Template OSP-006 Rulemaking SP08

STATE OF COLORADO

Bill Owens, Governor
Jane E. Norton, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

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Colorado Department
of Public Health
and Environment

March 14, 2000

Paul Lohaus
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Re: Colorado Radioactive Material License No. 660-02, Umetco Minerals Corporation Uravan Uranium Site

Dear Mr. Lohaus:

Enclosed are the *Decision Analysis – Proposed Action to Renew License* and the proposed License #660-02 Amendment No. 7. These were published for comment in early February, with comments due May 11, 2000. These documents are provided for your information as a matter of general interest and good communication in the context of Colorado's Amended Agreement with the U.S. Nuclear Regulatory Commission. While NRC will eventually have a concurrence role at the time of Uravan site final closure, no particular technical assistance is requested at this time.

If you have any question on this matter, please contact W. Jake Jacobi of the Radioactive Materials Program.

Respectfully,

David A Butcher

David Butcher, Director
Laboratory and Radiation Services Division

Cf: W. Jacobi, Don Simpson, and Ken Weaver, LARS (without enclosures)
Jerry Goad, Colorado Attorney General's Office (without enclosures)

Enclosures as stated

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STATE OF COLORADO

DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

RADIOACTIVE MATERIALS LICENSE

Pursuant to the Radiation Control Act, Title 25, Article 11, C.R.S. 1999, as amended, and the State of Colorado *Rules and Regulations Pertaining to Radiation Control*, (6 CCR 1007-1), and in reliance on statements and representations heretofore made by the licensee designated below,

COLORADO RADIOACTIVE MATERIAL LICENSE #660-02
IS HEREBY ADMINISTRATIVELY AMENDED, IN ITS ENTIRETY

authorizing such licensee to receive, possess, transfer, use and dispose the radioactive material(s) designated below and to use such radioactive materials for the purpose(s) and at the place(s) designated below. This license is subject to all applicable rules, regulations, and orders now or hereafter in effect of the Colorado Department of Public Health and Environment ("Department") and to any conditions specified below.

1.0 LICENSEE NAME

Umetco Minerals Corporation

2.0 LICENSEE ADDRESS

Mailing Address
2754 Compass Drive, Suite 280
Grand Junction, CO 81506
Phone (970) 245-3700
FAX (970) 245-7543

Local Address
P.O. Box 860
Nucla, CO 81424
Phone (970) 864-4301
Fax (970) 864-4360

3.0 LICENSE NUMBER 660-02 AMENDMENT NUMBER 07

4.0 EXPIRATION DATE December 31, 2010

5.0 REFERENCE NUMBER SUA-673

AUTHORIZATIONS

6.0 RADIOACTIVE MATERIALS

6.1.1 Natural uranium and radioactive decay products of uranium, in particular uranium-238, uranium-234, thorium-230, radium-226, radon-222 and progeny.

6.1.2 Thorium-232 and radioactive decay products of thorium-232, in particular radium-228, thorium-228, radium-224, radon-220 and progeny;

6.2.1 Cesium-137 (as used in Troxler Moisture Density Gauges)

6.2.2 Americium-241:Be (as used in Troxler Moisture Density Gauges)

7.0 CHEMICAL AND/OR PHYSICAL FORM

7.1 Milling and cleanup residues, including tailings, evaporation crystals and sludges, liquids; milling refuse, including equipment and building materials.

7.2 Four (4) Sealed Sources:

7.2.1 Troxler Drawing No. A-102112 (2 sources);

7.2.2 Troxler Drawing No. A-102451 (2 sources).

8.0 MAXIMUM QUANTITY LICENSEE MAY POSSESS AT ANY ONE TIME

8.1.1 12,500,000 dry tons (11,000,000 metric tonnes) (10,000,000 cubic yards) of tailing or other residues; unspecified quantities of milling refuse;

8.1.2 900,000 dry tons (792,000 metric tonnes) (750,000 cubic yards) of Naturita UMTRCA Title I materials;

8.1.3 516,000 dry tons (454,000 metric tonnes) (430,000 cubic yards) of 11e(2) byproduct material and 204,000 dry tons (180,000 metric tonnes) (170,000 cubic yards) of non-11e(2) by-product material, from Department approved off-site waste sources.

8.2 Two (2) sources, no single source to exceed 9 millicuries of Cesium-137, and two (2) sources, no single source to exceed 44 millicuries of Americium-241:Be.

9.0 AUTHORIZED USES

9.1.1 The licensee is authorized to store and dispose ores, milling residues, tailings, and refuse consistent with the Remedial Action Plan to which reference is made in LC 11.1.

9.1.2 The licensee is authorized to receive, own and possess, and permanently dispose of radioactive materials from Department approved off-site waste sources.

9.1.3 The licensee's use of Thorium-232 and its decay products is restricted to disposal in the B-Plant Repository.

9.2 The licensee is authorized to use the Troxler 3400 model series moisture/density gauges to determine the moisture content and density of soils and construction materials.

10.0 AUTHORIZED PLACE OF USE

10.1 The licensee's uranium processing facilities at Uravan in Montrose County, Colorado, located as follows:

Those portions of Township 47 North, Range 17 West, New Mexico Principal Meridian, Section 4, and Township 48 North, Range 17 West, New Mexico Principal Meridian, Sections 28, 29, 33 and 34, delineated in Annex A, and any other portion of the Uravan Facility, as defined in the Consent Decree, to which reference is made in LC 11.1.

10.2 Radioactive materials described in LC 6. 2 .1 and 6. 2 . 2 may be used at temporary job sites of the licensee anywhere in the State of Colorado where the State of Colorado maintains jurisdiction for regulating the use of radioactive material.

LICENSE CONDITIONS (LCs)

11.0 LICENSEE PROPOSALS AND COMMITMENTS (REFERENCED DOCUMENTS)

Except as specifically provided otherwise by this license, the licensee shall possess and use radioactive materials described in License Conditions (LCs) 6, 7, 8 and 9 of this license in accordance with statements, representations, and procedures contained in the following referenced documents:

11.1 *Uravan Uranium Millsite Remedial Action Plan* (hereafter "RAP") which is attached as Appendix I to the Consent Decree, Order, Judgement, and Reference to a Special Master Filed in the United States District Court, Civil Action No. 83C2384, "State of Colorado, Plaintiff, vs. Union Carbide Corporation, a New York Corporation, and Umetco Minerals Corporation, a Delaware Corporation, Defendants" (hereafter "Consent Decree").

11.2 Procedures for activities and environmental monitoring at Uravan, dated March 31, 1982, as subsequently revised pursuant to LC 20, including *Umetco Uravan Health and Safety Plan,* March 1995, as subsequently revised.

11.3 Final Plans and Specifications and Decommissioning Plans submitted in accordance with LC 11.1, when such Final Plans and Specifications become Final Submittals as defined by the Consent Decree.

11.4. Quality Control/Quality Assurance, Monitoring and Performance Evaluation Plan (Quality Plan) submitted in accordance with LC 11.1.

11.5 Financial assurance requirements stated in Section XVII of the Consent Decree, as revised pursuant to LC 31.

11.6 Long term monitoring and maintenance requirements as stated in Section IV(G) of the Consent Decree, as may be revised pursuant to LC 33.

11.7 Letter of April 20, 1987 from Roger Jones to Albert J. Hazle, with enclosure; letter of July 20, 1987 from Roger Jones to Edd Kray, with enclosures, each concerning use of the Troxler gauges.

11.8 Amendment application dated October 22, 1990, and as revised December, 1997.

11.9 *Amendment Request to Accept Radioactive Materials from Sites Located in the State of Colorado at the Uravan Project disposal Site, Montrose County, Colorado,* Amendment application dated June 30, 1992, as revised August 17, 1992.

11.10 *Response to Adequacy Review of Amendment Request,* dated December 4, 1992.

11.11 *Environmental Report Amendment in Support of Amendment Request of August 17,1992,* as revised.

11.12 Umetco corrections to Adequacy Review Responses contained in a letter from Curtis O. Sealy (Umetco) to D.H. Simpson (CDH-RCD) dated December 20, 1992, and subsequent revisions.

11.13 *Proposal to Maintain Optimal Groundwater System Performance, Uravan, Colorado*, Umetco Minerals Corporation, January 29, 1998.

11.14 *Final Plans and Specifications For Remedial Activities For New B-Plant Repository*, Umetco Minerals Corporation, August, 1998, as subsequently revised.

11.15 *Soil Cleanup Program Methodology for Uravan, Colorado*, Umetco Minerals Corporation, June, 1999.

11.16 *Waste Acceptance Plan, Uravan Waste Disposal Facility*, Umetco Minerals Corporation, September, 1999.

11.17 Enhanced evaporation system, letter from Tom Gieck, (Umetco) to Don Simpson (CDPHE), dated November 4, 1999, describing the system and requesting approval.

11.18 River Valley Point of Compliance letter from Curtis O. Sealy (Umetco) to Don Simpson (CDPHE), dated October 28, 1999, describing the rational for the point of compliance and requesting approval.

11.19 Club Mesa Point of Compliance letter from Curtis O. Sealy (Umetco) to Don Simpson (CDPHE), dated October 28, 1999, describing the rational for the point of compliance and requesting approval.

12.0 GENERAL CONDITIONS

12.1 DEFINITION OF TERMS

12.1.1 Unless otherwise provided in this license, terms used herein are as defined in the State of Colorado *Rules and Regulations Pertaining to Radiation Control* (6 C.C.R. 1007-1-1 et seq.), hereafter "Regulations" as amended.

"Division" means the Colorado Department of Public Health and Environment, Laboratory and Radiation Services Division.

"LC" is an abbreviation for License Condition.

"NRC" means United States Nuclear Regulatory Commission.

"RG" means a Regulatory Guide issued by the Division or NRC.

