

STATE OF COLORADO

RADIOACTIVE MATERIALS LICENSE



Colorado Department
of Public Health
and Environment

Pursuant to the *Radiation Control Act* Title 25, Article 11, *Colorado Revised Statutes*, and the State of Colorado *Rules and Regulations Pertaining to Radiation Control*, Part 3, and in reliance on statements and representations heretofore made by the licensee designated below; a license is hereby issued authorizing such licensee to transfer, receive, possess and use the radioactive material(s) designated below; and to use such radioactive material(s) 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 and to any conditions specified below.

1. Licensee: Cotter Corporation, a New Mexico Corporation.
2. Address: 7800 East Dorado Place, Suite 210, Greenwood Village, CO 80111
3. License Number Colo.369-01, Amendment Number: 49
4. Expiration date: January 30, 2012
5. Reference Number: Colo. R-197 Fee Cat: 2A2
6. Authorized Radioactive Material and Uses

6.A. The licensee is authorized to accept, receive, possess, handle ores and other Department approved classified materials for the commercial processing and recovery of uranium. The total quantity of all such materials is limited to:

Western Slope native ores	660,000 yd ³	no greater than 0.42% U ₃ O ₈
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6.B. The licensee is authorized to possess ores and other Department approved classified materials for small scale testing and process development for recovery of uranium, zirconium, silica and other minerals, providing the ultimate processing and recovery is "primarily" for uranium, as required by the Atomic Energy Act. The total quantity of all such materials the licensee is authorized to possess, handle, and test these materials is limited to:

Uranium/Zirconium Ore	16,000 tons	no greater than 0.25% U nat, 1% Th-nat
Amazon Sands Ore	30 tons	no greater than 0.5% U-nat, 2% Th-nat
CaF ₂ material	2,000 tons	no greater than 4.0% U-nat, 1% Th-nat
Off-spec Yellowcake	2,000 tons	no greater than 90% U-nat
Euxenite Ore	20 tons	no greater than 15% U-nat

6.C. The licensee is authorized to process and distribute to authorized recipients concentrated uranium product (yellowcake). The licensee is authorized to possess and store yellowcake in quantities not to exceed 500 metric tons (1,000,000 pounds).

RADIOACTIVE MATERIALS LICENSE

6.D. The licensee is authorized to utilize and maintain the designated on-site impoundments in accordance with Department-approved parameters. The total quantity of materials placed into these impoundments shall not exceed without Department approval:

1.35 M yd³ (approximately 1.69 M [million] short tons at 1.3 tons/yd³) for materials currently in the primary impoundment;

660,000 yd³ (approximately 858,000 short tons) for licensee-generated tailings and other process residues for placement in the primary impoundment for currently authorized materials.

2.155 M yd³ (approximately 2.8 M short tons) for all existing materials in the secondary impoundment.

4 M yd³ (approximately 5.2 M short tons) cleanup and decommissioning reserve for all licensee-generated source and type 2 byproduct material consisting of ore, soils, sludges, mill debris, rubble, process residues, and other materials associated with mill decommissioning and the remediation of near-offsite soils compatible with the impoundment materials. Materials considered listed hazardous waste under the Resource Conservation and Recovery Act shall not be disposed in the impoundments.

6.E. The licensee is authorized to collect and analyze environmental samples, air monitoring samples, and worker bioassay samples containing U, Th, Ra, and their associated radioactive progeny for assessment of public and worker doses.

6.F. The licensee is authorized to possess and use up to 18 sealed sources (Thermo Measure Tech, Model 57157C) each source not to exceed 7.4 GBq (200 mCi) of ¹³⁷Cs. Sealed sources are to be used in Texas Nuclear Model 5176 source holder for the measurement of mass density in ore or other slurries for process control.

6.G: The licensee is authorized to possess and use up to 60 sealed sources (Berthold Systems Model 39002) each source not to exceed 370 kBq (10 μCi) of ¹³⁷Cs. These sources may only be used in Berthold Systems, Inc. Model NW-201 Series gamma gauges for the measurement of slurry density and flow in piping.

6.H. The licensee is authorized to possess and use 2 sealed sources (Thermo Measure Tech, [formerly Texas Nuclear] Model 57157C) not to exceed 1.85 GBq (50 mCi) of ¹³⁷Cs. Sealed sources may only be used in Texas Nuclear Model 5176 and Texas Nuclear Model 5197 source holders for fill level control for barrel filling operations.

6.I. The licensee is authorized to possess and use the following sources for functional testing and quality assurance of radiation detection equipment:

State of Colorado
Department of Public Health and Environment

RADIOACTIVE MATERIALS LICENSE

	Solid Sources	Activity	Quantity
1)	²³⁹ Pu planchet,	not to exceed 110,000 dpm	3 each
2)	²³⁰ Th planchet,	not to exceed 28,000 dpm	16 each
3)	²²⁶ Ra planchet,	not to exceed 3.7 kBq (0.1 uCi)	2 each
4)	beta sources (Sr-90, Cl-36, and/or Tc-99)	nominally 20,000 dpm	20 each
5)	²³⁰ Th 100 cm ²	approximately 5,300 dpm (0.0024 uCi)	1 each
6)	²³⁰ Th 100 cm ²	approximately 24,000 dpm (0.011 uCi)	1 each
7)	²³⁰ Th 100 cm ²	approximately 240,000 dpm (0.108 uCi)	1 each

6.J. The licensee is authorized to possess and use the following liquid standard source solutions for laboratory calibrations:

Isotope	Activity
Th-nat	1 mCi
Th-230	1 mCi
Th-229	1 mCi
Pb-210	1 mCi
Ra-226	1 mCi
U-232	5.5 nCi
Po-210	12 nCi
Po-209	<13.5 nCi
Ra-228	1mCi

6.K. The licensee is authorized to possess and use the following solid sources and standards for use in the on-site laboratory:

Isotope	Activity	Quantity
Sr-90	0.1 uCi	5 each
Alpha Spec/containing		
Am-241	1200 dpm	2 each
Th-230	1200 dpm	2 each
Pu-239	1200 dpm	2 each
Cm-244	1200 dpm	2 each

6.L. The licensee is authorized to possess and use solid standard reference sources for use as laboratory control samples including but not limited to ore and/or tailings based materials with a total activity to not exceed 1 mCi.

