

August 23, 2000

Mr. William P. Goranson  
Manager, Radiation Safety, Regulatory  
Compliance and Licensing  
Rio Algom Mining Corp.  
6305 Waterford Boulevard, Suite 325  
Oklahoma City, Oklahoma 73118

Dear Mr. Goranson:

SUBJECT: AMENDMENT 17 TO SOURCE MATERIAL LICENSE SUA-1548 -- ANNUAL  
SURETY UPDATE

The U.S. Nuclear Regulatory Commission (NRC) staff has completed its review of Rio Algom Mining Corp.'s (RAMC's) annual surety update for the Smith Ranch facility. By a submittal dated June 30, 2000, RAMC proposed a surety increase from \$8.029 million to \$8.093 million to reflect: (1) construction of new buildings and expansion of existing buildings, (2) additional surface disturbance associated with wellfield construction, and (3) groundwater reclamation during an additional year of commercial mining operations. The staff reviewed the details of the revised 2000 surety and concludes that the amount of \$8.093 million is appropriate for the Smith Ranch facility.

RAMC proposed the continued use of the Rio Algom Limited Parent Company Guarantee Surety Instrument for its Smith Ranch facility. The staff's review has determined that the 2000 surety amount of \$8.093 million is covered adequately by the current Parent Company Guarantee.

Therefore, pursuant to Title 10 of the Code of Federal Regulations, Part 40, Source Material License SUA-1548 is hereby amended by revising License Condition No. 9.11 to reflect the new surety amount. All other conditions of this license shall remain the same. The enclosed license is being reissued to incorporate the above modification. An environmental review was not performed, since these actions are categorically excluded under 10 CFR 51.22(c)(10).

These changes to SUA-1548 were discussed between you and Mr. John Lusher, the NRC Project Manager for the Smith Ranch facility, on August 3, 2000. If you have any questions concerning this letter or the enclosure, please contact Mr. Lusher at (301) 415-7694 or by e-mail to [JHL@nrc.gov](mailto:JHL@nrc.gov).

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W. Goranson

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of 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).

Sincerely,

**/RA/**

Philip Ting, Chief  
Fuel Cycle Licensing Branch  
Division of Fuel Cycle Safety and Safeguards  
Office of Nuclear Material Safety and Safeguards

Docket No. 40-8964  
SUA-1548, Amendment No. 17

Enclosure: Materials License SUA-1548, Amendment No. 17

cc: P. Cutillo, WDEQ  
B. Ferdinand, RAMC

W. Goranson

August 23, 2000  
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Docket No. 40-8964  
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<b>OFC</b>	FCLB		FCLB		FCLB		FCLB	
<b>NAME</b>	JLusher		JHester		DGillen		PTing	
<b>DATE</b>	8/16/00		8/16/00		8/17/00		8/23/00	

OGC	
S. Treby No Legal Objection	
8/21/00	

**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 licensee 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. Rio Algom Mining Corp.		3. License Number      SUA-1548, Amendment No. 17
2. 6305 Waterford Boulevard, Suite 325 Oklahoma City, Oklahoma 73118		4. Expiration Date      March 1, 1997
		5. Docket or Reference      40-8964
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
a. Natural Uranium	a. Any	a. Unlimited
b. Byproduct material as defined in 10 CFR 40.4	b. Unspecified	b. Quantity generated under operations authorized by this license

**9. ADMINISTRATIVE CONDITIONS**

9.1 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, Uranium Recovery and Low-Level Waste 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 Operations Center at (301) 816-5100.

[Applicable Amendments: 4, 7]

9.2 Authorized place of use shall be the licensee's Smith Ranch facilities in Converse County, Wyoming.

9.3 Authorized use is for uranium recovery from pregnant lixiviant in accordance with statements, descriptions, and representations contained in Sections 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, and 9.0 of the licensee's application submitted by cover letter dated March 31, 1988, as revised by page changes submitted on May 10, June 30, and August 30, 1988; February 15, February 28, March 13, March 20, March 28, April 5, September 30, December 5, and December 10, 1991, and June 25, 1998.