"OSC" means On-Site Coordinator (as that term is defined in paragraph III(h) of the Consent

Decree).

12.1.2 The term "off-site waste" is defined as a radioactive material, currently not located at the Umetco Uravan site. An off-site waste requires Department approval prior to receipt at the Umetco Uravan site.

An off-site waste does not include:

- a hazardous waste subject to the Resource Conservation and Recovery Act ("RCRA"),
- a low-level radioactive waste subject to the Rocky Mountain Low-Level Radioactive Waste Compact, or
- a waste subject to a certificate of designation from the Montrose County Commission.

12.1.3 As used in License Condition 17.5 the term "stockpile" shall mean the temporary storage of off-site wastes prior to final placement into a repository.

12.1.4 Other terms used herein are to be interpreted in a manner consistent with the Consent Decree and LC 11.1.

12.2 OBTAIN PERMITS OF OTHER AGENCIES

12.2.1 Prior to beginning any new construction or new operation, or any other activity authorized by this license, the licensee shall obtain all applicable permits and other authorizations of local, state and federal agencies having authority over health, safety, and environmental protection aspects of the activities authorized by Items 6, 7, 8, and 9 of this license. The licensee shall maintain in force such applicable permits.

12.2.2 The licensee shall inform the State through the On-Site Coordinator and provide a copy to the Laboratory and Radiation Services Division thirty (30) days prior to, or as soon thereafter as it is available, but in no event later than the date of filing of, any application to permitting agencies for modification or renewal of such permit or other authorization pursuant to LC 12.2.1.

12.3 COMPLY WITH PERMITS

Within the scope of applicable statutes and lawful regulations thereunder, the licensee shall operate in full compliance with the requirements of each other division of the Department.

Violation of such other requirements shall not by itself constitute violation of this license, unless the Department makes an independent finding of violation of the Regulations or a condition of this license other than this LC 12.3.

12.4 STATUS OF REFERENCED DOCUMENTS

A proposal or commitment in a referenced document is in effect a requirement of this license.

Where the word "will" or "should" is used in a document referenced in LC 11 above, it shall denote a requirement.

Where statements in referenced documents conflict, the most recent document shall prevail unless the Division determines otherwise.

A requirement of the Regulations shall control a provision of a referenced document which conflicts with said requirement unless the provision of the referenced document is more restrictive than the Regulations.

A requirement pursuant to revised regulations or policy shall be considered a modification of this license for the purposes of judicial review under Colorado law.

12.5 SEVERABILITY

If any part of the Radiation Regulations, Department or Division policy, or this license is held invalid, the remainder shall not be affected.

12.6 HAZARDOUS RELEASES

By this License, the Department does not permit, authorize, concur in, or otherwise approve of, the release or threatened release of a hazardous substance, pollutant, or contaminant into the environment, except as specifically authorized by this license.

12.7 WRITTEN APPROVAL

12.7.1 Required Department "acceptance", "approval", "authorization", or "concurrence" shall be obtained in writing from the Division, unless otherwise provided in the Radiation Regulations, or Department or Division policy.

12.7.2 When the Division reasonably and routinely consults with another party, including, but not limited to,

the State Archaeologist, State Engineer and Colorado Geological Survey, the licensee shall:

12.7.2.1 Permit such party to inspect designated documents, facilities, or sites;

12.7.2.2 Submit designated documents to the party for review; and

12.7.2.3 Conform applications and supporting documents to the written guidelines to or of such party as determined by the Division to be applicable to the project.

12.8 LICENSE CONDITIONS MODIFY REFERENCED DOCUMENTS

The following license conditions, to the extent such conditions are not inconsistent with LC 11.1, modify and add to commitments in the documents in LC 11.

13.0 OWNERSHIP AND CONTROL

13.1 EVIDENCE OF TITLE

The licensee shall provide to the Division evidence of any change in title to the properties described in LC 10 and Annex A.

13.2 NOTIFICATION OF INTENT

As required by Section XII of the Consent Decree, the licensee shall provide the Division with ninety (90) days advance notification of any proposed change in property ownership or control of the properties described in LC 10.0 and Annex A.

13.3 DIVISION AUTHORIZATION REQUIRED

13.3.1 No transfer of title to any portion of the licensed site may be made at any time without prior written authorization from the Division. Any such transfer shall be in accordance with Part 3.15.2 of the Regulations unless otherwise authorized by the Division.

13.3.2 No portion of the licensed site may be vacated without notification in accordance with Part 3.16 and 4.59 of the Regulations and prior written authorization from the Division.

13.4 TRANSFERABILITY

Ownership or control of the tailings confinement area shall be such that jurisdiction over the property

may be readily transferred to the State or federal government under the provisions of 6 CCR 1007-1 et seq.

13.5 BANKRUPTCY

The licensee shall notify the Department, in writing, indicating date and court, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any Chapter of Title 11 (Bankruptcy) of the United State Code by or against :

a. The licensee;
b. An entity (as that term is defined in 11 U.S.C 101(14)) controlling the licensee or listing the license or licensee as property of the estate; or
c. An affiliate (as that term is defined in 11 U.S.C. 101(2)) of the license.

14.0 USERS

14.1 AUTHORIZATION

The licensee shall submit resumes and documentation of users' training and experience to the Department and obtain written authorization from the Department for each user.

14.2 AUTHORIZED USERS

The licensee shall maintain throughout use of radioactive materials authorized by this license at least two (2) trained, qualified, and authorized users, to include the Radiation Safety Officer (RSO).

14.3 AVAILABILITY

An authorized user shall be on hand at the facility or immediately available at all times during remedial activities.

14.4 MINIMUM TECHNICAL QUALIFICATIONS FOR RADIATION PROTECTION OFFICER

The RSO shall have at least a B.S. degree in radiological or environmental sciences, or a related field, from an accredited college. The RSO shall have intensive formal training of at least one year duration with a minimum of one week of the course specifically applied to health physics problems at radioactive materials facilities. The RSO shall have at least one year of "hands on" experience in radiation safety and occupational health in a uranium mill or related facility, at least six months of this experience at the supervisory level. Refresher training in health physics (a minimum of 40 hours) is

required at least every two years.

A Master's Degree (or a more advanced degree) may be substituted for all or part of the required training, and for part of the required hands on experience, as noted in the two year intensive training requirement above.

With Department approval, experience may also be substituted for training requirements.

14.5 DESIGNATED ASSISTANTS TO THE RADIATION SAFETY OFFICER

The RSO may delegate to trained assistants functions, including quality assurance/quality control measures, required by this license for which a written procedure is included in LCs 11.1 through 11.4, so long as quality is maintained and documented and minimum qualifications for health physics technicians and other members of the radiation safety staff, according to LC 11.2 and as specified in LC 14.4 are met.

14.6 NON-SAFETY ASSIGNMENTS

The licensee's radiation safety and environmental control staff shall fulfill requirements of this license prior to being given assignments not related to health, safety and environmental protection, unless otherwise authorized by the Department.

15.0 EMERGENCY ACTIONS

15.1 REPORT OF ACCIDENTS

Immediately upon discovery, the licensee shall notify the OSC, at the Colorado Department of Public Health and Environment by telephone at (970) 248-7033 and the Laboratory and Radiation Services Division, Emergency Management Program, of the Colorado Department of Public Health and Environment, 8100 Lowry Blvd., Denver, Colorado 80220-6928 by telephone (877) 518-5608, of any failure or imminent threat of failure in any process, diversion, or retention system which results or may result in a release of radioactive material into uncontrolled areas.

The licensee shall also notify the Division in writing at the following address: Radioactive Materials Unit, Laboratory and Radiation Services Division, Colorado Department of Public Health and Environment, 8100 Lowry Blvd., Denver, Colorado 80220-6928. (The Division's FAX number is (303) 362-3692.)

This requirement is in addition to the requirements of 6 CCR 1007-1, Parts 4.52 through 4.53.

15.2 EMERGENCY RESPONSE CAPABILITY

The following shall be approved by the Department:

15.2.1 Warning System

Liquid emergency catchment basins shall have alarms tested at a frequency specified in LC 11. The licensee's system for warning in the event of a tailings impoundment break shall be as specified in LCs 11.2 through 11.4.

15.2.2 Response Plans

The licensee shall use a written plan and procedures, approved by the Department in conjunction with such agencies as the Division of Disaster Emergency Services and specified in LC 11, to respond to accidents and fires in the site complex and in transportation of radioactive material. This plan shall include provisions for prompt retrieval of any radioactive material released to uncontrolled areas by rupture of any storage or disposal area or pipeline.

15.2.3 Equipment

The licensee shall have available, every calendar day all year, sufficient personnel, equipment and supplies to respond to accidents, fires, and other emergencies in accordance with the plans specified in LC 11, as approved by the Department.

15.2.4 Training

The licensee shall document training to insure that sufficient trained persons are always available to respond to emergencies.

16.0 FACILITY OR PROCESS ADDITIONS OR CHANGES

16.1 The licensee shall provide the Department thirty (30) days advance notification of any proposed addition or change to the facility or a process or activity which potentially has a significant health, safety or environmental protection aspect. Potential public health or environmental impacts not previously assessed, or greater than previously assessed, require notification.

16.2 If the Department makes a preliminary finding of significant health, safety, or environmental impact, the licensee shall provide the Department with a written assessment of impacts resulting from the facility, process or activity addition or change.

16.3 If the Department, upon review of the licensee's written assessment, determines that written approval or a license amendment is required, the licensee shall apply for and obtain the prescribed authorization prior to modifying a feature of the facility, process or activity.

16.4 The licensee shall provide to the Department an acceptable plan of action to eliminate or effectively control any unexpected harmful effects or irreversible damage detected during operation and not otherwise identified in LC 11 or other license conditions.

