Mr. Bill Ferdinand, Manager Radiation Safety, Licensing and Regulatory Compliance Quivira Mining Company 6305 Waterford Bldg., Suite 325 Oklahoma City, Oklahoma 73118

SUBJECT: ANNUAL SURETY UPDATE, AMENDMENT NO. 32 TO LICENSE SUA-1473

FOR AMBROSIA LAKE

Dear Mr. Ferdinand:

The U. S. Nuclear Regulatory Commission staff has completed its review of Quivira Mining Company's Ambrosia Lake Facility 1995 annual surety update as submitted in your letter of June 15, 1995. The review found the proposed reduction of the previous year's surety of \$15,220,000 by \$3,310,000 due to the net effects of inflation and completion of some reclamation work acceptable. The new surety amount is therefore \$11,910,000.

Therefore, pursuant to Title 10 of the Code of Federal Regulations, Part 40, Source Material License SUA-1473 is hereby amended by revising License Condition No. 22. All other conditions of this license shall remain the same. A copy of the staff's Technical Evaluation Report for the license amendment is Enclosure 1. The license is being reissued to incorporate the above modification (Enclosure 2). An environmental review was not performed, since this action is categorically excluded under 10 CFR 51.22(c)(10).

If you have any questions concerning this letter or the enclosure, please contact Ken Hooks, the NRC Project Manager for the Ambrosia Lake site, at (301) 415-7777.

> Sincerely, Original Signed By Joseph J. Holonich, Chief High-Level Waste and Uranium Recovery Projects Branch Division of Waste Management Office of Nuclear Material Safety and Safeguards

Docket No. 40-8905

License No. SUA-1473, Amend. No. 32

Enclosures: As stated

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OFFICIAL RECORD COPY TECHNICAL EVALUATION REPORT

DATE;

August 16, 1995

DOCKET NO.:

40-8905, License No. SUA-1473

LICENSEE:

Quivira Mining Company

FACILITY:

Ambrosia Lake Facility

PROJECT MANAGER: Kenneth Hooks

TECHNICAL

Tim Harris, Richard Turtil

REVIEWERS:

SUMMARY AND CONCLUSIONS;

The license proposed a revised bond amount of \$11,910,000. This amount reduces the previous bond amount of \$15,220,000 by \$3,310,000 due to the net effects of inflation and completion of some reclamation work. The proposed amount was reviewed by NRC staff, and found to be appropriate. The proposed surety amount of \$11,910,000 is therefore acceptable.

DESCRIPTION OF LICENSEE'S AMENDMENT REQUEST:

The licensee's amendment request, submitted by letter dated June 15, 1995, provided documentation that the net effects of inflation and completion of some reclamation work justified reducing the previous year's surety of \$15,220,000 by \$3,310,000.

The documents submitted in support of Quivira Mining's use of the Rio Algom Limited Parent Company Guarantee as the surety instrument were also revised. The financial data provided by Rio Algom supports the continued use of the Parent Company Guarantee as a surety.

The Licensee submitted all the appropriate documentation and no other changes to the license were requested.

TECHNICAL EVALUATION:

Based on the NRC staff evaluation of increase due to inflation through April 1994 and decreases due to completion of some reclamation work, we agree with the revised surety amount provided by Quivira Mining in its submittal to NRC.

RECOMMENDED LICENSE CHANGE:

Pursuant to Title 10 of the Code of Federal Regulations, Part 40, Source Material License SUA-1473 is amended by revising the surety amount in License Condition No. 22 to show the surety amount as \$11,910,000.

NRC	FORM	374
(7-94)		

U.S. NUCLEAR REGULATORY COMMISSION

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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	
1.	Quivira Mining Company	3. License Number SUA-1473, Amend. No. 32
2.	6305 Waterford Blvd., Suite 325 Oklahoma City, Oklahoma 73118 [Applicable Amendments: 12]	4. Expiration Date Until terminated [Applicable amends: 29] 5. Docket or Reference No. 40-8905

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 Unlimited

Uranium

Any

- 9. Authorized Place of Use: The Licensee's Ambrosia Lake facility located in McKinley, County, New Mexico.
- 10. This license authorizes uranium recovery in accordance with statements, representations, and conditions contained in submittals dated August 30, 1990, and January 31, 1991, with the exception that processing of conventional uranium ores shall not be performed without specific authorization from the NRC in the form of a license amendment. Anywhere the word "will" is used in the documents referenced above, it shall denote a requirement.