In addition, the licensee shall conduct its activities in accordance with the provisions in the following:

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Submittal Date

Description

July 13, 1990	Responses to NRC comments and questions, including aquifer pump-test analyses, and monitor-well-spacing calculations.
October 4, 1990	Cover letter submitting MILDOS-Area Predictions of Radiation Dose.
April 5, 1991	Letter providing proposal for waste byproduct material disposal.
May 7, 1991	Cover letter transmitting consulting historian's report and recommendations, proposing changes to the mine facilities layout.
September 3, 1991	Cover letter assigning new Radiation Safety Officer for the Smith Ranch project.
September 30 and December 16, 1993	Cover letters and enclosures describing O-sand well-field and pilot plant operations.
October 30, 1995	Cover letters and enclosures addressing deep well injection of process waste waters.
November 22, 1999	Cover letter and enclosure addressing deep well #2 injection of process waste waters.

Regardless of the above, the following license conditions shall override any conflicting statements contained in the licensee's application and supplements.

[Applicable Amendments: 3, 7, 13,16]

- 9.4 Any significant changes to the State of Wyoming mining permit area illustrated on Map C-1 of the licensee's March 31, 1988, application shall require approval by the NRC in the form of a license amendment.
- 9.5 The licensee is authorized to dispose of waste byproduct material from the Smith Ranch facility at the Quivira Mining Corp. tailings pile, New Mexico. In the event this disposal option becomes unavailable, the licensee is required to notify the NRC within 7 working days of the expiration date. A new agreement must be submitted for NRC approval within 90 days of expiration, or the licensee will be prohibited from further lixiviant injection.

Yellowcake and byproduct waste material, other than samples for research, shall be transferred only to other source material licensees unless specific prior approval is granted by the NRC in the form of a license amendment. The licensee shall maintain permanent record of all transfers made under the provisions of this condition.

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9.6 Before engaging in any activity not previously assessed by the NRC, including activities outside the State permit area, 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 previously assessed or that is greater than that 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.

9.7 DELETED by Amendment No. 5.

9.8 The licensee shall provide buffer zones and construct its facilities in accordance with the recommendations made in its historical consultant's report submitted May 7, 1991, in order to prevent adverse effects upon historic and prehistoric resources found in the State permit area. Land disturbance plans and well-field facility design shall be coordinated with NRC and the Bureau of Land Management in Mills, Wyoming.

In addition to the May 7, 1991, submittal, in order to assure that no disturbance of cultural resources occurs, the licensee shall have an archeological and historical artifact survey completed prior to disturbing any areas not addressed in its application date March 31, 1988. The results of the surveys, an evaluation of site eligibility for the National Register of Historic Places, and an analysis of the project's effect, shall be submitted to NRC for review and approval. No disturbance shall occur until the licensee has received authorization from NRC to proceed.

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

9.9 Release of equipment or packages from the restricted area shall be in accordance with the previously provided guidance 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.

9.10 Standard operating procedures (SOPs) shall be established for all operational activities involving radioactive materials that are handled, processed, stored, or transported by employees. SOPs for operational activities shall enumerate pertinent radiation safety practices to be followed. In addition, written procedures shall be established for non-operational activities to include in-plant and environmental monitoring, bioassay analysis, and instrument calibration. An up-to-date copy of each written procedure shall be kept in each area where it is used.

All written procedures shall be reviewed and approved in writing by the RSO before being implemented and whenever a change in a procedure is proposed. The RSO shall document that all existing facility procedures are reviewed and approved on an annual basis.

[Applicable Amendment: 12]

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9.11 The licensee shall maintain an NRC-approved financial surety arrangement, consistent with 10 CFR 40, Appendix A, Criterion 9, adequate to cover the estimated reclamation and closure costs, if accomplished by a third party, for all existing operations and any planned expansions or operational changes for the upcoming year. Reclamation includes all cited activities and groundwater restoration, as well as off-site disposal of all 11e.(2) byproduct material.

Within three months of NRC approval of a revised closure (decommissioning) plan and its cost estimate, the licensee shall submit for NRC review and approval, a proposed revision to the financial surety arrangement if estimated costs exceed the amount covered in the existing financial surety. The revised surety instrument shall then be in effect within 30 days of written NRC approval of the surety amount.

Proposed annual updates to the surety amount, required by 10 CFR 40, Appendix A, Criterion 9, shall be provided to NRC ninety days prior to the anniversary date (e.g., renewal date of the surety instrument/vehicle) of June 30 of each year. If NRC has not approved a proposed revision 30 days prior to the expiration date of the existing surety arrangement, the licensee shall extend the existing arrangement, prior to expiration, for one year. Along with each proposed revision or annual update of the surety, 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, changes in engineering plans, activities performed, and any other conditions affecting estimated costs for site closure.