17.0 DESIGN AND ENGINEERING

17.1 GENERAL CONSTRUCTION REQUIREMENTS

All construction related to License Conditions 6, 7, 8, and 9 shall be in accord with detailed plans approved by the Division (and such other agencies as the Division designates) as specified in LC 11 and as follows:

17.2 SUPERVISION

The licensee shall supervise all licensed construction activities in accordance with the regulations which govern the activities of the State Engineer and such additional requirements as are determined to be necessary pursuant to the Consent Decree and applicable State of Colorado rules and regulations.

17.3 FINAL PLANS, SPECIFICATIONS AND CONSTRUCTION REPORTS

The licensee shall make available three (3) copies of the detailed Final Plans and Specifications, Completion Report and Certification Report for all work for distribution by the Department to such other agency representatives as the Department designates.

17.4 SPECIFICATIONS FOR OFF-SITE WASTE

17.4.1 The licensee must receive written approval from the Department that the B-Plant Repository has been constructed in accordance with LC 11. 13 prior to the receipt or placement of any 11e(2) by-product material or other off-site waste in the B-Plant Area Repository.

17.4.2 The licensee shall stockpile not more than 10,000 cubic yards of 11e(2) by-product material and non-11e(2) by-product material on site at any one time.

17.4.3 Prior to the placement of cover material, the licensee shall provide written documentation and

confirmation of the thorium and radium concentration(s) of off-site wastes and earthen materials placed in the repository. The final repository cover shall be sufficient to attenuate radon-222 to 20 pCi/m^2-sec or less.

18.0 GENERAL REQUIREMENTS FOR ACTIVITIES

18.1 GENERAL MAINTENANCE

All site storage, processing, transport, impoundment, containment, monitoring, and safety systems which shall be operated pursuant to this License shall be maintained in good working order. The licensee shall document a system of routine preventive maintenance so that safety-related equipment is checked for proper working order according to a regular schedule.

18.2 RADIATION PROTECTION PROGRAM

18.2.1 The licensee shall develop, document, implement and maintain a radiation protection program sufficient to ensure compliance with the provisions of 6 CCR 1007-1, Part 4.

The licensee shall maintain records of the radiation protection program in compliance with the provisions of 6 CCR 1007-1, Part 4.41.

18.2.2. The licensee shall use to the extent practicable, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and public doses that are as low as is reasonably achievable (ALARA).

18.2.3 The licensee shall review the radiation protection program each calendar year for content and implementation.

18.2.4 Except as alternately authorized by the Division, the licensee shall address the intent of the following documents in the radiation protection program.

NRC RG 8.10, "Operating Philosophy for Maintaining Occupational Radiation Exposures As Low As Reasonably Achievable."

NRC RG 8.37, "ALARA Levels for Effluents from Materials Facilities."

18.3 MANAGEMENT

The licensee shall provide updated details of the authority and responsibility of each level of

management when changes occur.

18.4 OFF-SITE DOSE LIMITS

18.4.1 Limits

The licensee shall conduct activities in accordance with RH 4.15 in such a manner as to provide reasonable assurance that the committed effective dose equivalent limit is not exceeded for any individual member of the public as the result of exposures to radioactive materials resulting from release of radioactive materials, radon and its progeny excepted, to the general environment.

18.4.2 Performance

Determination of performance in relation to this part, including LC 18.6.1, shall be based upon the annual reports required by LC 30.

18.4.3 Specific Requirements

The licensee shall not permit any building or improvement at the Uravan Facility to be constructed for or occupied as a residence.

18.5 BASELINE INFORMATION

For the purpose of reviewing site cleanup and reclamation, the following shall be included as baseline references:

18.5.1 Environmental Report, dated August 31, 1978 for all baseline data and analyses, in particular: Section 2, pages 29-30, 43-50, 74-102, 109-113; Section 3, pages 32-34, 47-49, 60-63; Section 5, pages 9-10; Section 6, pages 20-21; Section 7, page 35; Appendices C & D;

18.5.2 Updated Environmental Report, dated March 31, 1982 as revised;

18.5.3 ERI Logan, Inc. Reports, Vols. I and II, August 11, 1986.

18.6 LEAK TESTING

18.6.1 Radioactive materials authorized in LC 6.2.1 and 6.2.2. shall be tested for leakage and/or contamination at intervals not to exceed six (6) months.

18.6.2 In the absence of a certificate from a transferor indicating that a test has been made within six months prior to the transfer, a sealed source received from another person shall not be put into use until tested.

18.6.3 As specified in the Radiation Regulations, Part 4.16.1.5, the test shall be capable of detecting the presence of 0.005 microcuries (185 Bq) of radioactive material on the test sample. The test sample shall be taken from the sealed source or from the surface of the device in which the sealed source is permanently mounted or stored on which one might expect contamination to accumulate. Each record of a leak test result shall be kept in accordance with Parts 4.1.6.4 and 4.43.

18.6.4 If the test reveals the presence of 0.005 microcuries (185 Bq) or more of removable contamination, the licensee shall immediately withdraw the sealed source from use and shall cause it to be decontaminated and repaired or to be disposed of in accordance with the Radiation Regulations. A report shall be filed within 5 days of the test with the Director, Laboratory and Radiation Services Division, of the Colorado Department of Public Health and Environment, 8100 Lowry Blvd., Denver, Colorado 80220-6928, describing the equipment involved, the test results, and the corrective action taken.

18.6.5 Tests for leakage and/or contamination shall be performed by the Radiation Safety Officer, or by other persons specifically authorized by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services.

18.7 TRANSPORTATION OF MATERIALS

18.7.1 The licensee may transport radioactive materials or deliver radioactive material to a carrier for transport, in accordance with the provisions of RH 17 of the State of Colorado *Rules and Regulations Pertaining to Radiation Control*, "Transportation of Radioactive Material".

18.7.2 The transportation of Colorado radioactive materials shall be subject to all applicable regulations of the Colorado Public Utilities Commission, Colorado Department of Transportation, Colorado Department of Public Safety, Colorado Department of Revenue (Port of Entry), U.S. Department of Transportation, and other agencies of the Unites States having jurisdiction. When the U.S. Department of Transportation Regulations (Title 49, Chapter I, Code of Federal Regulations) are not applicable to shipments by land of Colorado radioactive material by reason of the fact that the transportation does not occur interstate and / or is not foreign commerce, the licensee must be in compliance with the requirements relating to packaging of the radioactive material, marked in and labeling of the package, placarding of transport vehicle, and accident reporting set forth in the regulations of the U.S. Department of Transportation.

19.0 SITE CONTROL AND PERSONNEL SAFETY

19.1 RESPONSIBILITY

19.1.1 The Site Superintendent shall be accountable for safety, security, fencing, posting, and area control.

19.1.2 The RSO or RSO's designee shall have authority to remove employees from a work environment or suspend the operation in a particular site area if he has determined that a condition exists that would likely result in any individual being exposed to radiation that may present an imminent health hazard.

19.1.3 The Site Superintendent shall act promptly on the recommendations of the RSO or RSO's designee pertaining to radiation safety and security.

19.2 TRAINING

19.2.1 A new employee shall not commence work in a restricted area until they have been adequately trained in their assignment and in radiation safety, in accordance with a program approved by the Division and specified in LC 11.2. Such training shall be documented by dates, nature of training, tests and scores, and written acknowledgment of receipt by the employee.

19.2.2 The RSO shall document employee review of (1) procedures applicable to each employee's assignment and (2) provisions of 6 CCR 1007-1, Part 10.

19.2.3 The licensee shall accumulate at least ninety (90) minutes of training meeting time per year, or alternative amount approved by the Division and specified in LC 11.2, for each radiation worker to review radiation protection topics, documenting employee attendance, and re-train radiation workers annually on current developments in radiation safety.

19.3 PROTECTIVE CLOTHING

Respirators, gloves, boots, coveralls, helmets, goggles and other protective items shall be used at all times in areas or activities designated by the RSO.

19.4 RADIATION WORK PERMITS

The licensee's RSO or RSO's designee shall prepare a Radiation Work Permit, prior to start of any work or maintenance, at any location of the licensed facility or site, which has radiation safety implications and for which no written procedure exists. The Radiation Work Permit shall specify appropriate radiological controls. The licensee's Radiation Work Permit program shall be included in

LC 11.2, as approved by the Division . A copy of all permits shall be retained for no less than five (5) years for inspection by the Division.

19.5 SHOWERS

All workers shall shower or monitor head, face, and hands, and document absence of contamination exceeding 1000 dpm/100 cm^2, in areas or activities where designated by the RSO.

19.6 CONTROLLED AREA RESTRICTIONS

The licensee shall not allow eating and smoking in controlled areas, except in a control room, office, lunchroom, or other area specifically designated by the RSO.

19.7 SECURITY

The licensee shall fence and post a restricted area boundary as specified in LC 11.2 and in accordance with 6 CCR 1007-1, Parts 4.25 through 4.26.

19.8 POSTING EXEMPTION

The licensee is hereby exempted from the requirements of 6 CCR 1007-1, Parts 4.27 through 4.31 for areas within the exclusion area boundary, provided all entrances to the property are conspicuously posted with the sign:

"Any Area or Container on this Property
May Contain Radioactive Materials."

20.0 HEALTH, SAFETY AND ENVIRONMENTAL PROCEDURES

20.1 PROVISIONS

The licensee shall conduct construction and cleanup operations or activities according to written health, safety and environmental procedures, approved by the Department, governing licensed activities. The procedures shall be updated and maintained as necessary and contain safety, monitoring, decontamination, and emergency procedures, including:

20.1.1 Administrative and operating procedures relating to radiological health and safety;

20.1.2 Instructions and precautions to keep exposures ALARA;

20.1.3 Specific information on analytical equipment, laboratories, and procedures for each aspect of the monitoring program.

