. The licensee shall implement a compliance monitoring program containing the following:
- A. Sample wells 7-DC, 1-SC, 3-SC, 4-SC, 5-SC, 39-SC, 40-SC, 41-SC, 42-SC, 43-SC, 44-SC, 45-SC, 49-SC, 50-SC, 51-SC, 52-SC, 53-SC, 54-SC, 55-SC, 56-SC, 57-SC, 58-SC, 66-SC, and the mine shop well on a quarterly frequency for chloride, nitrate, sulfate, pH, TDS, and water level, and on a semiannual frequency for cadmium, chromium, lead, nickel, radium-226, radium-228, combined radium-226 and 228, selenium, thorium-230, and uranium.
- B. Comply with the following ground-water protection standards at point of compliance well Nos. 5-SC and 42-SC, with background being recognized as the average of well Nos. 39-SC and 41-SC:
- cadmium = 0.014 mg/l, chromium = 0.05 mg/l, lead = 0.05 mg/l, nickel = 0.22 mg/l, radium-226 = 1.8 pCi/l, radium-228 = 1.7 pCi/l, combined radium-226 and 228 = 5.0 pCi/l, selenium = 0.01 mg/l, thorium = 3.94 pCi/l and uranium = 0.16 mg/l.
- C. Implement a corrective action program as described in the submittal dated July 6, 1988, and modified by submittals dated July 26, October 30, 1989, and April 23, 1996, including, in part, construction of the proposed evaporation pond system described in submittals dated April 6, 1987, and July 26, 1989. The objective of the corrective action program is to return the concentrations of cadmium, chromium, lead, nickel, radium-226, radium-228, combined radium-226 and -228, thorium-230, and uranium to the concentration limits specified in Subsection (B) of this license condition.
- Pumping of wells included in the corrective action program may be interrupted and restarted in conformance with conditions described in the submittal dated January 19, 1994.
- D. Submit, by June 15 of each year, a review of the corrective action program and its effect on the aquifer. In addition, submit in the form of a license modification, the results of any corrective action program modifications along with or prior to the next June 15 submittal.
- E. The licensee shall diligently finalize, with NRC staff's concurrence, establishment of background monitor wells, a list of ground-water constituents to be monitored, and concentration limits for identified

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hazardous constituents residing in the Main Wind River sand. Within ninety (90) calendar days of this concurrence, the licensee shall submit a proposal for a modified corrective action program for the Main Wind River sand.

[Applicable Amendments: 19, 22, 25, 26, 28, 30, 33, 33a, 36, 37, 38, 40, 41, 42, 44, 46, 49]

48. DELETED by Amendment No. 20.

49. The licensee shall reclaim the tailings impoundment as stated in their submittals dated June 27, 1986; January 15, March 18 and August 31, 1987; June 30, 1988; and February 8, April 28, August 15 and August 16, 1989; subject to the following:

- A. Should the clay stockpile not contain an adequate amount of clay material for the pile top cover, the licensee shall locate an alternate clay source and provide documentation of its acceptability for NRC review and approval in the form of a license amendment prior to placement. This documentation shall include appropriate laboratory testing and radon attenuation modeling to indicate that the design using the alternate clay material meets the requirements of Criterion 6, Appendix A to 10 CFR Part 40.
- B. Should the overburden material obtained from the Southwest Channel excavation not be adequate to provide the required overburden material for the pile top cover, the licensee shall locate an alternate overburden source and provide documentation of its acceptability for NRC review and approval in the form of a license amendment prior to placement. This documentation shall include appropriate laboratory testing and radon attenuation modeling to indicate that the design using the alternate overburden material meets the requirements of Criterion 6, Appendix A to 10 CFR Part 40.

The licensee is authorized to extend the restricted area boundary to encompass an additional 16.3 acres on the southwest side as shown on Exhibit 1 of its submittal dated April 26, 1996, to expand its borrow area by approximately 8.6 acres.

- C. Should complete placement of the radon barrier in one construction season not be possible, the licensee shall follow the procedure described in its submittal dated September 12, 1996, for winter shutdown and spring startup.
- D. Testing and inspection of the rock and the correlation of the nuclear gauge with sand cone results during construction shall meet or exceed the criteria set forth in the "Staff Technical Position on Testing and Inspection Plans During Construction of DOE's Remedial Action at Inactive Uranium Mill Tailings Sites," January 1989. The rubber balloon apparatus may be used to determine field density if correlated with the sand cone in the same manner as the nuclear gauge is correlated. The rubber balloon apparatus should be used in accordance with ASTM D-2167.
- E. The rock to be used for riprap shall meet the scoring criteria described in Appendix D of the "Draft Staff Technical Position on Design of Erosion Protection Covers for Stabilization of Uranium Mill Tailings Sites," August

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1989. Minimum riprap specifications and durability test results from representative samples must be submitted for NRC review and approval at least 60 days prior to placement of the riprap. Minimum durability tests shall include L. A. Abrasion, absorption, soundness and specific gravity.

- F. The licensee shall submit a report for NRC review and approval, detailing the results of the settlement monitoring program and substantiation that any projected settlement will not adversely affect the clay covers' performance over the design life. This report must be approved in the form of a license amendment prior to placement of the overburden and topsoil.
- G. The licensee shall submit to NRC a final cost estimate based on this approved plan no later than three (3) months following issuance of this amendment. This estimate shall be used as a basis for the surety arrangement required by License Condition No. 23.

[Applicable Amendments: 29, 31, 50, 53]

50. The licensee shall complete site reclamation in accordance with the ground-water corrective action plan and approved reclamation plan, as authorized by License Condition Nos. 47 and 49, respectively, in accordance with the following schedules.

- 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 schedules:
- (1) Windblown tailings retrieval and placement on the pile - complete.
 - (2) Placement of the interim cover to decrease the potential for tailings dispersal and erosion - complete.
 - (3) Placement of final barrier designed and constructed to limit radon emissions to an average flux of no more than 20 pCi/m²/s above background for:
 - a. area of tailings pile not covered by evaporation ponds, except a 9-acres area in the north adjacent to the Stage I Evaporation Pond - October 31, 1997;
 - b. 9-acres area in the north adjacent to the Stage I Evaporation Pond - December 31, 2001.
- 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

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Criterion 6 of Appendix A of 10 CFR Part 40 - December 31, 2003.

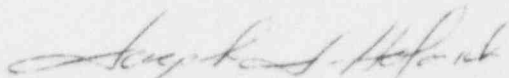
- (2) Projected completion of ground-water corrective actions to meet performance objectives specified in the ground-water corrective action plan - December 31, 2002.
- C. Any license amendment request to revise the completion dates specified in Section A must demonstrate that compliance was not technologically 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: 47, 52]

FOR THE NUCLEAR REGULATORY COMMISSION

Dated:

Dec 10, 1996



Joseph J. Holonich, Chief
Uranium Recovery Branch
Division of Waste Management, NMSS