At least 90 days prior to beginning construction associated with any planned expansion or operational change which was not included in the annual surety update, the licensee shall provide for NRC approval an updated surety to cover the expansion or change.

The licensee shall also provide NRC with copies of surety-related correspondence submitted to the State of Wyoming, a copy of the State's surety review, and the final approved surety arrangement. The licensee also must ensure that the surety, where authorized to be held by the State, identifies the NRC-related portion of the surety and covers the above-ground decommissioning and decontamination, the cost of offsite disposal of 11e(2) byproduct material, soil and water sample analyses, and groundwater restoration associated with the site. The basis for the cost estimate is the NRC-approved site closure plan or the NRC-approved revisions to the plan. Reclamation/decommissioning plan, cost estimates, and annual updates should follow the outline in Appendix E to NUREG-1569 (NRC, 1997), entitled "Recommended Outline for Site-Specific *In Situ* Leach Facility Reclamation and Stabilization Cost Estimates."

Rio Alogm Mining Company currently approved surety instrument, a Parent Company Guarantee, in favor of the State of Wyoming, shall be continuously maintained in the sum total amount of no less than 8,093,069 for the purpose of complying with 10 CFR 40, Appendix A, Criterion 9, until a replacement is authorized by both the State of Wyoming and the NRC.

[Applicable Amendments: 2, 4, 6, 8, 10, 13, 15, 17]

9.12 DELETED by Amendment No. 12.

9.14 In addition to the responsibilities and qualifications specified in Chapter 9 of the licensee's March 31, 1988, application, as amended, the Radiation Safety Officer (RSO) shall be qualified as specified in

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- 9.14 In addition to the responsibilities and qualifications specified in Chapter 9 of the licensee's March 31, 1988, application, as amended, the Radiation Safety Officer (RSO) shall be qualified as specified in Sections 1.2 and 2.4.1 of Regulatory Guide 8.31, "Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Mills will be As Low As Reasonably Achievable," dated May 1983. The RSO shall also receive a minimum of 40 hours of related health and safety refresher training every two years.

The Radiation Safety Technician (RST) shall have the qualifications as specified in Section 2.4.2 of Regulatory Guide 8.31, and the responsibilities as specified in chapter 9 of the licensee's March 31, 1988, application as amended. In addition, the RST shall have access to the RSO at all times.

[Applicable Amendment: 12]

- 9.13 Any changes to the licensee's corporate organizational structure illustrated in Figure 9-4 of the March 31, 1988, application, as amended by the submittal dated December 10, 1991, shall require approval of the NRC in the form of a license amendment. In the event key radiation safety staff are reassigned, their qualifications shall also be reviewed and approved by the NRC.
- 9.15 The licensee shall have a training program for all site employees as described in Section 2.5 of Regulatory Guide 8.31, and as detailed in Section 9.3 of the licensee's March 31, 1988, application, as amended.
- 9.16 The licensee is hereby exempted from the requirements of Section 20.1902(e) of 10 CFR 20 for posting areas within the facility, provided that all entrances to the facility are conspicuously posted in accordance with Section 20.1902(e) and with the words, **"CAUTION - ANY AREA OR ROOM WITHIN THIS FACILITY MAY CONTAIN RADIOACTIVE MATERIAL."**

[Applicable Amendment: 12]

- 9.17 The licensee shall implement the Emergency Action Plan for Accidents as detailed in Appendix G of the licensee's March 31, 1988, application, as amended.

**10. OPERATIONAL LIMITS, CONTROLS, AND RESTRICTIONS**

- 10.1 Commercial processing plant operations shall not exceed an average monthly flow rate of 6000 gallons per minute, or 250 gallons per minute in the pilot plant, exclusive of restoration flow. Annual yellowcake production shall not exceed 2 million pounds.

[Applicable Amendments: 3]

- 10.2 Any major changes in the fluid-flow balance or processing plant circuit, as illustrated and described in Figures 3-2 and 4-3 of the licensee's March 31, 1988, application, as amended, shall be reviewed by the RSO and shall be submitted to the NRC for prior approval in the form of a license amendment.