20.2 REVISIONS

20.2.1 No reduction in monitoring provisions shall be made without Department approval.

20.2.2 Any procedures revision shall be submitted to the Division for approval prior to implementation. If the Division has not formally commented on, or denied the revision within 60 days of receipt of said revision, the licensee may implement the revised procedure upon written notification to the Division. No reduction in monitoring provision shall be made without Division approval.

20.2.3 The licensee shall consider proposed procedure revision whenever new or revised regulatory guidance requiring such revision is provided to the licensee by the Division.

21.0 POINT SOURCE AIR EMISSIONS CONTROLS

Emissions from all activities shall be controlled in accordance with LC 11.2 and applicable permits.

22.0 AREA SOURCE AIR EMISSIONS CONTROLS

22.1 RESIDUE STORAGE AREAS

The licensee shall implement dust control as approved by the Department and specified in LC 11.2.

22.2 ROADS

The licensee shall control dusting from controlled area roads by sprinkling, or chemical crusting agents, and shall limit vehicle speeds to twenty (20) miles per hour.

22.3 AIRBORNE PARTICULATES

The licensee shall obtain Department approval for a program, specified in LC 11.2 for written procedures for all conditions, to minimize, to the maximum extent reasonably achievable, dispersion of airborne particulates from the tailings disposal area.

23.0 SOLIDS MANAGEMENT

23.1 SUPERVISION

The tailings confinement system shall be monitored by persons trained and under the supervision of a professional engineer, or other engineer, scientist, or person qualified by virtue of training and experience approved by the State as provided in LC 11.1.

23.2 QUALITY CONTROL PLAN FOR TAILINGS

The licensee shall strictly adhere to LC 11.4 and Annex E of this license, as modified and or superseded by LC 11.4., at all times, until such time as Final Submittals incorporating all required provisions are approved by the State.

23.3 MAINTENANCE

Culverts and roads shall be maintained at all times. All required maintenance, repair and erosion control shall be undertaken as expeditiously as possible.

23.4 DRAIN SYSTEMS

The drain and collection systems shall be monitored and maintained functional at all times. Required maintenance, repair and erosion control shall be as expeditious as possible.

23.5 MILL REFUSE AND EVAPORATION RESIDUE DISPOSAL

Radioactive materials, including insoluble sludges and residues, and site waste from construction, operation and decommissioning, may be disposed in tailing piles 1, 2 and 3, or in the B-Plant Area Repository approved by the Division. All waste material shall be disposed in accordance with LCs 11.1 through 11.4.

23.5.1 Disposal shall not occur within any current or future external dike of the tailings ponds; or the B-Plant Repository, and

23.5.2 The materials shall be disposed in a manner which minimizes void spaces and future settling abnormalities.

23.6 TOWN RESIDUES AND CONTAMINATED MATERIAL

All contaminated materials on licensee-controlled property at Uravan shall be disposed in accordance with the detailed requirements and the schedule in LCs 11.1 through 11.4.

24.0 LIQUIDS MANAGEMENT

The licensee shall meet the following requirements consistent with LC 11.1.:

24.1 Consistent with LC 11.1, the licensee shall not discharge a radioactive material or toxic pollutant to a SURFACE WATER.

24.2 The licensee shall not allow significant pollution to migrate to a GROUND WATER beyond the limited area specified in LCs 11.1 through 11.4.

24.3 The licensee shall control, by diversion or catchment, all SURFACE RUNOFF due to a 10-year, 24-hour precipitation event to or from all facilities or areas, as provided by LCs 11.1 through 11.4.

24.4 The licensee shall prepare CONTINGENCY PLANS, including in these corrective action plans remedial measures approved by the Department and specified in LCs 11.1 through 11.3, for any situation in which ongoing seepage threatens degradation of a surface and or ground water.

24.5 The licensee shall provide by March 31st of each calendar year, in the Annual Report, an updated water balance analysis of all inflows and outflows which are occurring and/or may be expected to occur.

24.6 The licensee shall operate an enhanced evaporation system according to the conditions presented in LC11.17, or as subsequently revised.

25.0 TRANSFER OF CONTAMINATED MATERIALS

25.1 MILL TAILINGS

Mill tailings, other than samples for laboratory analysis or research, shall not be transferred to or from the site without specific prior approval of the Department obtained through application for amendment of this license. The licensee shall maintain a permanent record of all transfers.

25.2 CONTAMINATED ITEMS

The licensee shall release contaminated equipment, packages or materials from controlled areas for sale, repair, reuse, resale or disposal only after documented radioactive decontamination meeting the requirements of the Division, as detailed in Annex C to this license or required pursuant to 6 CCR 1007-1, Part 3.22.

25.3 NON 11e(2) MATERIALS

The licensee is not authorized to accept for disposal non-11e(2) materials without prior written approval by the Department. Before Department consideration will be given, the licensee must, in accordance with U.S. Nuclear Regulatory Commission guidance on disposal of non-11e(2) materials, published at 57 FR 20526 (May 13, 1992):

1. Give at least 30 days notice to the U.S. Department of Energy to allow their comment on the disposal, and provide those comments to the Department; and

2. Provide the Department with documentation showing approval by the Rocky Mountain Low-Level Radioactive Waste Compact, or exclusion of 11e(2) materials from the Compact's authority; and

3. To the extent not already provided, furnish the Department with a review under 10 CFR Part 61 or obtain from the Department an exemption from such a review.

26.0 GENERAL SPECIFICATIONS FOR INSPECTION AND MONITORING

26.1 RECORDS

26.1.1 Consistent with LC 11.1, the results of sampling, analyses, surveys, instrument calibrations, inspections and audits, employee training, as well as any related reviews, investigations, and corrective actions shall be documented and made available for Department review.

26.1.2 All such documentation shall be retained and archived until other disposition is authorized by the Department. Personnel exposure records shall be preserved indefinitely.

26.2 LOWER LIMITS OF DETECTION

26.2.1 The licensee shall follow the lower limits of detection (LLDs) contained in Annex D for the analysis of samples collected pursuant to LCs 27 and 28. If the licensee is using other LLDs, such LLDs shall be submitted to the Department for review and approval.

26.2.2 If actual concentrations being measured are sufficiently higher than the lower limits of detection specified in LC 26.2.1, the sampling and analysis procedures need only be adequate to measure the actual concentrations. In such cases, the standard deviation estimated for variability due to random error of the analysis shall be no greater than ten percent (10%) of the measured value.

26.3 QUALITY ASSURANCE/QUALITY CONTROL

26.3.1 The licensee shall maintain a quality assurance/quality control program approved by the Department, and specified in LC 11.4, in accordance with the RAP.

26.3.2 NRC Regulatory Guide 4.15, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment", as revised, may be followed by the licensee; or the licensee's specifications may provide for an equivalent quality assurance program.

26.4 EQUIPMENT AVAILABLE

The inventory of monitoring equipment shall be such that operable and calibrated units are always on hand.

26.5 CALIBRATION OF EQUIPMENT

The licensee shall calibrate all radiation monitoring and sampling equipment after repair and, unless otherwise authorized by the Department, at least as frequently as the manufacturer's suggested interval, or annually if no interval is specified. Also, a check source shall be used to assure that radiation detection instruments are operating properly before each use.

27.0 PERSONNEL AND FACILITY MONITORING

27.1 Consistent with LC 11.1, the licensee's personnel and facility monitoring program shall be sufficient to enable the Department to estimate maximum potential occupational dose commitment and to demonstrate compliance with 6 CCR 1007-1, Part 4, and shall be:

27.1.1 As in the procedures required by LC 20 (and LC 11.2) as modified by this LC 27;

27.1.2 Revised as necessary in accordance with LC 20.2.

27.2 The RESULTS of personnel and facility monitoring required by LC 27 shall be included in the report required in LC 30.

27.3 PERSONNEL MONITORING control badges shall be kept in a background location.

27.4 BIOASSAY

A uranium bioassay program shall be conducted for employees and / or contractors when they

begin employment, and terminate employment, and as specified by the RSO in Radiation Work Permits, consistent with the site procedures manual approved by the Department, and NRC RG 8.22 "Bioassay at Uranium Mills" (Revision 0 or as subsequently revised).

27.5 BREATHING ZONE SAMPLING

A worker breathing zone sampling program shall be conducted as specified by the RSO in Radiation Work Permits, as is consistent with the site procedures manual approved by the Department.

27.6 ACTION LEVELS

The licensee shall specify in LC 11.2, action levels for all work area monitoring and effluent discharge monitoring which requires administrative action if DAC/ALI-based or ALARA-based concentration values are exceeded.

28.0 ENVIRONMENTAL MONITORING AND ANALYSIS PROGRAM

28.1 Consistent with LC 11.1, the licensee's environmental monitoring and analysis program shall be sufficient to enable the Department to estimate, with reasonable assurance, maximum potential radiation dose commitment to individuals and populations off-site, and to demonstrate compliance with LC 18.6.1, and shall follow the procedures manual required by LC 20 (and LC 11.2) as modified by this LC 28, and revised as necessary in accordance with LC 20.2.

28.2 The RESULTS of monitoring required by LC 28 shall be included in the report required by LC 30.

28.3 TAILINGS PILES 1, 2, and 3 and the B-Plant Area Repository monitoring shall include the monitoring program set forth in LC 11.2, Annex E of the license, and the long-term monitoring and maintenance program pursuant to LC 33.

