NRC FORM 374
(7-94)

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 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 agency. 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.

1. Licensee Kennecott Uranium Company	3. License Number SUA-1350, Amendment No. 10
2. Post Office Box 11248 Salt Lake City, Utah 84147	4. Expiration Date June 30, 1997
	5. Docket or Reference No. 40-8584

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
Natural Uranium Byproducts	Any	Unlimited

9.0 ADMINISTRATIVE CONDITIONS

9.1 Authorized Place of Use: The licensee's uranium milling facilities located in Sweetwater County, Wyoming.

9.2 The licensee is hereby authorized to possess byproduct material in the form of uranium waste tailings and other byproduct wastes generated by past milling operations at the facilities.

9.3 The licensee is authorized to operate an ion exchange uranium recovery facility in accordance with submittals dated September 27, 1989, and October 18, 1991. The licensee is not authorized to produce any other uranium concentrates without a license amendment approved by the NRC.

9.4 For use in accordance with statements, representations, and conditions contained in Sections 3.3.6 and 6.0 of the previous renewal application dated March 1984, as supplemented by submittals dated April 3, July 2, and July 27, 1984, January 17, 1985, and the renewal application dated January 23, 1991, except where superseded by license conditions below.

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

9.5 Any changes in the mill circuit shall require approval of the NRC in the form of a license amendment.

9.6 The licensee is hereby exempted from the requirements of 10 CFR 20.1902(e) for areas within the mill, provided that all entrances to the mill are conspicuously posted in accordance with Section 20.203(e)(2) and with the words "Any area within this mill may contain radioactive material."

9709050285 970829
PDR ADOCK 04008584
C PDR

MATERIALS LICENSE SUPPLEMENTARY SHEET

9.7 Release of equipment or packages from the restricted area shall be in accordance with the NRC report, "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: 7]

9.8 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.

9.9 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 and at no cost to the government.

9.10 The licensee shall submit a detailed decommissioning plan to the NRC at least 1 year prior to the planned termination of mill operations.

9.11 The Radiation Safety Officer for the Sweetwater Mill shall possess the qualifications and responsibilities of the Safety and Environmental Administrator specified in Sections 5.1.1 and 5.2.3 of the March 1984 renewal application, with the exception that biannual refresher training shall not be required during the period of mill shutdown.

9.12 The licensee shall conduct and document initial employee training and annual refresher training for all mill process or maintenance employees. The training shall include the topics listed in Section 5.3.1 of the March 1984 renewal application.

9.13 In order to ensure that no disturbance of cultural resources occurs in the future, the licensee shall perform an archeological and historical artifact survey of any areas not previously surveyed prior to their disturbance, including borrow areas for reclamation cover. Such surveys shall be submitted to the NRC for review and approval. No such disturbance shall occur until authorization to proceed has been granted by the NRC. 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 grated by the NRC.

9.14 Before engaging in any activity not previously assessed by the NRC, the licensee shall prepare and record an environmental evaluation of such activity. If the evaluation indicates such activity may result in a significant adverse environmental impact which was not previously assessed or which is greater than previously 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.

9.15 Any corporate organization changes affecting the assignments or reporting responsibilities of the radiation safety staff as described in the April 14, 1997, submittal shall require approval of the NRC in the form of a license amendment.

[Applicable Amendments: 9]

9.16 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. Within 3 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. A 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 each year on or before the anniversary date which is designated as April 30. 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 NRC report, "Recommended Outline for Site Specific Reclamation and Stabilization Cost Estimates," outlines the minimum considerations used by the NRC in the review of decommissioning and reclamation estimates. Reclamation/decommissioning plans and annual updates should follow this guidance.