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- 10.3 The licensee shall maintain effluent control systems as specified in Section 4.1 of the license application dated March 31, 1988, as amended, with the following additions:
- If during yellowcake drying operations any emission control equipment for the yellowcake drying or packaging areas is not performing within the operational specifications, the licensee shall not; (1) unload the dryer as part of the routine operations until the emission control equipment has been returned to service within operational specifications; or (2) reload the dryer with yellowcake until the emission control system has been returned to service within its operational specifications.
  - The licensee shall, during all periods of yellowcake drying operations, assure that the manufacture-recommended pressure is maintained in the heating chamber. This shall be accomplished by either: (1) performing and documenting checks of air pressure differential approximately every 4 hours during operation; or (2) installing instrumentation that will signal an audible alarm if air pressure falls below the manufacture's recommended levels. If an audible alarm is used, its operation shall be checked and documented daily during dryer operations. Air pressure differential gauges for other emission control equipment shall be read and the readings documented at least once per shift during dryer operations.
- [Applicable Amendment: 14]
- 10.4 The licensee shall perform well integrity tests on each injection and production well before the wells are utilized and on wells that have been serviced. The integrity test shall pressurize the well to 125 percent of the maximum operating pressure and shall maintain 95 percent of this pressure for 10 minutes to pass the test. If any well casing failing the integrity test cannot be repaired, the well shall be plugged and abandoned. During wellfield operations, injection pressures shall not exceed the integrity test pressure at the injection well heads.
- 10.5 The licensee shall utilize carbon dioxide and sodium carbonate/bicarbonate as the lixiviant with an oxygen or hydrogen peroxide oxidant. Any variation from this combination shall require a license amendment.
- [Applicable Amendments: 8]
- 10.6 The licensee is prohibited from constructing waste water evaporation ponds prior to NRC review and approval of pond designs and specifications. Pond design shall allow for sufficient reserve capacity in the evaporation pond system to enable the transfer of the contents of any one pond to the other ponds. All retention ponds shall be designed to meet requirements of NRC Regulatory Guide 3.11, Staff Position Paper No. WM-8101, and WDEQ.
- 10.7 The licensee shall maintain an area within the restricted area boundary for storage of contaminated materials prior to their disposal. All contaminated wastes and evaporation pond residues shall be disposed at a licensed radioactive waste disposal site.

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10.8 All liquid effluents stemming from commercial mine units, process buildings and process waste streams, with the exception of sanitary wastes, shall be returned to the process circuit, discharged to the solution evaporation ponds, or deep well injected. Liquid effluent resulting from O-sand R&D well-field production bleed may be treated for radium removal and discharged in accordance with the licensee's submittal dated September 30, 1993.

[Applicable Amendments: 3, 7]

10.9 Prior to mining, baseline water quality data for the constituents identified in Table 5.1 of the application dated March 31, 1988, as amended, shall be established for each mining unit prior to mining at the following points: (a) all mining zone perimeter monitor wells; (b) two upper and two lower aquifer monitor wells per mining unit; and (c) ten production/injection wells per mining unit. For mining units exceeding ten acres in size, baseline water quality data shall be collected from one additional production/injection well for each two acres beyond the ten-acre limit. Baseline production/injection wells shall be evenly distributed across the mining unit.

[Applicable Amendments: 8]

10.10 The licensee is prohibited from conducting well-field installation in the southwestern part of the State of Wyoming permit area, T35N R74W, until aquifer characteristics have been tested, reviewed, and approved by NRC.

10.11 The licensee is prohibited from commencing aquifer restoration prior to review and approval of an occupational safety plan addressing the deployment of chemical reducing agents in the processing plant or well fields.

10.12 For work where the potential for exposure to radioactive materials exists and for which no SOP exists, a radiation work permit (RWP) shall be required. Such permits shall describe the following:

- a. The scope of work to be performed.
- b. Any precautions necessary to reduce exposure to uranium and its daughters to levels as low as is reasonably achievable (ALARA).
- c. Any supplemental radiological monitoring and sampling required during and following completion of the work. Nonroutine maintenance involving exposure of workers to airborne particulates of uranium and its daughters shall require the use of continuous breathing zone monitoring.

The RSO, RST, or their designees shall indicate by signature the review of each RWP prior to the initiation of the work.

10.13 Any visitor, including contractors, shall be required to register at the office and shall be given appropriate instruction in the areas of security, safety, and radiation protection, prior to entering controlled or restricted areas.