28.4 AIR PARTICULATES shall be:

28.4.1 Monitored at the locations specified in LC 11.2, at least one nearest feasible residence, and at a control location;

28.4.2 Collected with weekly filter changes, or more frequently as required by dust loading;

28.4.3 Composited quarterly by location;

28.4.4 Analyzed for natural uranium, thorium-230, and radium-226.

28.5 AMBIENT RADON shall be monitored continuously at the locations specified in LC 11.2.

28.6 GROUND WATER shall be monitored as specified in LC 11.2.

28.6.1 The licensee shall submit an evaluation of the ground water monitoring program for the Club Mesa Area repositories including a comparison of downgradient wells with background conditions, per LC 11.19 and the methods set forth in Section A 5.4.3.3.2 of the Uravan RAP.

28.6.2 The licensee shall also submit an evaluation of the current groundwater corrective action program, as specified in LC 11.1, for the San Miguel River Valley. The evaluation shall include a comparison of background conditions with concentrations at the point of compliance, as described in Section A 5.4.3.3.2 of the Uravan RAP. The evaluation shall also include an optimization of the withdrawal system per the requirements of the Uravan RAP.

28.6.3 The licensee may submit an application for Alternative Concentration Limits (ACL's) pursuant to the methodology described in Criterion 5B (6) of Appendix A, Part 18, 6 CCR 1007-1 and Section 5.4.3.2.2 of the Uravan RAP.

28.7 SURFACE WATER shall be monitored as specified in LC 11.2.

28.8 A BETA/GAMMA CONTAMINATION SURVEY shall be conducted for areas approved by the Department and specified in LC 11.2.

29.0 SAFETY INSPECTIONS AND AUDITS

The licensee shall perform the following safety inspections and audits:

29.1 WEEKLY TAILINGS INSPECTIONS

The integrity of the tailing confinement system, associated structures and plumbing, and the effectiveness of the control methods used to control airborne particulates (LC 22.3), shall be verified at least weekly by trained personnel during documented inspections in accord with written procedures specified LC 11.2.

29.2 WEEKLY INSPECTIONS

Weekly documented inspections of all active work areas shall be conducted by the RSO to ensure

that the radiation safety program is as required. Any deviation from operating procedures, license requirements, or safety practices, including housekeeping practices, affecting radiological safety shall be reviewed with management or the employees and corrected.

29.3 RSO'S AUDIT

The RSO shall audit the inspection logs and reports and audit all monitoring data as provided in LC 11.2. The RSO shall summarize this information and submit a written report to the Site Superintendent recommending any necessary corrective actions and including an evaluation of the adequacy of the implementation of license requirements.

29.4 ANNUAL ALARA INDEPENDENT AUDIT

The licensee shall obtain and submit to the Department an annual performance audit of the health, safety, and environmental radiation protection programs required by this license.

30.0 REPORTS TO THE DIVISION

The licensee shall, for the previous calendar year ending December 31st, provide to the Division by March 31st of each year:

30.1 An ALARA REPORT on the program (in LC 18.4) for maintaining uranium and decay product exposures and releases ALARA (including as attachments the RSO's reports to the Site Superintendent, the auditor's report required by LC 29.4, and any revisions to the procedures manual required by LC 20). (As previously agreed for the Uravan site, the Annual Report also meets the requirement of RH 18.7.2. for a semi- annual groundwater report.)

The report shall include conclusions and recommendations of inspections required by LC 29 and shall evaluate employee exposures, including bioassay data (when performed) and environmental data to determine (1) if there are any upward trends developing in personnel exposures for identifiable categories of workers or types of operations, (2) if exposures might be lowered under the concept of maintaining exposures as low as reasonably achievable, and (3) if equipment for exposure control is being properly used and maintained.

30.2 An OFF-SITE RADIATION DOSE REPORT which evaluates, using site specific input parameters and methods approved by the Department, doses to off-site individuals and populations and, as necessary, indicates if standards in LC 18.4 are exceeded.

30.2.1 The licensee's assessment shall refer to details of regional natural radiation background and of past

and present uranium fuel cycle or other operations which have contributed or could contribute to radiation doses above those from natural radiation background.

30.2.2 The licensee's assessment shall include an up-to-date inventory of sources other than authorized by this license and which could reasonably be expected to affect compliance with LC 18.6, such as mine waste dumps and subore storage piles, and shall include a detailed topographic map locating all sources (with their area, height above ground surface, and average grade) within 5 miles (8 km) of the controlled area boundary, to the extent the information is available.

30.3 The results of an annual LAND USE SURVEY, conducted as in LC 11.1 and LC 11.2, of land and water use in an area within 5 miles (8 km) of any portion of the restricted area boundary, including:

30.3.1 A detailed topographic map(s) showing all environmental sample collection locations and all of the following within 5 miles (8 km) of any portion of the restricted area boundary: private residences, grazing areas, private and public potable water and agricultural wells, milk cattle, non-residential structures and uses, mining areas, and ore storage pads.

30.3.2 Indication of any differences in land use from that described in the licensee's previous report.

30.4 As provided in LC 11.2, monitoring data, in particular all data obtained pursuant to LC 27 and LC 28, shall be presented in tables and/or graphs which identify trends, including:

30.4.1 Tables containing date, type, and location for each analytical result (including the magnitude of the random error for each parameter).

30.4.2 Graphs or charts which are summaries.

30.4.3 Data, analyses, and results of ground water and surface water monitoring required by LC 28.6 and 28.7. In general, consistent with the Consent Decree and LC 11.2, reporting shall include an assessment of surface and ground water conditions and the analysis of tailings ponds and crystal disposal repository, stability, settlement (consolidation), drainage, erosion conditions, and describe the status of reclamation activities and the quality control and quality assurance program related thereto.

30.4.4 All data, analysis and results of measurements set forth in LC 28, in Annex E of the license, and in Appendix A of the Part 18 of the Radiation Regulations.

30.5 Off-site Waste Reporting

The licensee shall submit quarterly off-site waste project reports through the duration of any such

project; until repository closure. The licensee shall submit, and have received approval from the Division, a proposed quarterly report plan at least thirty (30) days prior to the receipt of any off-site wastes.

31.0 FINANCIAL ASSURANCES

31.1 FINANCIAL ASSURANCE AGREEMENTS REQUIRED

Failure to have properly and in a timely manner executed and delivered to the State financial assurance agreements to cover mill and site decontamination and decommissioning, reclamation and stabilization of disposal areas, and long term monitoring and maintenance may be reason for suspension or revocation of this license.

31.2 MAINTENANCE OF FINANCIAL ASSURANCE AGREEMENTS

As provided in the Consent Decree, the licensee shall maintain in force a financial assurance agreement and instruments pursuant to 6 CCR 1007-1, Part 3.9.5 for the decommissioning and decontamination of the mill, ore storage and tailings transport areas, and for the reclamation of the mill tailings and crystal disposal confinement areas until final action on release is taken by the Department as provided by the financial assurance agreements between the licensee and the Department.

3.1.3 RECLAMATION ASSURANCES

As provided in the Consent Decree, the financial assurance arrangements shall remain in force until final reclamation is completed pursuant to LC 11.1, final reclamation meets applicable State and federal regulations, and the property is transferred to the State or federal government under the provisions of 6 CCR 1007-1-18, Appendix A, Criterion 9.

3.1.4 AMOUNT OF FINANCIAL ASSURANCE

The decommissioning and reclamation financial assurance instruments shall be maintained in an amount sufficient to comply with LC 11.5.

31.5 ANNUAL REVIEW OF FINANCIAL ASSURANCE ARRANGEMENTS

The financial assurance agreement and instruments required by this license shall be subject to annual review for adequacy by the Department, and such other agencies as the Division designates, in accord with 6 CCR 1007-1, Part 3.9.5.6. Cost estimates may be adjusted upward or downward as current

circumstances, including, but not limited to, inflation, regulations, and technology, require. The licensee shall submit proposed changes by June 30th each year.

31.6 REPORTING

The licensee shall provide annually all reports required by LC 11.5 and Division policy as soon as the reports are generally available but not later than June 30th of each year.

31.7 RELEASE OF FINANCIAL ASSURANCES

31.7.1 Upon determination by the Division that performance required by this license has been complete and adequate, the licensee shall be released from the financial assurance requirement of the Radiation Regulations. In the event of partial or complete default on the part of the licensee in the performance of the work, the State may draw upon the financial assurance instruments as necessary to complete the reclamation, in accordance with LC 11.5.

31.7.2 The licensee shall notify the Department of the intent to request release of other applicable financial assurance arrangements with other agencies having jurisdiction over any aspect of the Uravan facility.

32.0 DECOMMISSIONING, DECONTAMINATION AND RECLAMATION

32.1 NON-REPOSITORY AREAS

32.1.1 As provided in the Consent Decree and LC 11.1, any portion of these decommissioned areas which are to be returned to unrestricted use shall be decontaminated toward the goal of background radiation ranges and hazardous constituent ranges acceptable to the Division based on statistically defensible tests of soil contamination with depth.

32.1.2 As provided in the Consent Decree and LC 11.1, the licensee shall minimize wind and water erosion of contaminated materials during reclamation using written procedures approved by the Division.

32.1.3 The licensee shall reclaim the existing solid and liquid waste disposal areas in accordance with the framework, schedule and details presented in the Consent Decree and LC 11.1.

32.2 OWNERSHIP OPTION RESPONSIBILITIES

32.2.1 Until the property is transferred to the State or federal government, the provisions of 6 CCR-1007-1, Part 18, Appendix A, Criterion 9, and the following shall be in force:

32.2.1.1 The licensee shall carry out the long-term monitoring and maintenance program.

32.2.1.2 The licensee shall not permit tailings material to remain exposed or be released to the surrounding area after reclamation.

32.2.1.3 The licensee shall prohibit the erection of any structures for occupancy by humans or animals.

32.2.1.4 The licensee shall prohibit establishment of private roads, trails, or rights-of-way across the covered surface.