The licensee's currently approved surety, a Parent Company Guarantee issued by Kennecott Corporation, shall be continuously maintained in an amount no less than $5,164,000 for the purpose of complying with 10 CFR 40, Appendix A, Criteria 9 and 10, until a replacement is authorized by the NRC. The use of a third party guarantee necessitates an evaluation of the third party by the NRC as part of the annual surety update. In addition to the cost information required above, the annual submittal must include updated documentation of the (1) letter from the chief financial officer of the guarantor, (2) auditor's special report confirmation of chief financial officer's letter, (3) schedulereconciling amounts in chief financial officer's letter to amounts in financial statements, and (4) Third Party Corporate Guarantee document if changes are appropriate.

[Applicable Amendments: 2, 6, 7, 8]

9.17 Within 6 months of the resumption of operations, the licensee shall submit to the NRC a detailed proposal for the disposal of contaminated material and equipment generated at the mill site in the form of a request for license amendment. This proposal shall include a description of the materials to be disposed of, location(s) of disposal, method(s) of disposal, estimated annual volumes of materials, and an estimate of the impact of the disposal plan on the tailings management plan.

9.18 At least 6 months prior to the resumption of milling operations, the licensee shall submit for NRC review and approval, in the form of a license amendment, an updated quality assurance program and a revised effluent and environmental monitoring program.

[Applicable Amendments: 5]

9.19 During the period of mill shutdown, all mill entries and maintenance activities shall be conducted under a radiation work permit (RWP) or standard operating procedure (SOP). Each RWP shall describe any precautions necessary to minimize exposure to radioactive materials and specify the radiological monitoring necessary to determine employee exposures. All RWPs and SOPs shall be signed by the Radiation Safety Officer or qualified designee.

9.20 Standard operating procedures (SOPs) shall be established and implemented for all operational process activities involving radioactive materials that are handled, processed, or stored. SOPs for operational activities shall enumerate pertinent radiation safety practices to be followed. Additionally, SOPs shall be established and implemented for all aspects of the radiation safety and environmental monitoring programs. A current copy of each SOP shall be kept in the mill area in which it applies.

All SOPs shall be reviewed and approved in writing by the radiation safety officer (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 SOPs at least annually.

[Applicable Amendments: 5]

9.21 The licensee shall use a radiation work permit (RWP) for all operations or maintenance jobs where the potential for significant exposure to radioactive material exists and for which no SOP exists. The RWP shall be approved by theRSO or his designee, qualified by way of specialized radiation protection training, prior to the initiation of work and shall at a minimum describe the following:

A. The scope of work to be performed.

B. Measures to be taken to reduce exposure to radioactive materials.

C. The supplemental radiological monitoring and sampling necessary prior to, during, and following completion of the work.

[Applicable Amendments: 5]

10.0 OPERATIONAL LIMITS, CONTROLS, AND RESTRICTIONS

10.1 The licensee shall maintain effluent control systems as specified in Section 4.1.3 of the March 1984 renewal application with the following additions:

A. Operations shall be immediately suspended in the affected area of the mill if any of the emission control equipment for the yellowcake drying or packaging areas is not operating within specifications for design performance.

B. The licensee shall, during all periods of yellowcake drying operations, assure that the scrubber is operating within the manufacturer's recommended ranges for water flow and air pressure differential necessary to achieve design performance. This shall be accomplished by either (1) performing and documenting checks of water flow and air pressure differential every 4 hours during operation, or (2) installing instrumentation which will signal an audible alarm if either water flow or air pressure differential fall below the manufacturer's recommended levels. If an audible alarm is used, its operation shall be checked and documented daily.

C. Air pressure differential gauges for other emission control equipment shall be read and the readings documented once per shift during operations.

10.2 All liquid effluents from mill process buildings, with the exception of sanitary wastes, shall be returned to the mill circuit or discharged to the tailings impoundment.

10.3 Maintenance, operation, and reclamation of the tailings retention system shall be in accordance with the specifications, representations, and commitments in the following documents:

A. Application for Amendment to U.S. Nuclear Regulatory Commission Source Material License No. SUA-1350, Volumes 1-4, dated September 1982.