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- 10.14 The licensee shall issue to all site employees, either thermoluminescent dosimeters (TLDs) or film-type dosimeters which shall be exchanged and read on a quarterly frequency.
- 10.15 The licensee shall require that all process and maintenance workers who work in yellowcake areas or work on equipment contaminated with yellowcake wear protective clothing including coveralls and boots or shoe covers. Workers who package yellowcake for transport shall additionally wear gloves.
- 10.16 Eating shall be allowed only in administrative offices and enclosed lunch areas that are separated from the process areas.
- 10.17 Before leaving the restricted area, all process workers shall shower or monitor themselves using a calibrated alpha survey instrument. Meeting or exceeding the radiation level of 1000 dpm/100 cm<sup>2</sup> shall require personnel to decontaminate and resurvey themselves. The licensee shall perform spot surveys for alpha contamination at least quarterly on all workers leaving the facility.
- 10.18 All radiation monitoring, sampling, and detection equipment shall be recalibrated after each repair and as recommended by the manufacturer, or at least annually, whichever is more frequent. In addition, all radiation survey instruments shall be operationally checked with a radiation source each day when in use.
- 10.19 Effective during the preoperational period of the Smith Ranch commercial project, the licensee's O-sand pilot facility operations shall be conducted in accordance with the licensee's September 30, and December 16, 1993, submittals.

[Applicable Amendment: 3]

**11. MONITORING, RECORDING, AND BOOKKEEPING REQUIREMENTS**

- 11.1 Flow rates on each injection and recovery well and manifold pressures on the entire system shall be measured and recorded daily. During well-field operations, injection pressures shall not exceed the integrity test pressure at the well heads.
- 11.2 The licensee shall perform and document daily visual inspections of the evaporation pond embankments, fences and liners, as well as measurements of pond freeboard and checks of the leak detection system. Any time 6 inches or more of fluid is in the leak detection system standpipes, it shall be analyzed for specific conductance and chloride. If action levels for these parameters are exceeded, a pond leak shall be confirmed. The pond level shall be lowered by transferring its contents into an alternate cell, and repairs undertaken.
- 11.3 Each monitor well shall be sampled and tested for chloride, conductivity, and alkalinity on a biweekly basis. If two UCLs are exceeded in a well or if a single UCL value is exceeded by five standard deviations or more above baseline monitoring data, the licensee shall take a confirmation water sample within 24 hours and analyze it for the excursion indicators. If the second sample does not indicate exceedance, a third sample shall be taken within 48 hours.

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If neither the second or third indicate exceedance, the first sample shall be considered in error.

If the second or third sample indicates an exceedance, the well in question shall be placed on excursion status. During excursion status, sampling and testing frequency shall be increased to weekly for all monitor wells completed in the same monitored zone for the effected mining unit.

- 11.4 The licensee shall establish an effluent and environmental monitoring program in accordance with Table 5.3 of the application dated March 31, 1988, as amended.
- 11.5 During the preoperational period of the commercial Smith Ranch project, environmental and in-plant monitoring shall be conducted in accordance with the licensee's September 30, 1993, submittal during O-sand well field and pilot plant operations, and in accordance with the submittal dated July 12, 1991, when the O-sand well field and the pilot plant are in deferred production status. All other monitoring requirements in this license shall be suspended where they differ from either of those submittals until lixiviant injection occurs in commercial well fields. Notwithstanding the July 12, 1991, submittal, the licensee shall implement the following additions to its standby operations:
- a. A ground-water bleed rate shall be established in the R&D O-sand well field sufficient to maintain flow into the well field from all directions. Ground-water gradients shall be monitored by observing water levels monthly in wells OM-1 through OM-5, OI-1, OI-2, OI-10, OI-3, and OT-1. Monitoring data with a water-table map shall be provided in each semiannual environmental monitoring report.
  - b. Environmental gamma monitoring shall continue on a quarterly basis at the downwind and background locations.
  - c. In-plant gamma surveys shall be completed following completion of yellowcake precipitation and filter press use, or semiannually, whichever is more frequent. Airborne uranium monitoring of the work station and breathing zone shall be conducted on a continuous basis during filter press operation.
  - d. During the pre-mining baseline data collection period for Wellfield 3 the bi-weekly sampling of the O-sand pilot wells may be discontinued. No more than 21 days prior to the initiation of pre-mining pump tests, the licensee may discontinue the O-sand bleed. The O-sand bleed and the bi-weekly groundwater sampling will resume upon the completion of the fieldwork for the Wellfield 3 pre-mining data collection. The licensee shall document the dates of these activities in the appropriate 40.65 semi-annual effluent monitoring report.
- [Applicable Amendment: 3, 11]
- 11.6 During commercial production, the RSO, RST, or a trained designee shall perform and document a daily walk-through inspection of all operating areas. The inspection's purpose is to ensure that all radiation protection and monitoring requirements are being followed.