32.2.1.5 The licensee shall maintain any necessary fencing to preclude entry of people or grazing or browsing animals.

32.2.1.6 The licensee shall maintain warning signs in accordance with 6 CCR 1007-1, Part 4.28.

33.0 LONG TERM MONITORING AND CARE

33.1 The licensee shall provide a cash fund whose projected growth and income will fully provide for long-term monitoring and care as approved by the Department.

33.2 The long-term care agreement and fund required by this license shall be in accord with 6 CCR 1007-1, Part 3.9.5.10.

FOR THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

By: _____ Date: _____

Warren Jacobi, Program Manager
Radioactive Materials Unit
Laboratory and Radiation Services Division

Annex A

BOUNDARY LINES OF AREAS FOR TAILINGS RECLAMATION, MILL DECOMMISSIONING AND POND RECLAMATION AT THE URAVAN MILL - FOR SURETY PURPOSES

ATKINSON CREEK AREA

A parcel of land in Sections 28 an 29 of Township 48 North, Range 17 West, New Mexico, Principal Meridian. Described as follows:

Commencing at the Northwest corner of said Section 28 whence the Southwest corner of Section 28 bears S 0° 53' 24" E; Thence S 17° 19' 03" E 1408.09 feet to the TRUE POINT OF BEGINNING; Thence S 43° 10' 04" E 111.30 feet; Thence S 36° 30' 41" W 395.53 feet; Thence S 56° 50' 34" E 106.77 feet; Thence S 13° 48' 14" E 135.24 feet; Thence S 65° 02' 51" W 94.38 feet; Thence S 89° 38' 16" W 147.86 feet; Thence N 74° 26' 50" W 148.30 feet; Thence N 66° 12' 28" W 481.65 feet; Thence N 54° 56' 32" E 323.11 feet; Thence N 88° 36' 38" E 280.40 feet; Thence N 46° 03' 43" E 205.02 feet; Thence N 69° 25' 59" E 173.16 feet to the TRUE POINT OF BEGINNING. Containing 6.55 acres.

CLUB RANCH POND AREA

A parcel of land in Section 28, Township 48 North, Range 17 West, New Mexico, Principal Meridian. Described as follows:

Commencing at the Northwest corner of said Section 28 whence the Southwest corner of Section 28 bears S 0° 53' 24" E; Thence S 18° 01' 47" E 2005.34 feet to the TRUE POINT OF BEGINNING; Thence 62° 39' 54" E 296.05 feet; Thence N 66° 17' 38" E 189.77 feet; Thence N 83° 57' 12" E 146.53 feet; Thence S 73° 03' 30" E 125.78 feet; Thence S 69° 53' 17" E 236.49 feet; Thence S 53° 20' 01" E 176.95 feet; Thence S 45° 03' 12" E 205.56 feet; Thence S 49° 41' 57" E 1136.56 feet; Thence S 50° 43' 56" E 336.57 feet; Thence S 39° 13' 21" E 149.07 feet; Thence S 38° 55' 14" E 579.12 feet; Thence S 45° 35' 09" E 380.38 feet; Thence N 82° 52' 29" E 91.41 feet; Thence S 34° 05' 10" E 129.85 feet; Thence S 8° 57' 06" W 237.60 feet; Thence S 52° 14' 18" W 312.40 feet; Thence 42° 37' 26" E 44.54 feet; Thence S 49° 38' 15" W 420.93 feet; Thence N 35° 51' 20" W 613.70 feet; Thence N 37° 04' 46" W 382.11 feet; Thence N 4° 38' 08" W 1145.59 feet; Thence N 66° 50' 11" W 450.95 feet; Thence N 70° 07' 50" W 814.49 feet; Thence N 20° 39' 16" E 293.77 feet; Thence
N 11° 21' 38" W 163.41 feet to the TRUE POINT OF BEGINNING. Containing 62.72 acres.

RIVER POND NORTH OF RIVER

A parcel of land Section 34, Township 48 North, Range 17 West New Mexico, Principal Meridian. Described as follows:

Commencing at the Northwest corner of said Section 34 whence the Southwest corner of Section 34 bears S 0° 10' 16" W; Thence S 25° 39' 53" E 2382.52 feet to the TRUE POINT OF BEGINNING; Thence S 86° 28' 26" E 173.80 feet; Thence S 69° 29' 22" E 311.77 feet; Thence S 60° 48' 24" E 262.61 feet; Thence S 23° 26' 09" E 136.68 feet; Thence S 25° 34' 39" W 153.30 feet; Thence N 85° 01' 19" W 129.28 feet; Thence N 75° 55' 01" W 184.15 feet; Thence N 48° 13' 17" W 141.06 feet; Thence N 39° 59' 48" W 222.49 feet; Thence N 33° 39' 00" W 229.74 feet to the TRUE POINT OF BEGINNING. Containing 4.49 acres.

RIVER POND SOUTH OF RIVER

A parcel of land in Section 34, Township 48 North, Range 17 West, New Mexico, Principal Meridian. Described as follows:

Commencing at the Northwest corner of said Section 34 whence the Southwest corner of Section 34 bears S 0° 10' 16" W; Thence S 20° 41' 00" E, 1992.09 feet to the TRUE POINT OF BEGINNING; Thence S 69° 22' 46" E 218.78 feet; Thence S 48° 23' 26" E 273.21 feet; Thence S 34° 53' 00" E 219.68 feet; Thence S 41° 41' 30" W 80.31 feet; Thence N 52° 40' 36" W 225.01 feet; Thence N 59° 55' 13" W 240.92 feet; Thence N 53° 53' 11" W 215.88 feet; Thence N 35° 11' 13" E 139.78 feet to the TRUE POINT OF BEGINNING. Containing 2.42 acres.

CLUB MESA RAFFINATE AREA

A parcel of land in Section 33, Township 48 North, Range 17 West New Mexico, Principal Meridian described as follows:

Commencing at the Southwest corner of said Section 33 whence the Southwest corner of Section 33 bears S 85° 49' 22" E; Thence N 77° 20' 45" E 1241.57 feet to the TRUE POINT OF BEGINNING; Thence N 31° 15' 13" E 421.54 feet; Thence N 18° 49' 49" E 168.84 feet; Thence N 18° 38' 11" W 230.57 feet; Thence N 6° 19' 20" W 432.28 feet; Thence N 2° 01' 46" W 425.68 feet; Thence N 10° 49' 48" W 176.81 feet; Thence N 20° 44' 55" E 162.21 feet; Thence 73° 51' 35" E 276.29 feet; Thence S 50° 53' 03" E 374.13 feet; Thence N 49° 18' 09" 466.36 feet; Thence N 72° 28' 22" E 166.12 feet; Thence S 89° 37' 37" E 304.30 feet; Thence S 72° 45' 42" E 243.72 feet; Thence N 5° 33' 03" E 232.00 feet; Thence S 7° 12' 44" E 753.58 feet; Thence S 17° 12' 35" E 464.57 feet; Thence S 39° 39' 11" W 245.01 feet; Thence S 53° 20' 43" W 333.33 feet; Thence S 34° 28' 08" W 424.74 feet; Thence S 82° 45' 36" W 354.65 feet; Thence S 21° 24' 08" W 158.77 feet; Thence S 10° 46' 47" W 146.57 feet; Thence S 50° 20' 38" W 416.18 feet; Thence N 27° 23' 41" W 268.93 feet; Thence N 47' 05" W 575.37 feet to the TRUE POINT OF BEGINNING. Containing 76.09 acres.

TAILINGS POND 1 & 2

A parcel of land in Section 33, Township 48 North, Range 17 West, New Mexico, Principal Meridian, described as follows:

Commencing at the Southeast corner of said Section 33 whence the Southwest corner of Section 33 bears N 85° 49' 22" W; Thence N 31° 08' 52" W 1889.45 feet to the TRUE POINT OF BEGINNING; Thence S 64° 46' 40" W 222.49 feet; Thence S 83° 32' 43" W 269.18 feet; Thence N 86° 08' 43" W 165.12 feet; Thence S 74° 27' 06" W 248.26 feet; Thence N 80° 10' 02" W 200.16 feet; Thence N 17° 12' 35" W 464.57 feet; Thence N 7° 12' 44" W 753.58 feet; Thence N 32° 42' 50" E 353.67 feet; Thence N 35° 51' 59" E 219.15 feet; Thence N 34° 31' 46" E 275.32 feet; Thence N 56° 37' 42" E 324.56 feet; Thence N 58° 57' 19" E 98.67 feet; Thence S 61° 25' 37" E 96.10 feet; Thence S 77° 10' 35" E 165.15 feet; Thence S 43° 19' 16" E 685.29 feet; Thence S 48° 00" 03" E 93.36 feet; Thence S 32° 28' 44" E 204.87 feet; Thence S 9° 22' 21" E 224.45 feet; Thence S 8° 43' 04" W 183.34 feet; Thence S 29° 20' 27" W 125.08 feet; Thence S 36° 18' 01" W 326.31 feet; Thence S 4° 29' 26" W 151.55 feet; Thence S 35° 26' 04" W 287.41 feet to the TRUE POINT OF BEGINNING. Containing 62.17 acres.

TAILINGS POND 3

A parcel of land in Section 33, Township 48 North, Range 17 West New Mexico, Principal Meridian. Described as follows:

Commencing at the Southwest corner of said Section 33 whence the Southeast corner of Section 33 bears S 85°49' 22" E' Thence S 87° 01' 34" E 2710.40 feet to the TRUE POINT OF BEGINNING; Thence N 13° 30' 14" W 500.19 feet; Thence N 34° 28' 08" E 424.74 feet; Thence N 53° 20' 43" E 333.33 feet; Thence N 39° 39' 11" E 245.01 feet; Thence S 80° 10' 02" E 200.16 feet; Thence N 74° 27' 06" E 248.26 feet; Thence S 86° 08' 43" E 165.12 feet; Thence S 58° 14' 31" E 226.87 feet; Thence S 62° 59' 26" E 347.70 feet; Thence S 32° 19' 18" E 110.99 feet; Thence S 8° 28' 24" E 148.65 feet; Thence S 30° 18' 23" W 102.40 feet; Thence S 61° 55' 49" W 1360.60 feet; Thence N 89° 50' 24" W 480.19 feet to the TRUE POINT OF BEGINNING. Containing 34.43 acres.