RADIOACTIVE MATERIALS LICENSE

Conditions

7. Location of Use:

Radioactive materials may be received, stored, handled, processed and disposed in the ore storage, milling and mill tailings impoundment facilities located at the Cotter Canon City milling facility located at 0502 County Road 68, Canon City CO 81212. The Restricted Area is described in Annex A of this License.

8. General Conditions:

- 8.1 The licensee shall comply with the provisions of the *State of Colorado Rules and Regulations Pertaining to Radiation Control*: Part 3, “Licensing of Radioactive Material”; Part 4, “Standards for Protection Against Radiation”; Part 10, “Notices, Instructions and Reports to Workers: Inspections”; Part 17, “Transportation of Radioactive Material”; and Part 18, “Licensing Requirements for Uranium and Thorium Processing.”
- 8.2 The licensee will be authorized to receive, process and dispose classified materials described in Item 6A, B, and C, only upon written approval from the Department. This approval shall be based upon an operational readiness review report generated by the Mill Manager, plant safety personnel, and RSO and must address each functional area of the milling facility as described in Plant’s Operational Manual. The readiness review report shall be submitted to the Department 60 days prior to planned commencement or resumption of any processing or disposal operations which exceed bench-scale testing parameters. The review shall, at a minimum, demonstrate the facility’s overall operational readiness (e.g., necessary changes and controls relative to plant processes, mechanical systems and emission control equipment). In addition, the report will include specific details relative to: 1) proposed operating plant facilities and equipment, 2) personnel assigned, 3) operating procedures to be utilized, including the use of PPE, hazard communications to workers and plant security measures, 4) radiation safety and management system oversight, 5) training provided, and 6) a proposed set of safety and performance objectives to be observed in relation to the proposed process. Each review shall be approved and signed by the President, Manager of Environmental Affairs, Mill Manager, Health & Safety Supervisor, and RSO.
- 8.2.1 Receipt and testing of classified materials for purposes of bench-scale testing, as well as maintenance/refurbishment of mill systems and other decontamination/disposal activities is permitted absent separate approval by the Department. This authorization also includes the disposal of materials into the primary impoundment which may be generated from such bench scale testing, refurbishment/maintenance activities and other mill-related decontamination/disposal projects.

State of Colorado
Department of Public Health and Environment

RADIOACTIVE MATERIALS LICENSE

- 8.2.2 As an element of the readiness review required by LC 8.2, the licensee shall submit an evaluation, and as appropriate, plans for upgrades or improvements to equipment and processes. The evaluation shall be based on the status and condition of individual components or systems related to storage, processing, safety, and security, including, but not limited to, instrumentation and controls, major pumps, seals, valves, vessels, piping, containment. In addition to the plant condition and operating status review of equipment and processes, the licensee shall complete a hazard analysis which includes an ALARA evaluation, for each proposed system weighing merits of the proposed system(s) against potential alternative operating systems or technologies, as appropriate.
- 8.3 The licensee shall not operate the mill beyond a capacity of 1500 tons (1350 metric tons) of uranium ore processed per day or 1200 tons (1100 metric tons) per day on a yearly average.
- 8.4 The licensee shall not make any modification to an operating procedure, ongoing or proposed process without first evaluating the occupational, environmental and public health and safety or security impact of such change. The evaluations shall be documented with supporting information and be available for Department inspection.
- 8.4.1 Changes that alter solubility of material from previous processes, increase airborne concentrations of radionuclides, introduce chemicals or radionuclides not previously present or evaluated at anticipated concentrations, or that otherwise change the work environment (required PPE, permanent posting of areas, chemical exposure), or increase public dose by greater than 10% shall not be implemented without prior written Department approval. The RSO shall provide thirty (30) days advanced notice prior to commencement of the modification for the Department review. Activities conducted under radiation work permits do not need Department approval.
- 8.5 Requests for authorization for additional materials other than those specified in Item 6 shall follow the requirements of Part 2 of *The Radiation Control Act* [CRS 25-11] (the *Act*).
- 8.6 The Department does not permit, authorize, concur in, or otherwise approve of, the prohibited release or threatened release of a hazardous substance, pollutant, or contaminant into the environment.
- 8.6.1 The licensee shall implement engineering controls to maintain all releases of radioactive materials into the environment to levels that are As Low As Reasonably Achievable (ALARA), and is prohibited from releasing radioactive materials into the environment above limits specifically authorized by the State of Colorado *Rules and Regulations Pertaining to Radiation Control* (the *Regulations*), the requirements of the site Air Emissions Construction Permit, or as established by the U.S. Environmental Protection Agency as reportable quantities at 40 CFR 302 or this license.
- 8.7 The licensee's management and radiation safety officer shall take prompt and appropriate action to correct known deficiencies in the facility's procedures, processes, equipment, and site conditions.

RADIOACTIVE MATERIALS LICENSE

8.8 Obtain Permits Of Other Agencies:

8.8.1 Prior to beginning any new construction or 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 Item 6, of this license. The licensee shall maintain in force such applicable permits.

8.8.2 The licensee shall notify the Division in writing on, or prior to, the date of filing of any application to a permitting agency for modification or renewal of such permit or other required authorization.

8.8.3 The licensee shall notify the Division in writing within thirty (30) days of receiving a violation of such permits.

8.9 Severability:

If any part of this license is held invalid, the remainder shall not be affected.

8.10 Written Approval:

When required by a condition of this license, Division “acceptance”, “approval”, “authorization”, or “concurrence” shall be obtained in writing from the Division, unless otherwise provided in the Regulations, or Department or Division policy.

8.11 Consultation:

When the Division reasonably and routinely consults with another party, the licensee shall:

8.11.1 Permit such party to inspect any Division-designated site, facility, or document;

8.11.2 Submit Division-designated documents to the party for review; and

8.11.3 As determined by the Division, conform applications and supporting documents to such party's written guidelines applicable to the project.

8.12 Radiation Safety Officer (RSO):

The designated Radiation Safety Officer is Jim Cain.

8.13 Designated Alternate Radiation Safety Officer:

The designated alternate RSO is Mark Currey.