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- 11.7 The licensee shall perform monthly surveys for natural uranium and radon progeny as shown in Figure 9-2 of the licensee's application dated March 31, 1988, as amended. In addition, the licensee shall conduct spot surveys to confirm the adequacy of the yellowcake and radon progeny monitoring plan. If radon or radon progeny concentrations exceed 8 picocuries per liter (pCi/l) or 0.08 working level (WL), respectively, sampling shall be weekly until 4 consecutive weekly samples exhibit less than 8 pCi/l or 0.08 WL. The calculation of internal exposure to radon, radon progeny, or natural uranium shall be based on a Time Weighted Exposure (TWE) calculation incorporating a consideration of both occupancy times and average airborne working levels or activity concentrations. If occupancy times are established as an average for each category of worker, the licensee shall also, by means of a semiannual time study, determine the basis upon which average occupancy periods are established.

If any worker reaches or exceeds 25 percent of the occupational dose limits specified in 10 CFR Part 20, based upon a calculated TWE for the week or the calendar quarter, dependent on the solubility of the material, the RSO or designee shall initiate an investigation of the employee's work record and exposure history to identify the source of the exposure. Necessary corrective measures shall be taken to ensure reduction of future exposures to as low as is reasonably achievable. Records shall be maintained of these investigations.

[Applicable Amendment: 12]

- 11.8 The licensee shall perform quarterly gamma radiation surveys in enclosed areas at the locations specified in Figure 9-3 of the licensee's application dated March 31, 1988, as amended. In addition, the licensee shall conduct spot checks to confirm the adequacy of the gamma radiation monitoring plan.
- 11.9 The licensee shall perform monthly alpha contamination surveys of the facility laboratory and offices and weekly surveys of eating and change areas, as specified in licensee's application dated March 31, 1988, as amended. If samples are analyzed in the facility laboratory, the licensee shall survey all surfaces used for urine sample preparation preceding the analyses as specified in Section 3.5 of Regulatory Guide 8.31.

If the alpha contamination levels exceed those listed in the previously provided guidance 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, the area shall be decontaminated.

- 11.10 Occupational exposure calculations shall be performed and documented within one calendar quarter after the end of the regulatory compliance period as specified in 10 CFR 20.2106(b). Routine radon daughter and particulates shall be analyzed in a timely manner to allow exposure calculations to be performed in accordance with this condition. Non-routine samples shall be analyzed and the results reviewed by the RSO or designee within 2 working days after sample collection.

[Applicable Amendments: 12, 14]

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11.11 The results of the sampling, analyses, surveys, and monitoring, the 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 the NRC regulations, all such documentation shall be maintained for a period of at least 5 years.

**12. REPORTING REQUIREMENTS**

12.1 At least 2 months prior to lixiviant injection in each mining unit, baseline water quality data shall be submitted to the NRC. Upper control limits (UCLs) and restoration criteria shall be calculated in accordance with the licensee's application dated March 31, 1988, as amended.

- a. The submittal shall propose, in the form of a license amendment, UCLs for chloride, conductivity, and alkalinity in all monitoring wells for each mining unit.
- b. The submittal shall propose, in the form of a license amendment, ground-water restoration criteria for each mining unit.

Current UCLs and groundwater restoration criteria are designated in:

<u>Submittal Date</u>	<u>Wellfield No.</u>
May 27, 1997 (Pages F1-F13; Tables F1.2, F2.2, F3.2, F4.2)	1
June 1, 1998 (Tables H1-2, H2.2, H3.2, and H4.2)	3
April 26, 1999 (Tables J1-2, J2.2, J3.2, and J4.2)	4

[Applicable Amendments: 9, 12, 14]

12.2 The results of effluent and environmental monitoring described in Table 5.3 of the license application shall be reported in accordance with 10 CFR 40, Part 40.65, to the NRC. The report shall also include injection rates, recovery rates and injection manifold pressures.

