

# 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, 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	
1. Petrotomics Company	3. License number
2. P.O. Box 2509 Shirley Basin, WY 82615	SUA-551, Amendment No. 11
	4. Expiration date September 30, 1990
	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.
11. For use in accordance with statements, representations, and conditions contained in Sections 3.4, 3.5, 3.6, Section 4 (excluding Section 4.3 and Appendices), and Section 5 (as modified by Section 7, excluding item 3, of the licensee's submittal dated June 4, 1985) and excluding Section 5.9 and Appendices and the requirements for general mill area gamma, dust and radon air sample locations shown in Tables 5.5.2-1, 5.5.2-2 and 5.5.2-3 of the licensee's application dated April 1, 1981 and revisions submitted by cover letters dated January 27, 1982; March 24, 1982; and September 27, 1983; except where superseded by license conditions below.

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

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 trainings courses required by this license; and any subsequent reviews,

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investigations, and corrective actions, shall be documented. Unless otherwise specified in USNRC regulations, all such documentation shall be maintained for a period of at least five (5) years.

15. DELETED by Amendment No. 10.
16. Release of equipment or packages from the restricted area shall be in accordance with Attachment No. 1 to SUA-551, "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.
17. Mill tailings other than samples for research or analysis shall not be transferred from the site without specific prior approval of the USNRC 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 USNRC and no such disturbance shall occur until the licensee has received authorization from the USNRC 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 USNRC.
19. 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 USNRC, Uranium Recovery Field Office. 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 USNRC, Uranium Recovery Field Office. Monitoring data shall be reported in the format shown in Attachment No. 2 to SUA-551, "Sample Format for Reporting Monitoring Data."
21. The licensee shall immediately notify the USNRC, Uranium Recovery Field Office, 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.

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22. Before engaging in any activity not previously assessed by the USNRC, 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 USNRC in the form of a license amendment.
23. The licensee shall maintain a USNRC approved surety arrangement adequate to cover tailings stabilization and reclamation, mill decommissioning, mill site reclamation, long term maintenance and monitoring, and ground water restoration as warranted. The licensee shall submit for USNRC review and approval a proposed revision to the surety arrangement within six (6) months of USNRC approval of a revised tailings area reclamation plan or approval of or revision to any ground water protection program. The revised surety shall be in effect within three (3) months of written USNRC approval. Furthermore, the licensee shall submit for USNRC review any proposed revision or update to the surety arrangement at least two (2) months prior to the proposed effective date. Along with each proposed revision or update and at least annually, the licensee shall submit documentation showing a breakdown of the costs and the cost basis for tailings stabilization and reclamation, mill decommissioning, mill site reclamation, long term maintenance and monitoring, and ground water restoration as warranted.
- If the licensee chooses to retain a corporate guarantee as the surety arrangement, the licensee shall provide for USNRC review and approval in the form of a license amendment to the financial data listed in items (a) - (d) of Attachment No. 3 to SUA-551, NRC Self-Bonding Criteria, within four (4) months of the date of this license and annually thereafter.
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. The licensee shall submit to the USNRC, Uranium Recovery Field Office, a mill decommissioning summary report by March, 1986. The report shall include as-built plans of the disposal areas (general mill and Pit 33-1) as well as cross sections of the interim cover.
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 USNRC 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 USNRC in the form of a license amendment.



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28. The licensee shall implement an interim stabilization program for all tailings not covered by standing water. This program shall include written operating procedures and shall minimize dispersal of blowing tailings. The effectiveness of the control method used shall be evaluated weekly by means of a documented tailings area inspection.
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.

30. The licensee shall submit to the USNRC, Uranium Recovery Field Office, by March 15, 1986 a detailed reclamation plan for the tailings disposal area as well as the mill site disposal area as defined in their submittal dated June 4, 1985, which includes the following:
- A. A stabilization plan which details methods to prevent wind and water erosion and recharge of the tailings and mill site disposal area.
  - B. A plan to dewater and/or consolidate the tailings impoundment by January 1, 1988.
  - C. Plan and cross-sectional views of the final reclamation cover which detail the locations and elevations of tailings and mill site disposal materials. The plan shall include details on cover thickness, physical characteristics of cover materials, proposed testing of cover materials (specifications and QA), the estimated volumes of cover materials and their availability and location.
  - D. Detailed plans for placement of rock or vegetative cover on the final reclaimed tailings pile and mill site area.
  - E. A proposal to restore ground water quality.
  - F. A proposed implementation schedule for items A through E above.
  - G. An analysis to show that the proposed type and thickness of soil cover is adequate to provide attenuation of radon and is adequate to assure long term stability as well as an analysis and proposal on methodology and time required to restore ground water in conformance to requirements in 40 CFR 192.
  - H. The licensee shall include a detailed cost analysis of each phase of the reclamation plan to include contractor costs, projected costs of inflation based upon the schedule proposed in item F, a proposed contingency cost, and the

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costs of long term maintenance and monitoring. These costs shall include the projected costs of ground water restoration required by item E.