RADIOACTIVE MATERIALS LICENSE

8.14 Authorized Users:

- 8.14.1 The licensee shall obtain from the Division written authorization for each user, based on documented training and experience.
- 8.14.2 Radioactive material authorized in Item 6 shall only be received, stored, handled, processed, used or disposed by or under the supervision of the following authorized users: Mitch Abbate, Frank Adamic, Tim Breunig, Jim Cain, Mark Currey, William DeSpain, Ron Fay, John Hamrick, A.C. Hill, Phil Krauth, Craig Olsen, Gary Reed, Craig Simpson, Robert Tennant, Paul Usnick, Mike Villagrana, or Richard Wooten.
- 8.14.3 One or more authorized users shall be physically present at the facility at all times when radioactive materials are being received, used, handled, processed, disposed, or analyzed. The number of authorized users present on site at any one time shall be sufficient to ensure adequate supervision of all persons within the restricted area. One or more authorized users shall be immediately available at all other times.
- 8.14.4 In-house laboratory analysis of environmental, air, and bioassay samples authorized in Item 6.E shall be conducted by analysts with documented qualifications for the specific analyses. Documented qualifications shall include training to applicable procedures. Upon completion of said training and documentation, Mitch Abbate, Mike Goff, Mike Krauth, and Sharyon White are authorized to conduct analysis under the direct supervision and guidance of Mitch Abbate.
- 8.14.5 The RSO, or alternate RSO on this license, a person specifically listed as an authorized user, Maintenance Supervisor/ Foreman, Operations Supervisor, or Utility Supervisor shall physically observe the day-to-day activities of contract laborers and consultants who work around radioactive materials without constant supervision. The extent of these observations shall be sufficient to ensure that contract laborers and consultants are complying with established procedures and the requirements of this license. The licensee shall maintain a sufficient number of authorized users on this license to meet the requirements of this section.
- 8.14.6 Temporary contract laborers and members of the public shall be escorted throughout the restricted area under the direct supervision and in the physical presence of an authorized user as listed on this license, or an Operations/Program Responsibility User designated by the ALARA committee. Temporary contract laborers meeting the Basic Radiation Safety Training requirements of RH-010 may be permitted to work in the restricted area without escort with permission of the RSO or designee.
- 8.14.7 Contract laborers and consultants who have successfully completed the radiation safety training as described in the Cotter Radiological Health and Safety Procedures Manual (the Procedures Manual) AD-060, RH-010, and RH-060 may work throughout the restricted area

RADIOACTIVE MATERIALS LICENSE

without continuous direct supervision by Cotter personnel. Completion of such training shall be documented.

8.14.8 Temporary contract laborers shall sign in and out of the facility each day. The RSO shall maintain the sign-in, sign-out logs for the facility.

8.15 Site Control And Personnel Safety:

The RSO or RSO's designee shall remove employees from a work environment or suspend the operation in a particular mill area if (s)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.

9. Emergency Response Capability:

9.1 Response Plan:

The licensee shall use written plans and procedures approved by the Division to respond to any incident, accident, or emergency at the milling facility and in transportation of radioactive material. These plans shall include provisions for prompt retrieval of any unauthorized release of radioactive material or hazardous substances to the environment. These plans shall address:

9.1.1 Responsibilities of Cotter management and employees;

9.1.2 Timely notification of local emergency response agencies and the Department;

9.1.3 Methods and procedures for Cotter personnel to mitigate the severity of accidents and fires at the site;

9.1.4 Methods and procedures to limit the spread of radioactive materials or hazardous substances following a loss of containment from any container, process vessel, or impoundment;

9.1.5 Training and exercise requirements for site personnel;

9.1.6 Detailed listing of, and location of dedicated emergency supplies and equipment available at the site;

9.1.7 Methods, procedures and schedules for inspection, maintenance and testing of emergency response supplies and equipment.

9.2 The licensee shall revise emergency procedures to address deficiencies identified in writing by the Department. The revised procedures are to be submitted to the Department within 45 days from the date the licensee receives written notification from the Department identifying the deficiencies in the procedure.

State of Colorado
Department of Public Health and Environment

RADIOACTIVE MATERIALS LICENSE

- 9.3 The licensee shall assure that equipment and supplies are available to respond to accidents, fires, and other emergencies.

RADIOACTIVE MATERIALS LICENSE

9.4 Notification:

9.4.1 Emergency Notifications:

9.4.1.1 **Immediately upon discovery 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 or hazardous substances outside the restricted area described in Annex A, the licensee shall notify:**

9.4.1.1.1 **the Emergency Management Unit by telephone at 303-877-9757 (24-hour, 7-day emergency number) and also**

9.4.1.1.2 **between 8:00 a.m. and 5:00 p.m., by telephone to the Unit Leader, Radiation Management Program, Hazardous Materials and Waste Management Division, 303-692-3423, and also**

9.4.1.1.3 **by facsimile to the Radiation Management Program, Hazardous Materials and Waste Management Division, facsimile number 303-759-5355.**

9.4.1.2 The licensee shall also notify the Division in writing to the Manager, Radiation Management Program, Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver, Colorado 80246-1530. This requirement is in addition to the requirements of 6 CCR 1007-1, Part 4.52 and 4.53.

9.4.1.3 The licensee should also notify **Unit Leader, Radiation Management Program,** and other staff by email if possible.

9.4.2 Non-Emergency Notifications:

9.4.2.1 The licensee shall immediately notify the Department upon discovery of any failure, or imminent threat of failure, in any process, diversion, catchment, or retention system that results or may result in a release of radioactive material or hazardous substance outside the restricted area described in Annex A.

9.4.2.2 The licensee shall immediately notify the Department upon discovery of any failure, or imminent threat of failure, in any process vessel, storage tank, or process plumbing system which results or may result in the release of radioactive materials in excess of the reporting limits established at RH 4.52 or any reportable quantity of a hazardous substance. In addition, within 24 hours of the occurrence the licensee shall orally notify the Department of any unplanned spillage of non-reportable solutions containing radioactive material and which exceed 500 gallons in quantity.

RADIOACTIVE MATERIALS LICENSE

9.4.3 The licensee shall notify the Division no less than three (3) working days prior to scheduling any shipment of Milling Facility uranium oxide product.

9.5 Security:

9.5.1 The licensee shall fence a Restricted Area as described in Annex A, access to which is limited by the licensee for the purpose of protecting individuals against undue risks from exposure to radiation and radioactive materials. The fence shall be posted per US NRC Reg. Guide 8.30, or its successors, and Part 4.27 of the Regulations.