Any changes to the mill circuit as described in Section 6.2 of the August 30, 1990, submittal or as authorized by subsequent license conditions shall require approval by the NRC in the form of a license amendment. [Applicable Amendments: 4, 10, 11, 21, 28]

- 11. The licensee shall designate a Radiation Safety Officer (RSO) who will be responsible for the establishment and maintenance of a facility radiation protection program including personnel and environmental monitoring programs. The RSO shall possess minimum qualifications as specified in Section 2.4.1 of Regulatory Guide 8.31.
- 12. The licensee is authorized to possess byproduct material in the form of uranium process tailings and other byproduct wastes generated by the licensee's uranium processing operations. Mill tailings, other than small samples for purposes such as research or analysis, shall not be transferred from the restricted area without prior approval of the NRC in the form of a license amendment.
- 13. The licensee is authorized to operate mine water uranium recovery treatment facilities at Ambrosia Lake, New Mexico. These facilities include treatment plants at the main facility, Section 35-36, and individual ion exchange units located above or underground at the

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	Quivira Mining Company mine sites. The monitoring and radiological safety progr licensee's mill shall include these wate All U.S. DOT requirements shall be follow the ion exchange resin. A listing of the units currently in operation shall be prand shall be updated at least annually to	am in effect at the r treatment facilities. wed in the transport of e individual ion exchange ovided by January 1, 1987,
14.	Written standard operating procedures (S all operational process activities involume handled, processed or stored. These radiation safety practices to be followe written procedure shall be kept in the memployee reference. All SOPs shall be reprocedures and be approved by the RSO to protection principles are being applied.	ving radioactive materials that procedures shall specify d. An up-to-date copy of each ill area to which it applies for eviewed annually to update ensure that proper radiation
15.	The licensee shall be required to use a all work where the potential for signifi material exists and for which no SOPs ex by the Radiation Safety Officer (RSO), o of specialized radiation protection traithe following:	Radiation Work Permit (RWP) for cant exposure to radioactive ist. All RWPs shall be approved r his designee qualified by way ning. The RWP shall describe
	A. The scope of the work to be performe	d.
	B. Any precautions necessary to reduce materials.	exposures to radioactive
	C. Supplemental monitoring required pri completion of the work.	
16.	The licensee shall establish written pro activities including in-plant and enviro analysis and radiation monitoring instruprocedures shall be reviewed and approve that proper and current radiation protectapplied.	cedures for all surveillance inmental monitoring bioassay iment calibration. These id by the RSO annually to ensure ition principles are being
17.	Occupational exposure calculations shall within one (1) week of the end of each respecified in 10 CFR 20.103(a)(2) and 10 airborne ore dust and yellowcake samples manner to allow exposure calculations to this condition. RWP ore dust and yellow and the results reviewed by the RSO or he working days after sample collection.	regulatory compliance period as CFR 20.103(b)(2). Routine shall be analyzed in a timely be performed in accordance with weake samples shall be analyzed
18.	DELETED by Amendment No. 4.	
19.	The results of all effluent and environmental this license shall be reported semiannual CFR 40, Section 40.65, with copies of the	nental monitoring required by ally and in accordance with 10 ne report sent to the NRC.

- 14. Written standard operating procedures (SOPs) shall be established for all operational process activities involving radioactive materials that are handled, processed or stored. These procedures shall specify radiation safety practices to be followed. An up-to-date copy of each written procedure shall be kept in the mill area to which it applies for employee reference. All SOPs shall be reviewed annually to update procedures and be approved by the RSO to ensure that proper radiation protection principles are being applied.
- 15. The licensee shall be required to use a Radiation Work Permit (RWP) for all work where the potential for significant exposure to radioactive material exists and for which no SOPs exist. All RWPs shall be approved by the Radiation Safety Officer (RSO), or his designee qualified by way of specialized radiation protection training. The RWP shall describe the following:
 - The scope of the work to be performed.
 - Any precautions necessary to reduce exposures to radioactive materials.
 - Supplemental monitoring required prior to, during, and after the С. completion of the work.
- 16. The licensee shall establish written procedures for all surveillance activities including in-plant and environmental monitoring bioassay analysis and radiation monitoring instrument calibration. These procedures shall be reviewed and approved by the RSO annually to ensure that proper and current radiation protection principles are being applied.
- Occupational exposure calculations shall be performed and documented 17. within one (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. RWP ore dust and yellowcake samples shall be analyzed and the results reviewed by the RSO or his designee within two (2) working days after sample collection.
- 18. DELETED by Amendment No. 4.