B. Application for Amendment to NRC Source Material License No. SUA-1350, Sweetwater Uranium Project, Volumes 5-6, dated July 1983.

C. Response to WDEQ completeness reviews dated September 23, 1983, and

October 21, 1983, transmitted by letter dated May 8, 1984, from Minerals Exploration Company to Wyoming Department of Environmental Quality.

10.4 The licensee shall maintain a minimum of 5 feet of freeboard between the top of the tailings dam and the tailings pond level throughout the project life. The tailings impoundment area shall not be changed in any way without specific prior approval of the NRC in the form of a license amendment.

10.5 The licensee shall maintain the liner system for tailings Cell "C" in accordance with the specifications, representations, recommendations, and commitments in the following:

A. "Proposed Subsurface Tailings Disposal" transmitted by letter dated July 10, 1978, from Manager of Operations, MEC, to Chief, Fuel Processing Fabrication Branch, NRC, and supplements to this report dated August 1, 22, and 28, 1978.

B. Quality Control - PVC/Hypalon Bond, pages 5-7 of October 23, 1978, letter from D'Appolonia Consulting Engineers to Minerals Exploration Company (MEC), transmitted by letter dated November 3, 1978, from General Manager, MEC, to Chief, Fuel Processing and Fabrication Branch, NRC.

C. Items 7 and 8 of the Enclosure to the October 11, 1978, letter from the General Manager, Minerals Exploration Company, to Chief, Fuel Processing and Fabrication Branch, NRC.

D. Recommended changes Uranium Pond Liner System, Sweetwater Project, Sweetwater County, Wyoming, for Minerals Exploration Company, by D'Appolonia Consulting Engineers, Inc., July 13, 1979.

In addition, the licensee shall not modify the liner system or installation procedures specified in the above documents without specific prior approval of the NRC in the form of a license amendment.

10.6 During the period of mill shutdown, the licensee shall not add tailings or other solid wastes to the tailings cell, except byproduct material in the form of debris generated by routine site maintenance; a maximum of 10,000 cubic yards of byproduct material generated in the course of decommissioning U.S. Energy Corporation's Green Mountain Ion Exchange (GMIX) facility which is licensed by SUA-1524; and a maximum of 2800 cubic yards of 11e.(2) byproduct material generated by Crow Butte Resources, Inc. in the course of operating its Crow Butte In Situ Leach (ISL) facility which is licensed by SUA-1534. Disposal of the GMIX materials shall be performed as described in the disposal plan which was submitted in Kennecott's July 21, 1993, letter. Disposal of the Crow Butte ISL materials shall be in accordance with Kennecott's submittal of July 9, 1996. Any disposal activities in the tailings cell shall be performed in accordance with the standard operating procedure, "Reduction of Voids in Material Placed in the Tailings Cell for Disposal," submitted on

October 27, 1992. In addition, the licensee shall implement an interim stabilization program for all tailings areas not covered by standing water. The stabilization program shall include written operating procedures and shall minimize the dispersal of windblown tailings.

[Applicable Amendments 1, 4, 10]

10.7 During the period of mill shutdown, discharge of liquids to the tailings impoundment shall be limited to water from mill cleanup activities, pump tests, seepage collection, and operation of the ion exchange plant, subject to the following:

A. The amount of water annually added to the tailings impoundment shall not exceed 25 million gallons.

B. The enhanced evaporation system shall be operated and maintained as described in the November 12, 1985, and May 9, 1990, submittals.

C. The tailings cell liner shall be maintained in an operable condition within 5 feet of the solution surface.

10.8 Prior to resuming operations, the licensee shall have in operation instrumentation to detect ruptures of the tailings discharge and solution return lines when these lines are being utilized. Indications of a possible rupture of these lines shall result in activation of an alarm in an occupied area of the mill. These instruments shall be tested daily during operation.

10.9 All radiation monitoring, sampling, and detection equipment shall be calibrated as recommended by the manufacturer or annually, whichever is more frequent. In addition, all radiation survey instruments shall be operationally checked with a radiation source each day when in use.