9.5.2 The licensee shall maintain a plan and schedule to implement and maintain additional security measures to prevent unauthorized access to the site's core facilities and radioactive and hazardous materials, to prevent loss, theft, or illegal use of radioactive or hazardous materials, and to provide monitoring and reporting of the safety and security conditions and status of the systems (e.g., establishing a secure zone that encompasses the core mill area, alarms, surveillance, etc.).

10. Safety Inspections And Audits:

10.1 Shift Inspections:

The shift supervisor shall conduct and document per the licensee's Security Manual visual surveillance of each active mill area during each shift to evaluate site conditions, and to ensure proper implementation of the radiation protection, safety, and security programs. Management shall provide a mechanism for management review of the inspection program.

10.2 Weekly Inspections:

During any period of active operation, standby, reclamation, decommissioning or equipment removal activity, the RSO or RSO's designee shall conduct a weekly documented inspection of each active work area to evaluate site conditions and to ensure proper implementation of the radiation protection program and the safety program. Any deviation from a standard operating procedure, license requirement, or safety practice, including housekeeping practice, affecting radiological safety shall be reviewed by management with the employee(s), documented, and corrected.

10.3 RSO's Quarterly Audit:

10.3.1 During any period of active operation, the RSO shall (1) audit quarterly (twelve (12) weeks) the logs and reports of inspections, (2) evaluate the adequacy of implementation of license requirements, and (3) recommend in writing to the mill manager any necessary corrective actions.

RADIOACTIVE MATERIALS LICENSE

10.3.2 Independent Audit:

The licensee shall annually commission an independent audit, including conclusions and recommendations from review of all audits, inspections, employee exposure data, effluent release data, and environmental data to determine if:

10.3.2.1 the radiation, hazardous materials, and safety programs related to radioactive materials and byproduct materials (including chemicals used in the milling process) are adequate,

10.3.2.2 the quality assurance program is adequate,

10.3.2.3 any upward trend is developing in personnel exposure for an identifiable category of worker or type of operation or effluent release,

10.3.2.4 any exposure or effluent might be lowered under the concept of ALARA, and

10.3.2.5 equipment for effluent and exposure control is being properly used, maintained, and inspected.

11. Construction:

11.1 All construction related to handling and storage of materials in Item 6 shall be in accord with detailed plans approved by the Division (and such other agencies as the Division designates) prior to commencement of construction or any subsequent modification and referenced in this license.

11.2 The licensee shall submit a report, within ninety (90) days of completing construction activity describing the construction as-built, including drawings, any deviations from design plans and specifications, and the reasons for any deviations or deficiencies.

12. Facility Or Process Addition Or Change:

12.1 The licensee shall assess proposed additions or modifications to the facility, features, equipment, or process to determine if the additions or modifications have an impact to safety, occupational or public dose, or environmental impact or other impacts not evaluated previously for Items 6.A through 6.D. The RSO shall maintain documentation of all such evaluations for review by the Department.

12.2 The licensee shall provide the Division thirty (30) days advance notification of those proposed additions or changes related to Items 6.A through 6.D having an impact of greater than 25% above previous estimates to public health, safety or environmental protection prior to implementation. If the Division, 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 or amendment prior to modifying the practice, facility or feature.

RADIOACTIVE MATERIALS LICENSE

- 12.3 Unsafe or unanticipated site conditions, or practices that are not addressed by current plans or authorizations require notification to the Division within thirty (30) days. The licensee shall provide to the Division an acceptable plan of action to eliminate or effectively control the cause of any unexpected harmful effects or irreversible damage detected and not otherwise previously identified by the licensee.
13. Written Operational Procedures:
- 13.1 Written operating procedures shall be maintained for all routine operations and shall incorporate at a minimum, responsibilities, operating instructions and safety precautions. These include, at a minimum, *Cotter's Radiation Protection Program Procedures, Site Safety Manual, Site Security Manual, Laboratory Procedures Manual, Site Liquids and Solid Materials Management Plan, and the Quality Assurance Program Plan.*
- 13.2 All written plans, manuals, and procedures shall be evaluated by the RSO for ALARA considerations.
14. General Maintenance:
- 14.1 The licensee shall maintain all equipment and facilities, essential to operations governed by this license, in operating condition.
- 14.1.1 The licensee shall maintain safety systems for year-round operation.
- 14.2 The licensee shall document a system of routine preventive maintenance so that safety equipment is checked for proper working order according to a regular schedule.
15. ALARA (As Low As Reasonably Achievable):
- 15.1 The licensee shall construct new administrative offices to a location outside the restricted area prior to resumption of full-scale processing, such that the potential doses to persons working in the administrative offices, and potential off site doses to members of the public, are ALARA.
16. Training:
- 16.1 A new employee shall not commence work in the Restricted Area until s(he) has been adequately trained in the assignment and in radiation safety, in accordance with a program approved by the Division and specified in *Cotter's Radiation Protection Program Procedures.*
- 16.2 Additionally, the RSO shall document employee review of (1) safety procedures applicable to each employee's assignment and (2) provisions of Part 10 of the Regulations.

RADIOACTIVE MATERIALS LICENSE

- 16.3 The licensee shall provide and document per procedure AD-060 at least ninety (90) minutes of training meeting time per year, or an alternative amount approved by the Division and specified in Cotter's Radiation Protection Program Procedures, for each radiation worker to review radiation protection topics, and retrain radiation workers annually on current developments in radiation safety.
- 16.4 The licensee shall maintain a record per procedure AD-060 for each employee, signed by supervisor(s) and the RSO, which certifies that in addition to the training specified in Cotter's Radiation Protection Program Procedures, the employee has completed on-the-job training using an overall operation and maintenance competency checklist and work process competency checklists appropriate to the employees work locations.
17. Protective Equipment:
- 17.1 Personal protective equipment (PPE) shall be used at all times in any area or for any activity designated by the RSO or Health and Safety Supervisor, or required when identified by routine operating procedures and/or radiation work permits to protect employees from workplace hazards. The RSO shall select, and have each affected employee use, the types of PPE that will protect the affected employee from the identified hazards. PPE shall be provided, used and maintained in sanitary and reliable condition. PPE requirements shall be conspicuously posted for each operational area.
- 17.2 Additional PPE shall be available to any worker upon request, providing the additional PPE does not itself create a greater work hazard.
18. Radiation Work Permits:
- 18.1 The licensee shall have a Radiation Work Permit (RWP) as specified in Cotter's Procedures Manual which establishes and specifies appropriate radiological and safety controls for any work, including maintenance, at any location of the licensed facility or site, which has radiation safety implications and for which no written procedure exists. The RSO shall be familiar with ongoing activities at the site, and make the determination if a RWP is required for a given task. All such RWPs shall be reviewed and approved in writing by the designated RSO prior to any activity that a RWP governs. A copy of all RWPs shall be retained for no less than five (5) years for inspection by the Division.
- 18.2 RWPs are not to be a substitute for written operating procedures. Should the activities governed under a RWP become routine or frequently performed activities, the licensee shall develop these work permits into written procedures and provide copies to the Department for review and incorporation into this license.
19. Eating And Tobacco Product Restrictions:
- 19.1 The licensee shall prohibit eating and the use of tobacco products within the Restricted Area, except in the specific designated areas approved by the Department.