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	Monitoring data shall be reported in the to SUA-1473 entitled, "Sample Format for [Applicable Amendments: 25]	
20.	The results of sample analyses, monitoricalibration, reports of audits and inspessessions required by applicable regulations subsequent reviews, investigations, and documented. Unless otherwise specified regulations, all documentation shall be a (5) years.	ctions, meetings, and training ons or this license and any corrective actions shall be in this license or in NRC
21.	The licensee shall operate the tailings with the "Tailings Stabilization Report" approved by the NRC and in compliance with changes in the tailings retention system deviate from the above shall require the evaluation of the changes and obtain approf an amendment to the license.	submitted October 1, 1986, as th 10 CFR 40, Appendix A. Any that would significantly licensee to provide a written
	In addition, the licensee shall implement program as specified in Section A3 of the 1986, with the exceptions that annual tembankment performance need to be perfort the tailings embankments need only be perwork days. [Applicable Amendments: 4,	e submittal dated, November 12, chnical evaluations of med, and daily inspections of rformed on regularly scheduled
22.	The licensee shall maintain an NRC-appropriate arrangement, consistent with 10 CFR 40, adequate to cover the estimated costs, if for decommissioning and decontamination reclamation of any tailings or waste disprestoration as warranted, and the long-terms.	Appendix A, Criteria 9 and 10, faccomplished by a third party, of the mill and mill site, bosal areas, ground water
	Annual updates to the surety amount, req Criteria 9 and 10, shall be submitted to year. Along with each proposed revision shall submit supporting documentation shand the basis for the cost estimates wit maintenance of a minimum 15 percent cont engineering plans, activities performed, affecting estimated costs for site closu estimate is the NRC approved reclamation supplemented by the NRC assumptions iden 37, or NRC approved revisions to the pla license, entitled "Recommended Outline f Stabilization Cost Estimates" outlines t by the NRC in the review of site closure Reclamation/decommissioning plans and an outline.	the NRC by June 30 of each or annual update, the licensee owing a breakdown of the costs and adjustments for inflation, ingency fee, changes in and any other conditions and any other conditions are. The basis for the cost decommissioning plan as tified in License Condition No. In the attachment to this or Site Specific Reclamation and the minimum considerations used estimates.
	The licensee's currently approved surety issued by Rio Algom Limited, shall be co	

- 20. The results of sample analyses, monitoring surveys, equipment calibration, reports of audits and inspections, meetings, and training sessions required by applicable regulations or this license and any subsequent reviews, investigations, and corrective actions shall be documented. Unless otherwise specified in this license or in NRC regulations, all documentation shall be maintained for a period of five (5) years.
- 21. The licensee shall operate the tailings retention systems in accordance with the "Tailings Stabilization Report" submitted October 1, 1986, as approved by the NRC and in compliance with 10 CFR 40, Appendix A. Any changes in the tailings retention system that would significantly deviate from the above shall require the licensee to provide a written evaluation of the changes and obtain approval from the NRC in the form of an amendment to the license.

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23.	amount no less than \$11,910,000 for the part of the pa	a replacement is authorized arantee necessitates a comple NRC as part of the annual information required above, toumentation of the (1) letter parent company, (2) auditor's ancial officer's letter, (3) nancial officer's letter to parent company guarantee icable Amendments: 18, 19, 2 e licensee shall provide for and land, including any	by te he
	interests therein (other than land owned State of New Mexico), which is used for t material or is essential to ensure the lodisposal site to the United States or the State's option.	by the United States or the the disposal of such byproduciong-term stability of such	t
24.	The licensee shall have a contingency pla releases of liquids or tailings from the impoundments, and lined evaporation ponds of uranium concentrates during shipment a	mill facility, tailings s and for the accidental rele	ed ase
25.	Release of equipment or packages from the unrestricted release or disposal shall be attachment to SUA-1473 entitled, "Guideli Facilities and Equipment Prior to Release Termination of Licenses for Byproduct or September, 1984.	e in accordance with the ines for Decontamination for e for Unrestricted Use or	
26.	Before engaging in an activity not previously assessed or that is greater the licensee shall prepare and record an such activity. Should the evaluation incresult in a significant adverse environmental previously assessed or that is greater that licensee shall provide a written evaluation prior approval of the NRC in the first state of the NRC in the NRC	environmental evaluation of dicate that such activity may ental impact that was not han that previously assessed, luation of the activity and	se,
27.	The licensee shall implement an interim stailings areas as specified in the "Tailisubmitted October 1, 1986, as modified by letter dated, March 20, 1987. This progroperating procedures and shall prevent of tailings to the extent reasonably achieval Criterion 8 of 10 CFR 40, Appendix A. The methods used shall be evaluated in accordant submitted by letter dated June 17, 1987, be documented in response to inspection to the licensee shall adhere to the interim	ings Stabilization Report" y Section 4.6 submitted by ram shall include written r minimize dispersal of blowi able and in accordance with he effectiveness of the contr dance with the procedure Corrective actions taken sh findings.	ol
	methods used shall be evaluated in accord submitted by letter dated June 17, 1987.	dance with the procedure Corrective actions taken sh findings.	