31. In addition to the inspection and monitoring program described in Section 4.2 of the renewal application, the licensee shall maintain in graphical form a continuous permanent record of the piezometer and tailings pond level readings. They shall also conduct an annual technical evaluation of the tailings embankment which will meet the minimum requirements specified in Regulatory Guide 3.11.1. A copy of the technical evaluation as well as the graphed piezometer and tailings pond water level readings shall be submitted to the USNRC Uranium Recovery Field Office, no later than one (1) month after completion of the evaluation.
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.
35. The licensee shall maintain a minimum 4 foot freeboard between the crest of the embankment and the maximum operating pond level. In addition the licensee shall maintain a minimum 75 foot tailings beach along the face of the dam.
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 licensee shall implement the environmental and effluent monitoring program as specified in Table 5.5.7-1 of the renewal application as revised on March 27, 1985. Notwithstanding the above submittal, the licensee shall by June 1, 1986, implement a ground water monitoring program as described below:
- A. Sample SC Wells 1, 3-5, 39-42, 44 and 45 on a quarterly frequency for: arsenic, chloride, selenium, sulfate, TDS, pH, U-nat, Th-230, Ra-226, Pb-210 and Po-210. Annually the licensee shall sample the above wells for the above parameters as well as: aluminum, ammonia, barium, bicarbonate, calcium, carbonate, copper, fluoride, hardness, iron, lead, magnesium, manganese, molybdenum, nitrate, potassium and sodium.
- B. Redevelop or redrill Wells IDC, RTH 1 and RTH 3 as well as complete four additional monitoring wells, in the Upper Sand aquifer, in the area north and

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east of the tailings impoundment. Completion details shall be submitted to the USNRC, Uranium Recovery Field Office, by June 30, 1986.

- C. Maintain, at a minimum, the enhanced evaporation system as described in the April 1, 1985 submittal. Furthermore, the licensee shall maintain the seepage recovery system and return all collected seepage to the tailings impoundment.

Additionally, the licensee shall by August 15, 1986, submit an updated ground water study for the Petrotomics site which defines the movement and extent of tailings derived seepage as well as future mitigative actions.

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 ground water detection, monitoring program to ensure compliance to 40 CFR 192.32(a)(2) which includes the following elements:

- A. The licensee shall monitor at the temporary point of compliance and background wells for the following indicator parameters: Arsenic, Selenium and pH. The licensee shall utilize analytical techniques capable of providing lower limits of detection of 0.005 mg/l and 0.001 mg/l for arsenic and selenium, respectively. Measurements of pH shall be reported to the nearest 1/10 standard unit.
- B. The determination of compliance shall be based upon sampling Wells 5-SC and 42-SC.
- C. The determination of background levels for the parameters specified in subsection (A) shall be defined by sampling Wells 39-SC and 41-SC.
- D. The licensee shall sample for those parameters specified in subsection (A) at those wells designated in subsections (B) and (C) on a monthly basis for a period of one (1) year and at least twice annually thereafter. The first monthly sample shall be taken within 30 days of the date of this Order. All semiannual samples shall be taken at least four months apart.
- E. The licensee shall, within 60 days of collection of the last of the twelve monthly samples, propose for USNRC review and approval in the form of a license amendment background levels for indicator parameters and a statistical

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procedure for identifying significant changes (95% confidence level) between data from the wells specified in subsections (B) and (C).

- F. The licensee shall report the data required by subsection (D) semiannually along with those data required by License Condition No. 22 in accordance to the reporting format, Attachment No. 4 to SUA-551, "Sample Format for Reporting Detection Monitoring Data." These monitoring requirements are in addition to the requirements specified in License Condition No. 45.
- G. The licensee shall report at least annually in accordance to reporting requirements specified in subsection (F) the rate and direction of ground water flow under the tailings impoundment.
48. The licensee shall perform a radiological survey and site cleanup as described in their September 5 and October 14, 1985 submittals with the following additions:
- A. All soil samples analyzed for Radium-226 shall also be analyzed for U-nat.
- B. Cleanup of all byproduct contaminated areas shall be completed by September of 1986.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Dated: JAN 24 1986

BY

/s/  
R. Dale Smith, Director  
Uranium Recovery Field Office  
Region IV

OFC :	URFO :	URFO :	URFO :	URFO :			
NAME :	GKowinski	GPangburn	HPettengill	RDSmith			
DATE :	86/01/14	1/22/86	1/22/86	1/24/86			