RADIOACTIVE MATERIALS LICENSE

- 19.2 Each designated eating area within the restricted area of the facility shall have a survey station and wash facilities for use by personnel prior to entering the designated area.
- 19.3 Persons who have recently occupied or worked in the Restricted Area of the site must follow the requirements of Procedure RH-200 prior to entering the designated eating or tobacco areas or leaving the Restricted Area.

20. Posting:

Except as otherwise specified in this license, the posting of the facility and the labeling of containers shall be in accordance with the requirements of Part 4 of the Regulations.

21. Sealed Sources And Fixed Gauges:

- 21.1 The installation, relocation, and removal of gauges authorized in Items 6F through 6J shall be performed only by or under the direct supervision and in the physical presence of Jim Cain, or by other persons specifically licensed by the U.S. Nuclear Regulatory Commission or an Agreement State to perform such services, and shall follow the requirements of Cotter's Procedure RH-170.
- 21.2 Each sealed source authorized in Item 6 of this license shall be tested for leakage in accordance with the requirements of RH 4.16 of the Regulations at intervals not to exceed six (6) months, or the Radiation Protection Program Procedures, or as specified in the U.S. NRC Sealed Source and Device Registry for the specific device.
- 21.3 The licensee is authorized to conduct and analyze leak tests for sealed sources in accordance with Department-approved procedures.

22. Air Emissions Controls:

- 22.1 The licensee shall control emissions to air according to procedures approved by the Division and according to applicable permits of the Air Pollution Control Division (APCD) of the Department.
- 22.2 The licensee shall conduct an air sampling program sufficient to demonstrate compliance with the public and occupational dose limits specified in Part 4 of the Regulations.
- 22.3 Operations shall be immediately suspended if any of the emission control equipment for the ore feed or the yellowcake drying or drumming areas is unable to perform as specified in the licensee's standard operating procedures or applicable permits of the APCD.
- 22.4 The scrubber circuit for the calciner/packaging system shall be checked and control readings recorded at least once per shift (eight hours) to document that the scrubber systems are functioning within specifications.

RADIOACTIVE MATERIALS LICENSE

- 22.5 The licensee shall obtain and analyze a representative sample from each exhaust stack at the frequency and using methods designated in Cotter's Radiation Protection Program Procedures.
- 22.6 The flow rate of each process stack shall be measured semiannually (twice a calendar year) and whenever any process equipment change is made that might significantly alter the flow rate.
- 22.7 The licensee shall report to the Division the results of an evaluation of the best available processing methods and equipment, and emissions technology for the yellowcake drying and packaging area if peroxide extraction and/or low-fired calcining is discontinued. This evaluation shall include Cotter's current equipment and methods as well as other available technologies, and shall be delivered within ninety (90) days of abandonment of peroxide extraction and/or low-fire calcining.
- 22.8 The licensee shall submit to the Division, in accordance with Part 18.7.2 of the *Rules and Regulations Pertaining to Radiation Control*, the following information:
- 22.8.1 Average and maximum ^{nat}U release rate and total quantity of ^{nat}U , ^{226}Ra , ^{230}Th and ^{232}Th if applicable, released, identifying the flow rate and time frames used for each exhaust stack used to calculate the releases.
- 22.8.2 The average and maximum concentration and release rate through the calciner stack for ^{226}Ra and ^{230}Th . The licensee may determine this by applying the ratio of ^{226}Ra to ^{nat}U and ^{230}Th to ^{nat}U to the data.
- 22.8.3 The licensee shall measure total particulate matter emitted through the yellowcake stack using 40 CFR Part 60, Appendix A, Methods 1-5 and 40 CFR Part 51, Appendix M, Method 202. The samples shall be collected at least twice annually until it is determined that it is characterized, or below concern. Where process run times allow, the licensee will complete one run of a minimum of sixty (60) minutes and 30 dscf of sample volume. The licensee shall develop a method to compare sample results to past data to identify outliers. When a sample result is identified as an outlier, a detailed maintenance inspection will be performed, problems identified will be addressed and another sample run will be completed within five (5) working days where production occurred. If condensable particulate matter is determined to be less than 10% of the total particulate matter component, or if it can be statistically demonstrated to the Department that condensable particulate can be estimated on the basis of prior condensable and particulate sampling, condensable particulate matter testing shall only be required in future sampling when outliers are identified, the composition of the feed to the calciner changed, or the system is modified.
- 22.9 The licensee shall implement and maintain Department-approved controls for limiting the release of radon and radioactive particulates from all waste repositories and ore piles. The effectiveness of the control methods used shall be evaluated and documented through an environmental sampling program.

RADIOACTIVE MATERIALS LICENSE

23. Liquids and Solids Management:

The licensee shall conduct management of liquids and solids at the facility as described in Cotter's *Site Liquids and Solids Material Management Plan*.

23.1 Ground Water Corrective Action:

23.1.1 The licensee shall not allow a radioactive material, hazardous constituent or pollutant to migrate and impact ground water in excess of a Department standard, without corrective action, beyond the downgradient boundary of the restricted area of the licensed site as specified in Annex A.

23.1.2 The licensee shall maintain a ground water compliance monitoring program as specified in Cotter's Radiation Protection Program Procedures.

23.1.3 The licensee shall obtain approval from the Division prior to modifying any element of the corrective action program or corrective action monitoring program.

24. Transfer and Release of Materials:

24.1 Radioactive materials, other than samples for laboratory analysis or research, shall be transferred to or from the site only in accordance with Cotter's Radiation Protection Program Procedures or with specific prior approval of the Division. The licensee shall maintain a permanent record of all transfers.