- 23. 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 New Mexico), 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 New Mexico, at the State's option.
- 24. The licensee shall have a contingency plan for responding to unexpected releases of liquids or tailings from the mill facility, tailings impoundments, and lined evaporation ponds and for the accidental release of uranium concentrates during shipment and transport.
- 25. Release of equipment or packages from the restricted areas for unrestricted release or disposal shall be in accordance with the attachment to SUA-1473 entitled, "Guidelines for Decontamination for Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct or Source Materials," dated, September, 1984.

- 26. Before engaging in an activity not previously authorized by the license, the licensee shall prepare and record an environmental evaluation of such activity. Should the evaluation indicate 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 the activity and obtain prior approval of the NRC in the form of a license amendment.
- 27. The licensee shall implement an interim stabilization program for tailings areas as specified in the "Tailings Stabilization Report" submitted October 1, 1986, as modified by Section 4.6 submitted by letter dated, March 20, 1987. This program shall include written operating procedures and shall prevent or minimize dispersal of blowing tailings to the extent reasonably achievable and in accordance with Criterion 8 of 10 CFR 40, Appendix A. The effectiveness of the control methods used shall be evaluated in accordance with the procedure submitted by letter dated June 17, 1987. Corrective actions taken shall be documented in response to inspection findings.

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	cleanup of contaminated areas as address October 15, 1987. [Applicable Amendments				
28.	The licensee is hereby exempted from the 20.203(e)(2) for areas within the mill proceed the mill are conspicuously posted in acceleration 20.203(e)(2) and with the words, "Any are radioactive material."	rovided that all entrances to ordance with Section			
29.	The licensee shall submit a detailed decelerate six (6) months prior to the planned activities.				
30.	Damaged yellowcake drums may be returned for disposal in Tailings Pond No. 2 as described in the licensee's submittals dated January 2, and March 5, 1987, and October 6, 1989. All such disposal shall be documented. In addition, no drums shall be disposed within 150 feet of the dam crest. [Applicable Amendments: 2, 14]				
31.	The licensee is authorized to process alto (raffinate and calcium fluoride sludges) Corporation's Gore, Oklahoma, facility in dated March 31, July 15, and August 6, 19 exception that the yellowcake product show or dried in accordance with Condition No. [Applicable Amendments: 3, 5, 7, 28]	from Sequoyah Fuels n accordance with the submittals 987, and May 15, 1990, with the all be maintained in slurry form			
32.	The licensee is authorized to dispose and materials resulting from past milling opel and No. 2, in accordance with submittal 1987. In addition, the licensee shall acrequirements. The licensee will maintain indicating quantities and locations of altailings ponds; prior to the disposal of establish a detailed procedure to describ placement and covering of wastes in the sthe licensee shall restrict any disposal locations greater than 150 feet from the Amendments: 6]	erations into tailings ponds No. Is dated June 10 and August 5, where to the following in detailed disposal records II waste material disposed in any wastes the licensee shall be the handling, preparation, specified disposal location; and in tailings pond No. 2 to			
33.	The licensee is hereby authorized to inject waters in accordance with their July 14, upper control limits shall be observed: mg/l, sulfate = 450 mg/l, carbonate/bicar standard units. Should any of these limmonthly sampling, the licensee shall immore chemically fortified waters, notify the I sample for the above parameters on a weel additional 25 days, submit a plan to remain [Applicable Amendments: 8]	1987 submittal. The following calcium = 35 mg/l, sodium = 253 rbonate = 303 mg/l, pH = 10.0 its be exceeded, based upon ediately suspend injection of NRC, in writing within 5 days kly frequency, and within an			