A PLANT

A parcel of land in Section 33 and 34 of Township 48 North, Range 17 West, New Mexico Principal Meridian. Described as follows:

Commencing at Northwest corner of said Section 34 whence the Southwest corner of Section 34 bears S 0 10' 16" W; Thence S 1° 54' 50 E 1769.46 feet to the TRUE POINT OF BEGINNING: Thence N 51° 44' 34" E 140.94 feet; Thence S 54° 08' 00" E 398.55 feet; Thence S 64° 12' 10" E 144.95 feet; Thence 53° 53' 12" E 215.88 feet; Thence S 59° 55' 13" E 240.92 feet; Thence S 52° 40' 35" E 225.01 feet; Thence S 54° 19' 37" E 579.18 feet; Thence S 45' 50" W 97.78 feet; Thence S 26° 55' 12" W 142.83 feet; Thence S 36° 16' 51" W 766.68 feet; Thence S 3° 33' 41" E 291.44 feet; Thence S 39° 25' 23" W 204.96 feet; Thence N 39° 30' 14" W 242.55 feet; Thence N 47° 54' 25" E 120.45 feet; Thence N 28° 52' 36" E 491.00 feet; Thence N 22° 27' 58" W 139.58 feet; Thence N 52° 07' 08" W 424.05 feet; Thence N 46° 07' 40" W 289.13 feet; Thence N 88° 34' 23" W 261.91 feet; Thence N 26° 12' 23" W 120.96 feet; Thence N 32° 53' 24" W 528.66 feet; Thence N 1° 42' 27 E 171.62 feet; Thence N 43° 10' 56" W 136.88 feet; Thence N 48° 12' 20" E 164.14 feet to the TRUE POINT OF BEGINNING. Containing 29.58 acres.

B PLANT

A parcel of land in Section 4, Township 47 North, Range 17 West and Section 33 and 34 of Township 48 North, Range 17 West, New Mexico Principal Meridian, described as follows:

Commencing at the Northeast corner of said Section 33 whence the Southeast corner of Section 33 bears 0 10' 16" W; Thence S 49° 20' 16" W 1573.54 feet to the TRUE POINT OF BEGINNING; Thence S 31° 46' 21" E 1181.56 feet; Thence S 29° 36' 06" E 339.84 feet; Thence S 24° 38' 56" 181.02 feet; Thence S 70° 20' 47" E 403.77 feet; Thence S 54° 38' 27" E 278.09 feet; Thence S 43° 44' 07" E 426.83 feet; Thence S 33° 02' 32" E 490.65 feet; Thence 37° 31' 07" W 354.83 feet; Thence S 51° 08' 27" W 507.58 feet; Thence S 61° 42' 50" W 328.85 feet; Thence S 72° 54' 21" W 653.75 feet; Thence S 52° 49' 45" W 724.87 feet; Thence S 62° 37' 34" W 670.70 feet; Thence S 53° 30' 00" W 261.14 feet; Thence S 24° 45' 15" W 261.14 feet; Thence West 489.72 feet; Thence N 69° 14' 43" W 118.22 feet; Thence N 26° 48' 28" E 321.11 feet ; Thence N 38° 27' 35" E 281.50 feet; Thence S 89° 50' 24" E 480.19 feet; Thence N 61° 55' 49" E 1360.60 feet; Thence N 30° 18' 24" E 102.40 feet; Thence N 8° 28' 25" W 148.65 feet; Thence N 32° 19' 18" W 110.99 feet; Thence N 61° 06' 57" W 574.10 feet; Thence N 83° 32' 43" E 269.19 feet; Thence N 64° 46' 40" E 222.49 feet; Thence N 35° 25' 04" E 287.41 feet; Thence N 4° 29' 27" E 151.55 feet; Thence N 36° 18' 01" E 326.31 feet; Thence N 29° 20' 26" E 125.08 feet; Thence N 8° 43' 05" E 183.34 feet; Thence N 9° 22' 21" W 224.45 feet; Thence N 32° 28' 44" W 204.87 feet; Thence N 48° 00' 02" W 93.37 feet; Thence N 43° 19' 16" W 685.29 feet; Thence N 77° 10' 36" W 165.15 feet; Thence N 6° 25' 35" W 96.10 feet; Thence S 58° 57' 19" W 98.67 feet; Thence S 56° 37' 41" W 324.56 feet; Thence N 89° 30' 50" W 102.62 feet; Thence N 87° 38' 48" W 370.41; Thence N 33° 54' 23" W 375.66 feet; Thence S 84° 31' 05" W 295.61 feet; Thence N 40° 38' 28" E 387.01 feet; Thence N 35° 57' 34" E 293.06 feet; Thence N 55° 25' 03" E 199.29 feet; Thence N 78° 23' 38 E 405.37 feet; Thence N 76° 3' 45" E 373.27 feet; Thence S 48° 05' 52" E 340.65 feet; to the TRUE POINT OF BEGINNING. Containing 104.66 acres.

PIPE RACK

A pipe rack in Sections 33 and 34 of Township 48 North, Range 17 West, New Mexico Principal Meridian.

Commencing at the Northwest corner of said Section 33 whence the Southwest corner of Section 33 bears S 0 10' 16" W; Thence S 2° 25' 00" E 2304.91 feet to the TRUE POINT OF BEGINNING; Thence S 38° 16' 27" W 390.33 feet.

PIPELINE 1

A pipeline crossing the San Miguel River in Section 33, Township 48 North, Range 17 West, New Mexico, Principal Meridian.

Commencing at the Northeast corner of said Section 33 whence the Southeast corner of Section 33 bears S 0 10' 16" W; Thence S 63° 56' 08" W 934.49 feet to the TRUE POINT OF BEGINNING: Thence S 1° 10' 10" E 111.18 feet.

PIPELINE 2

A pipeline crossing the San Miguel River in Section 34, Township 48 North, Range 17 West, New Mexico Principal Meridian.

ommencing at the Northwest corner of said Section 34 whence the Southwest corner of Section 34 bears S 0 10' 16" W; Thence S 20° 18' 12" E 1843.08 feet to the TRUE POINT OF BEGINNING; Thence S 23° 55' 27" W 231.60 feet.

PIPELINE 3

A pipeline crossing the San Miguel River in Section 34, Township 48 North, Range 17 West, New Mexico Principal Meridian.

Commencing at the Northwest corner of said Section 34 whence the Southwest corner of Section 34 bears 0 10' 16" W; Thence S 30° 01' 55" E 2614.84 feet to the TRUE POINT OF BEGINNING; Thence S 58° 29' 26" W 77.30 feet.

Annex B

SUGGESTED FORMAT FOR REPORTING MONITORING DATA

Reporting units used in this Annex B are suggestions. Other units may be used as are consistent with present practice.

0. Headnotes

a. This table is not a complete list of data to be reported.

b. Error estimate should be calculated at 95% confidence level, based on counting error and other sources of random error. Significant systematic error should be reported separately.

c. All calculations of lower limits of detection (LLD) and percentages of Derived Air Concentrations (DAC) should be included as supplemental information.

1. STACK SAMPLES (Where Applicable)

For each sample analyzed, report the following information:

a. Date sample was collected

b. Location of sample collection

c. Stack flow rate (m^3/sec)

Radionuclide	Concentration (uCi/ml)	Error Estimate (uCi/ml)	LLD (uCi/ml)
U-nat			
Th-230			
Ra-226			
Pb-210			

Radionuclide	Release Rate (Ci/qtr)	Error Estimate (Ci/qtr)
U-nat		
Th-230		
Ra-226		
Pb-210		

SUGGESTED FORMAT FOR REPORTING MONITORING DATA

2. AIR SAMPLES

For each sample analyzed, report the following information:

a. Date sample was collected

b. Location of sample collection

Radionuclide	Concentration (uCi/ml)	Error Estimate (uCi/ml)	LLD (uCi/ml)	% DAC
U-nat				
Th-230				
Ra-226				
Pb-210				
Rn-222				

3. LIQUID SAMPLES

For each sample analyzed, report the following information:

a. Date sample was collected

b. Location of sample collection

c. Type of sample (for example: surface, ground, drinking, stock, or irrigation)

Radionuclide	Concentration (uCi/ml)	Error Estimate (uCi/ml)	LLD (uCi/ml)
U-nat			
(dissolved)			
(suspended)*			
Th-230			
(dissolved)			
(suspended)*			
Ra-226			
(dissolved)			
(suspended)*			

SUGGESTED FORMAT FOR REPORTING MONITORING DATA

Pb-210
(dissolved)
(suspended)*
Po-210
(dissolved)
(suspended)*

4. VEGETATION, FOOD, AND FISH SAMPLES

For each sample analyzed, report the following information:

a. Date sample was collected
b. Location of sample collection
c. Type of sample and portion analyzed

Radionuclide	Concentration (uCi/kg wet)	Error Estimate (uCi/kg)	LLD (uCi/kg)
U-nat			
Th-230			
Ra-226			
Pb-210			
Po-210			

5. SOIL AND SEDIMENT SAMPLES

For each sample analyzed, report the following information:

a. Date sample was collected
b. Location of sample collection
c. Type of sample and portion analyzed

Radionuclide	Concentration (uCi/g)	Error Estimate (uCi/g)	LLD (uCi/g)
U-nat			
Th-230			
Ra-226			
Pb-210			
Po-210			

* Not all samples must be analyzed for suspended radionuclides.