12.3 In the event a lixiviant excursion is confirmed by ground-water monitoring, NRC shall be notified by telephone within 24 hours and by letter within 7 days from the time the excursion is confirmed. Upon confirmation of an excursion, the licensee shall immediately implement corrective action. An excursion is considered concluded when the concentrations of excursion indicators are below the concentration levels defining an excursion for three consecutive weekly samples.

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- 12.4 A written report shall be submitted to the NRC within 2 months of excursion confirmation. The report shall describe the excursion event, corrective actions taken and results obtained. If wells are still on excursion at the time the report is submitted, injection of lixiviant within the well field on excursion shall be terminated until the excursion has ceased and the affected aquifer has been remediated.
- 12.5. In the event that evaporation pond standpipe water analyses indicate that a pond is leaking, the NRC shall be notified by telephone within 48 hours of verification. Standpipe water quality samples shall be analyzed for the leak parameters once every 7 days during the leak period and once every 7 days for at least 2 weeks following repairs.

A written report shall be filed with the NRC within 30 days of first notifying the NRC that a leak exists. This report shall include analytical data and describe the mitigative action and the results of that action.

- 12.6 The licensee shall maintain a log of all significant solution spills and notify the NRC by telephone within 48 hours of any failure which may have a radiological impact on the environment. Such notification shall be followed, within 7 days, by submittal of a written report detailing the conditions leading to the failure or potential failure, corrective actions taken and results achieved. This requirement is in addition to the requirements of 10 CFR Part 20.
- 12.7 Three months prior to commencing ground-water restoration in each well field, the licensee shall submit a restoration plan to the NRC. The restoration plan shall have a goal of returning all affected ground-water constituents to baseline levels on a mining-unit average basis. The licensee shall be required to demonstrate baseline conditions are not achievable in order to apply any alternate standard of performance.
- 12.8 The licensee shall submit a detailed decommissioning plan to the NRC for review and approval at least 12 months prior to planned final shutdown of mining operations.
- 12.9 The licensee shall perform an annual ALARA audit of the radiation safety program which shall be conducted by the RSO or other authorized individual with equivalent qualifications, in accordance with Section 2.3.3 of Regulatory Guide 8.31. A report of this audit shall be submitted to the NRC within 60 days after conducting the audit. The report shall include detailed summaries of the analytical results of the radiological surveys. In order to evaluate the ALARA objective, the licensee shall, at a minimum, review the following records: (a) Bioassay results including any actions taken when the results exceeded action levels in Table 1 of Regulatory Guide 8.22, "Bioassay at Uranium Mills," dated January 1987; (b) Exposure records of external and internal time-weighted calculations (TWE); (c) Safety meeting minutes, attendance records, and training program records; (d) Daily inspection log entries and summary reports of the monthly reviews; (e) In-plant radiological survey and monitoring data, as well as environmental radiological effluent and monitoring data; (f) Surveys required by radiation work permits; (g) Reports on overexposure submitted to NRC, MSHA, or the State of Wyoming; and (h) Reviews of operating and monitoring procedures completed during the period.

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The audit shall also address any noticeable trends in personnel exposures for identifiable categories of workers and types of activities, any trends in radiological effluent data, and the performance of exposure and effluent control equipment as well as its utilization, maintenance, and inspection history. Any recommendations to further reduce personnel exposures or environmental releases of uranium or radon and radon progeny shall be included in the report.

12.10 The licensee shall implement a urinalysis program as outlined in Revision 1 to Regulatory Guide 8.22, with the following additions:

- a. Baseline urinalysis shall be performed for all permanent employees prior to their initial assignment at the facility.
- b. Any time uranium in urine reaches or exceeds an action level of 15 micrograms per liter (ug/l) for any worker, the licensee shall provide documentation, in the annual ALARA audit, to the NRC indicating what corrective actions have been performed to satisfy the recommendations of Revision 1 to Regulatory Guide 8.22.

Any time an uranium action level of 35 ug/l for two consecutive urine specimens or 130 ug/l for any one specimen is reached or exceeded, the licensee shall provide documentation within 30 days to the NRC indicating what corrective actions have been performed to satisfy the recommendations of Revision 1 to Regulatory Guide 8.22.

[Applicable Amendments: 8]

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Date: August 23, 2000

Philip Ting, Chief  
Fuel Cycle Licensing Branch  
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