- 28. The licensee is hereby exempted from the posting requirements of 10 CFR 20.203(e)(2) 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."
- The licensee shall submit a detailed decommissioning plan to the NRC at 29. least six (6) months prior to the planned start of decommissioning activities.
- 30. Damaged yellowcake drums may be returned for disposal in Tailings Pond No. 2 as described in the licensee's submittals dated January 2, and March 5, 1987, and October 6, 1989. All such disposal shall be documented. In addition, no drums shall be disposed within 150 feet of the dam crest. [Applicable Amendments: 2, 14]
- 31. The licensee is authorized to process alternate feed materials (raffinate and calcium fluoride sludges) from Sequoyah Fuels Corporation's Gore, Oklahoma, facility in accordance with the submittals dated March 31, July 15, and August 6, 1987, and May 15, 1990, with the exception that the yellowcake product shall be maintained in slurry form or dried in accordance with Condition No. 38 of this license. [Applicable Amendments: 3, 5, 7, 28]
- 32. The licensee is authorized to dispose and bury contaminated waste materials resulting from past milling operations into tailings ponds No. 1 and No. 2, in accordance with submittals dated June 10 and August 5, 1987. In addition, the licensee shall adhere to the following requirements. The licensee will maintain detailed disposal records indicating quantities and locations of all waste material disposed in tailings ponds; prior to the disposal of any wastes the licensee shall establish a detailed procedure to describe the handling, preparation, placement and covering of wastes in the specified disposal location; and the licensee shall restrict any disposals in tailings pond No. 2 to locations greater than 150 feet from the dam crest. [Applicable Amendments: 6]
- 33. The licensee is hereby authorized to inject chemically fortified mine waters in accordance with their July 14, 1987 submittal. The following upper control limits shall be observed: calcium = 35 mg/l, sodium = 253 mg/1, sulfate = 450 mg/1, carbonate/bicarbonate = 303 mg/1, pH = 10.0 standard units. Should any of these limits be exceeded, based upon monthly sampling, the licensee shall immediately suspend injection of chemically fortified waters, notify the NRC, in writing within 5 days sample for the above parameters on a weekly frequency, and within an additional 25 days, submit a plan to remediate the situation. [Applicable Amendments: 8]
- 34. The licensee shall implement a groundwater compliance monitoring program containing the following:

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	Α.	Sample Dakota Sandstone wells 17-01, for antimony, arsenic, beryllium, cad molybdenum, nickel, selenium, combine uranium, thorium-230, lead-210, gross nitrate, pH, and electrical conductiv	dmium, cyanide, lead, ed radium-226 and -228, natural s alpha, chloride, sulfate,
		Sample Tres Hermanos A wells 31-01 ar molybdenum, nickel, selenium, radium-thorium-230, lead-210, gross alpha, cand electrical conductivity.	226 and -228, natural uranium,
		Sample Tres Hermanos B wells VH19-2, for cyanide, molybdenum, nickel, sele 228, natural uranium, thorium-230, le sulfate, nitrate, pH, and electrical	enium, combined radium-226 and - ead-210, gross alpha, chloride,
		Sample alluvium wells 5-03, 32-59, 31 nickel, selenium, combined radium-226 uranium, lead-210, gross alpha, chlor electrical conductivity.	and -228, thorium-230, natural
	В.	Comply with the following groundwater Sandstone point of compliance well 30 with background being recognized at w mg/1; arsenic = 0.1 mg/1, beryllium = mg/1; cyanide = 0.04 mg/1; lead = 0.1 nickel = 0.03 mg/1, selenium = 0.04 m combined radium-226 and -228 = 5.0 pc mg/1; thorium-230 = 2.3 pCi/1; lead-2	0-02, 30-48, 32-45, and 35-06, well 17-01: antimony = 0.05 0.01 mg/1; cadmium = 0.01 4 mg/1; molybdenum = 0.06 mg/1; mg/1; gross alpha = 56 pCi/1; 1/1 natural uranium - 0.02
		Comply with the following groundwater Hermanos A point of compliance well 3 recognized at well 33-01: cyanide = mg/l; nickel = 0.05 mg/l; selenium - pCi/l; combined radium-226 and -228 = 0.01 mg/l; thorium-230 = 4.3 pCi/l; l	31-01, with background being 0.01 mg/l; molybdenum - 0.03 0.03 mg/l; gross alpha = 18.0 = 5.0 pCi/l; natural uranium -
		Comply with the following groundwater Hermanos B point of compliance wells with background being recognized at w mg/1; molybdenum = 0.08 mg/1; nickel mg/1; gross alpha = 21.0 pCi/1; combipCi/1; natural uranium = 0.02 mg/1; t = 0.9 pCi/1.	31-66, 31-67, 36-01, and 36-02, well VH19-12: cyanide = 0.01 = 0.06 mg/1; selenium = 0.04 ined radium-226 and -228 = 7.4
		Comply with the following groundwater alluvium point of compliance wells 32 background being recognized at well 5 nickel = 0.06 mg/1; selenium = 0.05 m combined radium-226 and -228 = 5.0 pc natural uranium = 0.06 mg/1; lead-210	2-59, 31-61, and MW-24, with 5-03: molybdenum = 0.06 mg/l; ng/l; gross alpha - 57 pCi/l; Ci/l; thorium-230 = 3.1 pCi/l;
	С.	Implement a corrective action program	n as described in the September