24.2 The licensee shall conduct surveys for contamination on materials and equipment prior to being released to unrestricted areas or for unrestricted use. The surveys shall be in accordance with Cotter's Radiation Protection Program Procedures.

24.3 All shipments of radioactive materials shall be packaged, labeled, manifested, and prepared for shipment in accordance with all applicable requirements set forth in the regulations of the U.S. Department of Transportation and Part 17 of the Regulations. Where conflicts exist between the regulations of the U.S. Department of Transportation and Part 17 of the Regulations, the licensee shall comply with the requirements of the regulations of the U.S. Department of Transportation.

25. General Specifications For Inspection And Monitoring:

25.1 Records:

RADIOACTIVE MATERIALS LICENSE

- 25.1.1 The RSO shall maintain training and dose monitoring records for each worker at the site who receives an occupational dose, except as in LC 25.1.5. These records shall show the initial hire date, the specific training received, the date training was successfully completed, the date when dose monitoring was initiated, the date when employment terminated, and a copy of the annual total effective dose equivalent assessment for each year the individual works at the site.
- 25.1.2 The licensee shall provide the Department with an electronic copy of the lab results and spreadsheets used to calculate the annual occupational doses upon completion of the final determination.
- 25.1.3 The results of sampling, analyses, surveys, instrument calibrations, inspections and audits, and employee training, as well as any related reviews, investigations, and corrective actions, shall meet the record keeping requirements of the Regulations, and Cotter's Radiation Protection Program Procedures.
- 25.1.4 All such documentation shall be retained and archived until the Division authorizes other disposition. Personnel exposure records shall be preserved indefinitely.
- 25.1.5 The licensee shall maintain documentation of the technical basis for not monitoring occupational doses for each part-time employee (including contract employees) at the site who is deemed not to require monitoring for occupational doses under RH 4.18 of the Regulations.

25.2 Quality Assurance/Quality Control:

- 25.2.1 The licensee shall maintain a quality assurance/quality control program for all analytical data collection, analysis, and reporting activities approved by the Division and specified in writing.
- 25.2.2 The licensee shall follow the lower limits of detection (LLDs) contained in USNRC Regulatory Guide 8.30, Health Physics Surveys In Uranium Recovery Facilities, Revision 1, May 2002 for the analysis of occupational samples addressed in that guide. The lower limits of detection for isotopes not addressed in the guide (e.g, Th-232 decay series) needs to be at a minimum, 10% of the applicable Derived Air Concentration. The licensee may adopt alternative LLDs or minimum detectable concentrations (MDCs) if such LLDs and MDCs are submitted to the Division for review and approval, and specified in Cotter's Radiation Protection Program Procedures and Quality Assurance Program Plan.

25.3 Availability and Calibration of Equipment:

- 25.3.1 The inventory of monitoring equipment shall be such that a sufficient number of operable and calibrated units are always on hand.

RADIOACTIVE MATERIALS LICENSE

25.3.2 The licensee shall calibrate all radiation monitoring and sampling equipment after repair unless otherwise authorized by the Division. Handheld instrumentation shall conform to the specifications of ANSI N323B-2003.

26. Personnel And Facility Monitoring:

26.1 All full time employees (including contract employees) at the site are deemed to require monitoring for occupational doses.

26.2 The licensee's personnel and facility monitoring program shall be sufficient to determine maximum potential occupational dose commitment and to demonstrate compliance with Part 4 of the Regulations, and shall be:

26.2.1 As in the approved Radiation Protection Program Procedures;

26.2.2 The results of personnel and facility monitoring shall be summarized in the annual report.

26.2.3 The Licensee shall determine occupational doses on a quarterly basis during operational phases, with the final determination being completed within sixty (60) days from the end of each quarter. The licensee may determine occupational doses on a semi-annual basis during extended periods of standown (i.e., > 90 days), with final determination being completed within sixty (60) days from the end of the semi-annual period. The licensee shall provide the Department with an electronic copy of the lab results and spreadsheets used to calculate the occupational doses upon completion of the final determination.

26.3 Bioassay:

26.3.1 The licensee shall implement a bioassay program as approved in Cotter's Radiation Protection Program Procedures and in accordance with NRC RG 8.22, Bioassay at Uranium Mills, as revised, unless other conditions of this license are more restrictive.

26.3.2 The Licensee shall provide the Division with an electronic copy of the data for bioassay tests of intakes of radioactive materials. This information shall accompany the submission of the dose data and shall include at a minimum: employee identification, dates of sampling, and analytical results.

26.4 Air Sampling:

The licensee shall conduct an air sampling program sufficient to demonstrate compliance with the public and occupational doses under RH 4.18 of the Regulations.

26.4.1 Occupational Air Sampling:

RADIOACTIVE MATERIALS LICENSE

- 26.4.1.1 General air and breathing zone sampling shall be conducted throughout the facility to characterize airborne levels of radioactive materials. The sampling frequency and locations shall be sufficient to demonstrate compliance with the requirements of Part 4 of the Regulations. The licensee shall ensure that the sampling frequency and locations adequately cover periods when there are changes in the operations at the facility (i.e. the facility goes from standby to production of uranium product). Minimum locations and frequencies shall be listed in Cotter's Radiation Protection Program Procedures.
- 26.4.2 The analysis of the particulate air filters shall be analyzed for isotopes as specified in approved procedures in the Radiation Protection Program Procedures.
- 26.4.3 The licensee shall determine the inhalation class (for the assessment of occupational doses) for the primary radionuclides that compose the airborne contaminants following any significant change in the feed materials to the mill or substantial change in the operation of the mill (e.g., peroxide extraction, low-fired calcining) that could change the inhalation class of materials contributing to occupational exposures.
- 26.4.4 In-plant air monitoring committed to in Cotter's Radiation Protection Program Procedures shall be performed under conditions typical of employee exposures, including during periods of maintenance, decontamination or decommissioning.
- 26.4.5 Radon and radon daughter sampling shall be conducted throughout the facility to characterize airborne levels of radon and equilibrium levels for radon daughter products for the assessment of occupational doses to workers. The sampling frequency and locations shall be sufficient to demonstrate compliance with the requirements of Part 4 of the Regulations. The licensee shall ensure that the sampling frequency and locations adequately cover periods when there are changes in the operations at the facility (i.e. the facility goes from standby to active crushing of ore). The minimum locations and frequencies shall be listed in Cotter's Radiation Protection Program Procedures.