11.0 MONITORING AND RECORDKEEPING REQUIREMENTS

11.1 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.

11.2 Occupational exposure calculations shall be performed and documented within 1 week of the end of each regulatory compliance period as specified in 10 CFR 20.103(a)(2) and 10 CFR 20.103(b)(2). Routine airborne ore dust and yellowcake samples shall be analyzed in a timely manner to allow exposure calculations to be performed in accordance with this condition. Nonroutine ore dust and yellowcake samples shall be analyzed and the results reviewed by the Radiation Safety Officer within 2 working days after sample collection.

11.3 During the period of mill shutdown, bioassay testing shall be conducted as specified in radiation work permits issued for nonroutine activities.

11.4 During the period of mill shutdown, air samples and external radiation measurements shall be obtained semiannually in the ore crushing and yellowcake areas of the mill. The air samples shall be analyzed for natural uranium and radon daughter concentrations. In addition, the frequency for radon daughter sampling during operation of the ion exchange plant shall be as specified in Section 1.3 of NRC Regulatory Guide 8.30, "Health Physics Surveys in Uranium Mills."

11.5 During the period of mill shutdown, air particulate, radon, and gamma monitoring shall be performed at the restricted area boundary downwind of the tailings cell. Radon monitoring shall also be conducted at an upwind location as described in the July 23, 1990, submittal. Sample frequency and analysis shall be in accordance with Table C-3 of the July 2, 1984, submittal.

11.6 During the period of mill shutdown, a weekly inspection of the tailings area shall be performed. Documentation of the weekly inspections shall include an evaluation of the effectiveness of the method used to control blowing tailings and the condition of the liner and any repairs made.

11.7 The licensee shall conduct an annual ALARA audit of the radiation protection program at the mill. Documentation of the ALARA audit shall include the items specified in Section 2.3.3 of NRC Regulatory Guide 8.31, "Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Mills Will Be As Low As Reasonably Achievable."

11.8 The licensee shall conduct an annual survey of land use (private residence, grazing areas, private and public potable water and agricultural wells, and nonresidential structures and uses) in the area within 5 miles of any portion of the restricted area boundary.

11.9 The licensee shall maintain a permanent record of all transfers of mill tailings from the site.

11.10 The licensee shall implement a ground-water compliance monitoring program containing, at a minimum:

A. Semiannual sampling of point of compliance wells TMW-15, 16, 17, and 18, for cadmium, chromium, lead-210, nickel, combined radium-226 and -228, selenium, thorium-230, natural uranium, gross alpha, chloride, iron, nitrate, sulfate, pH, and total dissolved solids.

B. The following ground-water protection standards at point of compliance wells TMW-15, 16, 17, and 18, with background being recognized in well TMW-5:

arsenic = 0.05 mg/l, barium = 1.0 mg/l, beryllium = 0.01 mg/l, cadmium = 0.01 mg/l, chromium = 0.05 mg/l, cyanide = 0.005 mg/l, lead = 0.5 mg/l, lead-210 = 1.4 pCi/l, mercury = 0.002 mg/l, molybdenum = 0.04 mg/l, nickel = 0.01 mg/l, combined radium-226 and -228 = 2.8 pCi/l, selenium = 0.01 mg/l, silver = 0.05 mg/l, thallium = 0.01 mg/l, thorium-230 = 10.0 pCi/l, natural uranium = 1.7 pCi/l, and gross alpha = 6.6 pCi/l.

C. A corrective action program in accordance with the April 25 and July 20, 1989, and December 4, 1992, submittals, with the objective of returning the concentrations of chromium, natural uranium, and combined radium-226 and -228 concentrations to the levels specified in B above. Seepage collection wells may be added or removed from service with the goal of improving the performance of the corrective action program.