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	25, 1989, submittal with the object concentrations of hazardous constituspecified in Subsection (B). The property of mine dewatering and main interceptor trench.	uents to the concentration limits rogram shall, at a minimum,
	D. Submit, by August 1 of each year, a program and its effect on the aquiford 11, 13, 15, 25]	review of the corrective action ers. [Applicable Amendments: 9,
35.	The licensee shall submit to the NRC, conthe New Mexico Environmental Improvement Amendments: 11]	opies of all correspondence with t Division. [Applicable
36.	The licensee is authorized to dispose of the Rio algom Mining Corp. Smith Ranch accordance with the submittals dated, Fe 26, 1991, with the following modification	f byproduct material waste from in-situ leach facility in ebruary 19, 1990, and September on additions:
. •	A. The written procedures, included in shall be reviewed and revised in acc No. 14.	the February 19, 1990, submittal cordance with License Condition
	B. Prior to disposal of drums containing shall obtain written confirmation for the drums have been verified to be a performed by Ambrosia Lake personnel	ng sludge material, the licensee rom Rio Algom Mining Company that full or the verification shall be
	C. Drums containing wastes other than swastes disposed directly into excava	
	D. All disposal activities shall be dod Amendments: 16, 23]	cumented. [Applicable
37.	The licensee shall reclaim the disposal September 24, 1990, and January 7, 1994, the following conditions. Though recogn conditions were assumed when evaluating reclamation plan as submitted, and are acceptable design alternatives. Justifialternatives must be submitted for NRC implementation.	submittals as supplemented by nized as conservative, these the acceptability of the identified pending submittal of ication for any design
	A. The radon barrier shall be construct licensee's September 28, 1990, subm 7, August 2, September 2, and November to placement of any material onto the defined in the licensee's October 4 establishing the integrity of the imperformed.	ted as specified in the ittal, as amended by the February per 4, 1994, submittals. Prior ne interim cover, the procedure 1990, submittal for neplace material must be
	B. DELETED by Amendment No. 19.	

- Submit, by August 1 of each year, a review of the corrective action program and its effect on the aquifers. [Applicable Amendments: 9, 11, 13, 15, 25]
- 35. The licensee shall submit to the NRC, copies of all correspondence with the New Mexico Environmental Improvement Division. [Applicable Amendments: 111
- 36. The licensee is authorized to dispose of byproduct material waste from the Rio algom Mining Corp. Smith Ranch in-situ leach facility in accordance with the submittals dated, February 19, 1990, and September 26, 1991, with the following modifications or additions:
 - The written procedures, included in the February 19, 1990, submittal shall be reviewed and revised in accordance with License Condition No. 14.
 - Prior to disposal of drums containing sludge material, the licensee shall obtain written confirmation from Rio Algom Mining Company that the drums have been verified to be full or the verification shall be performed by Ambrosia Lake personnel.
 - Drums containing wastes other than sludges shall be opened and the wastes disposed directly into excavated trenches.
 - All disposal activities shall be documented. [Applicable Amendments: 16, 23]
- 37. The licensee shall reclaim the disposal area as stated in the September 24, 1990, and January 7, 1994, submittals as supplemented by the following conditions. Though recognized as conservative, these conditions were assumed when evaluating the acceptability of the reclamation plan as submitted, and are identified pending submittal of acceptable design alternatives. Justification for any design alternatives must be submitted for NRC review and approval prior to implementation.
 - The radon barrier shall be constructed as specified in the licensee's September 28, 1990, submittal, as amended by the February 7, August 2, September 2, and November 4, 1994, submittals. Prior to placement of any material onto the interim cover, the procedure defined in the licensee's October 4, 1990, submittal for establishing the integrity of the in-place material must be performed.
 - DELETED by Amendment No. 19.

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(. The relocated contaminated material exceed 12 inches and compacted to a standard dry density after a stable	shall be placed in lifts not to at least 90 percent of the maximum work base has been established.
[In place density and moisture labor classification, and rock quality to 	ratory compaction, soil esting shall be performed in
	accordance with the licensee's Sept test procedures other than the sand are used in the construction qualit be used to establish correlation be for NRC review and approval prior t	I cone test or oven dry moisture by control, procedures that will etween the tests must be submitted
Ε	 A detailed cover design for Ponds I review and approval. All contamina not covered by the reclaimed Pond I Pond 2 unless an erosion protection and approval. 	1-21 must be submitted for NRC sted materials in Pond 3 that are outslope shall be relocated to plan is submitted for NRC review
	 The settlement survey data shall be approval prior to placement of the cover. 	e submitted for NRC review and radon barrier on the interim
G	. The fresh water dam mill reservoir reclamation activities.	must be breached during final
ŀ	 Settlement monuments shall consist square steel plate, or equivalent, surface. 	
. I	 The fill associated with the Pond 1 the same specifications and quality barrier material. 	spillway shall be constructed to control program as the radon
	. If a rock source other than the Hom licensee shall submit the results of the Final Staff Technical Position August 1990, for NRC review and app of the material.	of durability tests as outlined in on Design of Erosion Protection,
k	 All rip rap shall be placed in a material. The material placed and shall be within the following of 	anner that prevents segregation of shall be reasonably well graded pradation specifications.
	<u>D</u> ₅₀ = 1.0"	<u>D₅₀ = 3.2"</u>
•	Percent Passing <u>Sieve Size</u> (by weight)	Percent Passing Sieve Size (by weight)
	3 inch 100 2 inch 70-100 1 inch 25-55	6 inch 100 5 inch 78-100 4 inch 35-100