26.5 Contamination Sampling:

The licensee shall conduct and document a surface contamination survey for alpha and beta fixed and removable contamination at least weekly in each lunch room, change room and office as provided in Cotter's Radiation Protection Program Procedures. If a survey reveals a contamination level that exceeds an action level, then (1) the area shall be decontaminated immediately and (2) an investigation shall be made by the RSO to determine the cause and corrective measures required to prevent recurrence.

26.6 Action Levels:

The licensee shall specify in Cotter's Radiation Protection Program Procedures an action level for any monitoring which requires an administrative action if a derived air concentration-based or ALARA based concentration value is exceeded.

RADIOACTIVE MATERIALS LICENSE

27. Public Dose Limits:

- 27.1 The licensee shall conduct activities in such a manner as to provide reasonable assurance that the annual limits in Part 18 of the Regulations to any member of the public are not exceeded as the result of exposures to radioactive materials resulting from planned discharges of radioactive materials, radon and its progeny excepted, to the general environment.
- 27.2 The licensee shall follow the lower limits of detection (LLDs) contained in USNRC Regulatory Guide 4.14, Radiological Effluent and Environmental Monitoring at Uranium Mills for the analysis of effluent and environmental samples. The licensee may adopt alternative LLDs or minimum detectable concentrations (MDCs) if such LLDs and MDCs are submitted to the Division for review and approval, and specified in Cotter's Radiation Protection Program Procedures and Quality Assurance Program Plan.
- 27.2.1 The analysis of the soil samples for determination of public doses and environmental monitoring must at a minimum include the following radioactive materials: U-nat, ^{232}Th , ^{230}Th , ^{228}Th , ^{226}Ra , ^{224}Ra , and ^{210}Pb . Once transient or secular equilibrium ratios for ^{224}Ra and ^{228}Th are established, ^{224}Ra and ^{228}Th sampling may be discontinued with Department approval.
- 27.3 Samples collected for the assessment of doses to members of the public, and samples collected to characterize wastes or environmental contamination levels shall be analyzed by an approved radiochemistry laboratory. Split samples shall be analyzed by another approved radiochemistry laboratory (i.e., other than Cotter's lab).
- 27.4 The licensee's report on compliance with public dose limits, including any revised estimate, any noncompliance and what corrective action is being taken if noncompliance is determined, shall be submitted to the Division with the annual report.
- 27.5 Environmental Monitoring And Analysis Program:
- 27.5.1 The licensee's environmental monitoring and analysis program shall be sufficient to estimate total effective dose equivalent (TEDE) to individuals in populations near the licensed site, including the dose, if any, from soil, surface water and ground water contamination as specified in Cotter's Radiation Protection Program Procedures.
- 27.5.2 Environmental air monitoring for particulates shall be as in Cotter's Procedures Manual: continuous for uranium, ^{226}Ra , ^{230}Th , ^{210}Pb , and ^{232}Th at four (4) property boundaries, at three (3) nearest feasible residences, and at a control location. ^{222}Rn and ^{220}Rn monitoring shall be as specified in Cotter's Radiation Protection Program Procedures. A soil sample shall be taken each calendar year adjacent to each air sampling location.

RADIOACTIVE MATERIALS LICENSE

- 27.6 A background level of Radon for comparison with effluent levels will be determined annually by taking the mean of twelve (12) samples from three (3) sampling locations (Canon City, Lincoln Park, and Oro Verde) and adding two (2) standard deviations of the mean. One sample is to be collected at each location per calendar quarter (twelve (12) weeks). Radon sampling shall be inclusive of ^{220}Rn and ^{222}Rn .
- 27.7 The Division has approved alternate effluent levels for Radon in accordance with the provisions of RH 4.15.3. An equilibrium fraction of 0.4 shall be used for sample locations 206, 210, and 212 and any subsequent Radon samplers at a comparable distance from the center of the mill. An equilibrium fraction of 0.2 shall be used for sample locations 202, 203, 204, and 209 and any subsequent Radon samplers at a comparable distance from the center of the mill. The corresponding effluent limits are 0.25 pCi/l and 0.5 pCi/l respectively. The effluent limit is inclusive of ^{220}Rn and ^{222}Rn .
- 27.8 In addition to the annual report summary, results of groundwater monitoring collected per EV-040 and EV-100 shall be provided to the Division within sixty (60) days from the end of the quarter in which they were collected.
28. Reports To The Division:
- 28.1.1 The licensee shall, for the previous calendar year ending December 31st, provide the Division with an annual report by June 30th of each calendar year. That report shall address at a minimum the following topics:
- 28.1.1.1 A detailed summary of activities for the preceding year, including: a listing of classified materials received for processing; the amounts of classified materials processed, the amounts of materials placed into the impoundment;
- 28.1.1.2 Annual ALARA Report, including a summary of Occupational Doses (DDE, CEDE, and TEDE);
- 28.1.1.3 Independent ALARA Audit Report;
- 28.1.1.4 Quality assurance and quality control;
- 28.1.1.5 Personnel and facility monitoring;
- 28.1.1.6 Environmental Monitoring and Analysis;
- 28.1.1.7 Air Emissions Controls;
- 28.1.1.8 Liquids and Solids Management;
- 28.1.1.9 Estimates of Radiation Doses to Members of the Public;

RADIOACTIVE MATERIALS LICENSE

28.1.1.10 Annual Land Use Report;

28.1.1.11 Water Quality Monitoring Report;

28.1.1.12 A summary of anticipated activities for coming year;

28.1.1.13 RAP Compliance;

28.1.1.14 Corrective Actions;

28.1.1.15 Other Miscellaneous Topics;

28.1.2 The licensee shall, on the schedule specified in Part 18.7.2 of the Regulations, provide to the Division a semiannual report of key indicators of health, safety and environmental performance. Performance objectives, agreed to in advance by the licensee and Division, shall be tracked for trends using monitoring data that is summarized and presented in narrative, tabular or graphical format such that the temporal range and statistical uncertainty of underlying data sets is characterized.

29. Decontamination and Decommissioning:

29.1 The licensee shall clean up residual radioactive material as low as is reasonably achievable toward background radiation ranges and hazardous constituent ranges based on statistically-defensible tests of soil contamination with depth, consistent at the time of site closure with federal and State law, and following Division-approved plans.