SUGGESTED FORMAT FOR REPORTING MONITORING DATA

6. DIRECT RADIATION MEASUREMENTS

For each measurement, report the dates covered by the measurement and the following information:

Location	Exposure Rate (mR/qr)	Error Estimate (mR/qr)

7. RADON MEASUREMENTS

Without in any way modifying or altering the monitoring requirements under the license, the following format is provided for use in reporting any information required by the license. For each measurement, report the dates covered by the measurement and the following information:

Location	Flux Rate (pCi/m^2-sec)	Error	Progeny WL	Error	Gas pCi/L	Error

8. Non-Radiological Measurement

All routine and/or required non-radiological measurements (e.g., for liquid samples: pH, electrical conductivity, total dissolved solids, total suspended solids, Cl^-, $SO_4^=$, etc.) are also to be reported in an appropriate format.

Annex C

DECONTAMINATION OF FACILITIES AND EQUIPMENT
PRIOR TO RELEASE FOR UNRESTRICTED USE
OR TERMINATION OF LICENSES FOR RADIOACTIVE MATERIAL

These instructions in conjunction with Table I specify the radioactivity and radiation exposure rate limits which are to be used in accomplishing the decontamination and survey of surfaces or premises and equipment prior to abandonment or release for unrestricted use. The limits in Table I do not apply to premises, equipment, or scrap containing induced radioactivity for which the radiological considerations pertinent to their use may be different. The release of such facilities or items from regulatory control will be considered on a case-by-case basis.

1. The licensee shall make a reasonable effort to eliminate residual contamination.

2. Radioactivity on equipment or surfaces shall not be covered by paint, plating, or other covering material unless contamination levels, as determined by a survey and documented, are below the limits specified in Table I prior to applying the covering. A reasonable effort must be made to minimize the contamination prior to use of any covering.

3. The radioactivity on the interior surfaces of pipes, drain lines, or ductwork shall be determined by making measurements at all traps, and other appropriate access points, provided that contamination at these locations is likely to be representative of contamination on the interior of the pipes, drain lines, or ductwork. Surfaces of premises, equipment, or scrap which are likely to be contaminated but are of such size, construction, or location as to make the surface inaccessible for purposes of measurement shall be presumed to be contaminated in excess of the limits.

4. Upon request, the Department may authorize a licensee to relinquish possession or control of premises, equipment, or scrap having surfaces contaminated with materials in excess of the limits specified. This may include, but would not be limited to, special circumstances such as razing of buildings, transfer of premises to another organization continuing work with radioactive materials, or conversion of facilities to a long-term storage or standby status. Such requests must:

   a. Provide detailed, specific information describing the premises, equipment or scrap, radioactive contaminants, and the nature, extent, and degree of residual surface contamination.
   b. Provide a detailed health and safety analysis which reflects that the residual amounts of materials on surface areas, together with other considerations such as prospective use of the premises, equipment or scrap, are unlikely to result in an unreasonable risk to the health and safety of the public.

5. Prior to release of premises for unrestricted use, the licensee shall make a comprehensive radiation survey which establishes that contamination is within the limits specified in Table I. A copy of the survey report shall be filed with the Radiation Control Division, Colorado Department of Public Health and Environment. The survey report shall:

   a. Identify the premises.

   b. Show that reasonable effort has been made to eliminate residual contamination.

   c. Describe the scope of the survey and general procedures followed.

   d. State the finding of the survey in units specified in the instruction.

Following review of the report, the Division will visit the facilities to confirm the survey.

TABLE I: ACCEPTABLE SURFACE CONTAMINATION LEVELS

NUCLIDES [a]	AVERAGE [b,c,f]	MAXIMUM [b,d,f]	REMOVABLE [b,e,f]
Alpha emissions from U-nat, U-235, U-238, and associated decay products	5,000 dpm per 100 cm^2	15,000 dpm per 100 cm^2	1,000 dpm per 100 cm^2
Alpha emissions from Ra-226, Ra-228 Th-230, Th-228, Ac-227	100 dpm per 100 cm^2	300 dpm per 100 cm^2	20 dpm per 100 cm^2
Alpha emissions from Th-nat, Th-232, Ra-223, Ra-224, U-232	1,000 dpm per 100 cm^2	3,000 dpm per 100 cm^2	200 dpm per 100 cm^2
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except others noted above.	5,000 dpm per 100 cm^2	15,000 dpm per 100 cm^2	1,000 dpm per 100 cm^2

[a] Where surface contamination by both alpha and beta/gamma-emitting nuclides exists, the limits established for alpha and beta/gamma-emitting nuclides should apply independently.

[b] As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

[c] Measurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should be derived for each such object.

[d] The maximum contamination level applies to an area of not more than 100 cm^2.

[e] The amount of removable radioactive material per 100 cm^2 of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

[f] The average and maximum radiation levels associated with surface contamination resulting from beta/gamma emitters should not exceed 0.2 mrad/hr at 1 cm and 1.0 mrad/hr at 1 cm, respectively, measured through not more than 7 milligrams per square centimeter of total absorber.

Annex D

Lower Limits of Detection (LLD) for Environmental Sample Analysis

U-natural, Th-230, Ra-226 in air	1×10^{-16} uCi/ml
Rn-222	2×10^{-10} uCi/ml
U-natural, Th-230, Ra-226 in water	2×10^{-10} uCi/ml
Po-210 in water	1×10^{-9} uCi/ml
Pb-210 in water	1×10^{-9} uCi/ml
U-natural, Th-230, Ra-226, Pb-210 in soil and sediment (dry)	2×10^{-7} uCi/g

Annex E

Monitoring Requirements for Club Mesa Repositories

Consistent with the Consent Decree and LC 11.1 and as stated in LC 11.6, the monitoring program for Club Mesa involves the surveillance of Tailings Piles 1, 2, and 3, the crystal disposal area, and conditions beneath the mesa. Reports on the Club Mesa monitoring program will address the key factors and components described in the following sections.

Tailings Ponds 1, 2, and 3

The monitoring program for the Club Mesa Tailings Piles is designed to provide information on the phreatic levels in the pile, to ascertain settlement rates and amounts, provide data on stability and erosion of the protective cover, and to determine the rate and impact of cliff retreat. To determine these factors the tailings pile monitoring system is divided into four parts: 1) piezometers, 2) surface movement monuments, 3) erosion monuments, and 4) visual inspection/aerial photography. Ground water monitoring for Club Mesa is described in LC 11.1 and includes seepage monitoring for Tailings Piles 1, 2, and 3.

Piezometers: Piezometers are or are to be installed within the tailings piles at the locations shown in Drawing C-102 (00-831216-03) or alternative locations authorized in LC 11.3. These piezometers are to be designed in accordance with information provided in drawing C-107 (00-831216-03). Generally, the piezometers will monitor the change in fluid levels in the piles at the crest of the rock fill buttress, on the embankment face, and on the retirement crest.

Subject to final approval in LC 11.3, eleven (11) piezometers will be used on Tailings Pile 1-2 and nine (9) piezometers will monitor Tailings Pile 3. Readings om the piezometers will be at least every year until the tailings piles no longer contain free liquids as determined by two successive readings.

Data collected from the piezometers should be used to aid in estimating tailings pile settlement (consolidation) and determining when the toe drain system can be abandoned. Additionally, the monitoring of the piezometers should be used to determine if the reclamation plan is operating as proposed. When all necessary information has been obtained, the piezometers should be properly plugged with a bentonite slurry.

Surface Movement Monuments: Subject to final approval in LC 11.3, surface movement monuments are to be installed on the top and sides of the tailings ponds according to Drawing C-102 and designed according to Drawing C-107 (00-831216-03). An additional monument will be used to more fully establish the post-reclamation settlement, erosion, and to determine the amount of movement of the embankments.

Thirteen (13) monuments are set for Tailings Pile 1-2 and ten (10) monuments for Tailings Pile 3. These locations are at each piezometer installation as well as at additional locations on the reclaimed surface. Monuments currently in place will continue to be read at least every six months until the final reclamation cover is placed.

After final reclamation, the monuments will be surveyed for horizontal and vertical movements on an annual basis until the accumulated settlement is within 10% of total settlement estimated by the monitoring program. Data collected from the surface monuments should be used to determine the integrity and effectiveness of the reclamation cover by ascertaining the amount of settlement, erosion, and embankment movement.

Erosion Monuments: Erosion monitoring monuments will be installed along the mesa rim and in gully areas according to Drawings C-102 and C-107 (00-831216-03). These erosion monuments will be used to determine the amount and rate of gully erosion and cliff retreat in the subject area.

Fourteen (14) erosion monuments will be constructed, most of which will be near the mesa rim. These monuments will be surveyed and their location described. Additionally, the proximity to the cliff edge and other pertinent observations will be described and recorded. The monuments will be observed visually and surveyed, if necessary, during the long-term monitoring program. From these observations, the rate of cliff retreat should be determined and potential impact on the integrity of the disposal area assessed.

Visual Inspection and Aerial Photography: The surface monuments and reclamation cover will be visually inspected on an annual basis after reclamation has been completed. Detailed (large scale) stereoscopic aerial photographs of the tailings piles will also be taken after completion of the reclamation cover and drainage channels. Additional aerial photographs will be required only if the visual inspection indicates such a necessity.

In conjunction with observation of the surface monuments and reclamation cover, the runoff collection and diversion channels will be observed for evidence of erosion or debris and sediment accumulation. These observations will be made at the same time as the monitoring of the erosion monuments.

Crystal Disposal Area

Final plans and specifications in LC 11.2 and LC 11..3 for the new disposal area for crystals located on Club Mesa will include a method to determine settlement, dissolution, and erosion of the reclaimed area, including the number and location of surface monuments, erosion monuments, aerial photographs and visual inspection schedule.