D. Minimum lower limits of detection for water quality analysis of:

arsenic = 0.01 mg/l, barium = 0.1 mg/l, beryllium = 0.01 mg/l, cadmium = 0.005 mg/l, chromium = 0.01 mg/l, cyanide = 0.005 mg/l, lead = 0.01 mg/l, lead-210 = 1.0 pCi/l, molybdenum = 0.01 mg/l, nickel = 0.01 mg/l, selenium = 0.005 mg/l, silver = 0.01 mg/l, thorium-230 = 1.0 pCi/l, gross alpha = 1.0 pCi/l, nitrate = 0.01 mg/l, and total dissolved solids = 1.0 mg/l.

[Applicable Amendments: 3]

11.11 The licensee shall provide written notification to the NRC at least 30 days prior to the planned resumption of uranium milling operations. Upon the resumption of milling operations, the licensee shall implement the radiation safety and ALARA programs specified in the submittal dated March 13, 1994, with the following additions:

A. In-plant air sampling pumps shall be calibrated at least quarterly or prior to each use, whichever is less frequent.

B. Urine samples shall be collected from all mill process workers on at least a monthly frequency.

C. The action level for personal contamination surveys shall not exceed 1000 dpm/100 cm².

D. The licensee shall conduct weekly surveys for removable alpha contamination in all eating areas and change rooms. If survey results exceed 200 dpm/100 cm², the area shall be decontaminated before being used.

[Applicable Amendments: 5]

12.0 <u>REPORTING REQUIREMENTS</u>

12.1 The results of all effluent and environmental monitoring required by this license shall be reported to the NRC semiannually in accordance with 10 CFR 40.65. Appplicable monitoring data shall be reported in the format shown in "Sample Format for Reporting Monitoring Data."

[Applicable Amendments: 7]

12.2 The results of bioassay testing required by this license, including documentation of the corrective actions performed to satisfy the requirements of NRC Regulatory Guide 8.22, "Bioassay at Uranium Mills," shall be provided to the NRC as follows:

A. Anytime an action level of 15 ug/l uranium for urinalysis or 9 nCi uranium for in-vivo measurement is reached or exceeded shall be reported to the NRC with the next semiannual 10 CFR 40.65 submittal.

B. Anytime an action level of 30 ug/l uranium for four consecutive urinalysis specimens or 130 ug/l for one urinalysis specimen or 16 nCi uranium for in-vivo measurements is reached or exceeded shall be reported to the NRC within 1 month.

12.3 A report of the annual land use survey, indicating any differences in land use from that described in the previous report, shall be submitted to the NRC.

12.4 A copy of the annual ALARA audit report shall be submitted to the NRC.

12.5 The licensee shall immediately notify the NRC by telephone of any failure in the tailings retention system or tailings discharge system which results in a release of radioactive material.

12.6 At least 6 months prior to the resumption of operations, a report documenting an inspection of the tailings impoundment liner, any repairs performed, and the repair procedures shall be submitted to the NRC.

12.7 A ground-water monitoring report shall be submitted to the NRC semiannually. In addition, a ground-water corrective action program review, describing the progress toward attaining the ground-water protection standards including the areal extent and concentration of hazardous constituents and estimates of the time needed to obtain compliance, shall be submitted to the NRC annually. Modifications developed in the system, if any, shall be described in each annual report.

[Applicable Amendments: 3]

13. 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 sent to:

License Number SUA-1350, Amendment No. 10

Docket or Reference Number 40-8584

MATERIALS LICENSE
SUPPLEMENTARY SHEET

Chief, Uranium Recovery Branch, Division of Waste Management, Office of Nuclear Material Safety and Safeguards, U. S. Nuclear Regulatory Commission, Washington, DC 20555.

Required telephone notification to NRC should be made to the Uranium Recovery Branch at (301) 415-7238.

[Applicable Amendments: 7]

FOR THE NUCLEAR REGULATORY COMMISSION

Dated 8/29/97

Joseph J. Holonich, Chief
Uranium Recovery Branch
Division of Waste Management
Office of Nuclear Materials Safety
and Safeguards