- С. The relocated contaminated material shall be placed in lifts not to exceed 12 inches and compacted to at least 90 percent of the maximum standard dry density after a stable work base has been established.
- D. In place density and moisture laboratory compaction, soil classification, and rock quality testing shall be performed in

- A detailed cover design for Ponds 11-21 must be submitted for NRC review and approval. All contaminated materials in Pond 3 that are not covered by the reclaimed Pond 1 outslope shall be relocated to Pond 2 unless an erosion protection plan is submitted for NRC review and approval.
- The settlement survey data shall be submitted for NRC review and approval prior to placement of the radon barrier on the interim cover.
- The fresh water dam mill reservoir must be breached during final reclamation activities.
- Settlement monuments shall consist of a steel bar welded to a 1-foot square steel plate, or equivalent, placed at least 3 feet below the surface.
- The fill associated with the Pond 1 spillway shall be constructed to the same specifications and quality control program as the radon barrier material.
- If a rock source other than the Homestake Quarry is selected, the licensee shall submit the results of durability tests as outlined in the Final Staff Technical Position on Design of Erosion Protection, August 1990, for NRC review and approval prior to placement of any of the material.
- All rip rap shall be placed in a manner that prevents segregation of the material. The material placed shall be reasonably well graded and shall be within the following gradation specifications.

<u>Sieve Size</u>	Percent Passing (by weight)	<u>Sieve Size</u>	Percent Passing (by weight)
3 inch	100	6 inch	100
2 inch	70-100	5 inch	78-100
1 inch	25- 55	4 inch	35-100

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		¾ inch ½ inch	15- 40 0- 25	3 inch 12- 45 2 inch 0- 20			
			$\underline{D}_{50} = 7.7"$				
				cent Passing by weight)			
			13 inch 12 inch 10 inch 8 inch 6 inch 4 inch	100 80-100 49-100 26- 54 7- 32 0- 13			
	L.			a D_{50} of 1 inch shall be placed ea having a D_{50} of 2 inches or			
		migration of	the base material into	nably well graded to prevent the riprap. The quality of the t to that of the riprap.			
	M.		xisting steep slopes t	placed on the West side of Pond ransition onto the flatter			
			shall submit a propose proval prior to constr	d design of the trench for NRC uction.			
	N.	The spillway to prevent er		led 45 feet onto the top of Pond 1			
	0.		D ₅₀ of 1 inch shall b on Ditch which are not	e placed in all areas of the excavated in rock.			
		surfaces of F the licensee	Ponds 1 and 2, which wa	rotection design of the top as approved in Amendment No. 18, r of riprap having a minimum ch.			
	[Ap	plicable Amend	iments: 18, 19, 29, 31	1			
38.	wit con	h the submitta	al dated, October 22, I	vellowcake drying in accordance 1990. In addition to commitments the licensee shall comply with			
	Α.	to airborne u		exposure of yellowcake operators oreathing zone sampling at the			

Sieve Size	Percent Passing (by weight)
13 inch	100
12 inch	80-100
10 inch	49-100
8 inch	26- 54
6 inch	7- 32
4 inch	0- 13

- The spillway riprap shall be extended 45 feet onto the top of Pond 1 Ν. to prevent erosion.
- Riprap with a D_{50} of 1 inch shall be placed in all areas of the South Diversion Ditch which are not excavated in rock.
- As an alternative to the erosion protection design of the top surfaces of Ponds 1 and 2, which was approved in Amendment No. 18, the licensee may use a 3-inch layer of riprap having a minimum median stone diameter (D_{50}) of 1-inch.

- 38. The licensee is authorized to perform yellowcake drying in accordance with the submittal dated, October 22, 1990. In addition to commitments contained in the October 22 submittal, the licensee shall comply with the following:
 - Air sampling used to determine the exposure of yellowcake operators to airborne uranium shall include breathing zone sampling at the yellowcake barrelling station.
 - Water flow rates for the wet scrubber servicing the yellowcake dryer

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		ates es	cked and recorde stablished which					ige of	•	
·	shall l	be peri	pection, cleaning formed and docume rea emission com	mented at	least annual	tive maint lly on all	enanc	e		
			edures shall be ition No. 14.				dance	e with	I	
39.	The licensee shall conduct an annual survey of land use (grazing, residences, water supply wells, etc.) in the area within two miles of the mill and submit a report of this survey annually to the NRC. This report shall indicate any differences in land use from that described in the licensee's previous annual report, and shall specifically address occupancy of the Berryhill Ranch. The report shall be submitted by July 1 of each year. [Applicable Amendments: 21]									
40.	The licensee shall complete site reclamation in accordance with an approved reclamation plan and groundwater corrective plan, as authorized by License Condition Nos. 37 and 34, respectively, in accordance with the following schedules.									
	in the Agency reclama practio	Memora (56 Flation 1 cable,	nely compliance andum of Underst 3 55432, October to control rador considering tec lowing schedule	tanding w r 25, 199 n emission chnologic	ith the Envir l), the licer ns as expedi	ronmental isee shall tiously as	Prote comp	ctior lete	i i	
	(1)		olown tailings 1 31, 1997.	retrieval	and placemen	nt of the	pile	-		
	(2)		ement of the int ings dispersal a			se the pot	entia	al for	•	
			For impoundment For impoundment approved bypro 1993.	nt No. 2,	excluding po	ortions us				
	(3)	to 1	ement of a fina imit radon emis Ci/m ² /s above ba	sions to	an average f					
			For impoundment for impoundment approved bypro 1997.	nt No. 2,	excluding p	ortions us				
	R. Reclam	ation	to ensure requ	ired long	evity of the	covered t	aili	nas		

- Detailed inspection, cleaning, and needed preventive maintenance shall be performed and documented at least annually on all yellowcake area emission control equipment.
- D. Written procedures shall be reviewed and approved in accordance with License Condition No. 14. [Applicable Amendments: 20]
- 39. The licensee shall conduct an annual survey of land use (grazing, residences, water supply wells, etc.) in the area within two miles of the mill and submit a report of this survey annually to the NRC. This report shall indicate any differences in land use from that described in the licensee's previous annual report, and shall specifically address occupancy of the Berryhill Ranch. The report shall be submitted by July 1 of each year. [Applicable Amendments: 21]
- 40. The licensee shall complete site reclamation in accordance with an approved reclamation plan and groundwater corrective plan, as authorized by License Condition Nos. 37 and 34, respectively, in accordance with the following schedules.

- To ensure timely compliance with target completion dates established in the Memorandum of Understanding with the Environmental Protection Agency (56 FR 55432, October 25, 1991), the licensee shall complete reclamation to control radon emissions as expeditiously as practicable, considering technological feasibility, in accordance with the following schedule:
 - Windblown tailings retrieval and placement of the pile -(1)July 31, 1997.
 - Placement of the interim cover to decrease the potential for (2) tailings dispersal and erosion -

Reclamation, to ensure required longevity of the covered tailings and groundwater protection, shall be completed as expeditiously as

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		onably achievable or completion:	e, in accorda	nce with the	following	target				
	(1) Placement of erosion protection as part of reclamation to comply with Criterion 6 of Appendix A of 10 CFR Part 40 -									
	For impoundment No. 1 - December 31, 1999. For impoundment No. 2, excluding portions used for approved byproduct material disposal - December 31, 1999. (2) Projected completion of groundwater corrective actions to meet performance objectives specified in the groundwater corrective action plan - December 31, 2043.									
С	specifi technol which c	ense amendment re ed in Section A m ogically feasible ompels delay to r of the licensee)	nust demonstra e including in eclamation, o	ate that comp nclement weat	liance was her, (liti	not gation				
D	B above the env involve caused	is reasonably achievable, in accordance with the following target dates for completion: (1) Placement of erosion protection as part of reclamation to comply with Criterion 6 of Appendix A of 10 CFR Part 40 - For impoundment No. 1 - December 31, 1999. For impoundment No. 2, excluding portions used for approved byproduct material disposal - December 31, 1999. (2) Projected completion of groundwater corrective actions to meet performance objectives specified in the groundwater corrective action plan - December 31, 2043. 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). 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.								
Dated:	Aug ö	<u> </u>	Joseph J. I High-Level Projects Division or	f Waste Manag Nuclear Mater	ef eanium Reco	<i>L</i> overy				

- (2) Projected completion of groundwater corrective actions to meet performance objectives specified in the groundwater corrective action plan - December 31, 2043.
- 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).
- 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.