29.2 The revised *Site Decommissioning And Reclamation Plan* shall include a survey and sampling plan for necessary additional characterization of existing contamination levels in the surface and subsurface soils throughout the licensed facility and in the surface soils on lands surrounding the Restricted Area of the licensed facility. This plan shall be sufficient to clearly identify the extent and depth of windblown contamination (areas impacted), and the levels of surface and subsurface contamination for key radionuclides (Ra, Th, and U) and metals.

29.2.1 This plan shall be sufficient to establish an accurate baseline for determination of a revised site decommissioning warranty.

29.2.2 These plans shall contain specific time schedules for completion of various plan components. Upon approval and written notification by the Division, the licensee shall initiate surveys and sampling within sixty days and provide the Division with a detailed final report within one year after commencement of the surveys and sampling.

RADIOACTIVE MATERIALS LICENSE

- 29.3 The Licensee shall complete quarterly, and other approved interval, water sampling, analysis, and surface elevation determinations at locations and in a manner approved by the Department. By August 30, 2007, the Licensee shall submit a ground water characterization plan for the mill area. The characterization shall be sufficient to determine ground-water flow and contaminant levels from the mill complex and supporting facilities, and be consistent with monitoring in adjacent areas.
- 29.4 The licensee shall, based on Department approved schedules, submit to the Department plans, studies, or an analysis of alternatives available to address interim closure of the secondary impoundments, dry placement of tailings, and de-watering of the impoundments including the effect of those operational modifications upon the milling process to be used during the life of the license.
- 29.5 The licensee shall, by September 30, 2008 decommission, demolish and dispose of CCD tanks 1 – 10, the Primary Thickener, and the Reactor Clarifier, associated piping and equipment, concrete foundations and supports for the tanks (with the exception of the Reactor Clarifier concrete pad), the Wagon Wheel building and contaminated soils underlying the area in accordance with plans approved by the Department. Any replacement process technology and equipment proposed by the licensee shall meet the requirements of License Conditions 8.2 and 8.22.

30. Financial Assurances:

Financial Assurances: The licensee shall maintain in force a financial assurance agreement and instruments pursuant to Part 3.9.5 of the Regulations for the decommissioning, decontamination and reclamation (DDR) of the licensed site until:

- 30.1 Final reclamation is completed and meets applicable requirements of State and federal regulations;
- 30.2 A decision on release is taken by the Division as provided by the financial assurance agreements between the licensee and the Division; and
- 30.3 The property is transferred to the State or federal government under the provisions of Part 18, Appendix A, Criterion 9 of the Regulations .

30.4 Amount Of Financial Assurance:

- 30.4.1 The surety instruments shall be maintained in an amount sufficient to meet cost estimates based on the full reclamation plan for the site.
- 30.4.2 The licensee shall maintain Department-approved financial warranties for decommissioning and long term care of the facility. The currently approved warranties are:

A. Surety Bond, Number # K06903381 issued in the name of Cotter Corporation by Westchester Fire Insurance Company, effective July 30, 2004, in the amount of \$14,700,000.00.

State of Colorado
Department of Public Health and Environment

RADIOACTIVE MATERIALS LICENSE

B. Surety Bond #K06903824 for the Remedial Action Plan issued in the name of Cotter Corporation by Westchester Fire Insurance Company, revised July 30, 2004, in the amount of \$2,632,632.

C. The current long-term care fund is a deposit in the State Treasury in the amount of \$650,000.

30.5 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 Division, and such other agencies as the Division designates, in accordance with Part 3.9.5.6 of the Regulations. 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.

30.6 Release Of Financial Assurances:

The licensee shall not be released from the financial assurance requirement of the Regulations until determination by the Division that performance required by this license has been complete and adequate. In the event of partial or complete default on the part of the licensee in the performance of the work, or failure of the licensee to provide acceptable replacement surety in the event of cancellation or non-renewal, the State may draw upon the financial assurance instruments as necessary to complete the reclamation.

31. Ownership Option Responsibilities:

31.1 Until the property is transferred to the State or federal government and in accord with Part 18, Appendix A, Criterion 9 of the Regulations, the licensee shall:

31.2 Monitor and maintain the site.

31.3 Not permit tailings material to remain exposed or be released to the surrounding area above permitted release and soil concentration limits. Dust control methods shall be described in Department-approved plans and procedures.

31.4 Prohibit the erection of any structures for residential occupancy by humans or animals from off-site .

31.5 Prohibit establishment of private roads, trails, or rights of way across contaminated areas or the to be- reclaimed surface of the repository.

31.6 Maintain any necessary fencing of the restricted area to preclude entry of people or grazing or browsing animals. The Section 15 area of the buffer zone shall also be fenced, however the fencing does not have to be able to preclude wildlife from access.

State of Colorado
Department of Public Health and Environment

RADIOACTIVE MATERIALS LICENSE

31.7 Maintain postings in accordance with Part 4 of the Regulations.

32. Ownership And Control:

32.1 Evidence Of Title:

Evidence Of Title: The licensee shall provide to the Division evidence of title and any change in title to the land described in Item 7 or Annex A .

32.2 Notification Of Intent:

The licensee shall provide the Division with ninety (90) days advance notification of any proposed change in ownership or control of the facility or other Cotter-owned land (e.g., buffer zone, borrow area).

32.3 Division Authorization Required:

32.3.1 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.

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

32.4 Bankruptcy:

32.4.1 The licensee shall notify the Division (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 States Code by or against:

32.4.1.1 The licensee;

32.4.1.2 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

32.4.1.3 An affiliate (as that term is defined in 11 U.S.C. 101(2)) of the licensee.

33. License Upkeep:

33.1 The licensee's facility management and the radiation safety officer shall thoroughly review the content and requirements of this license. The licensee shall promptly notify the Department whenever it identifies an error in license authorizations or it has identified a specific license condition or technical requirement established in this license that is not achievable given the current state of technology or site conditions.

RADIOACTIVE MATERIALS LICENSE

- 33.2 The licensee's management and radiation safety officer shall take prompt and appropriate action to correct known deficiencies in the facility's procedures, processes, equipment, and site conditions.
- 33.2.1 The licensee shall provide to the Division a plan of action including schedule and radiation safety analysis for Division approval to eliminate or effectively control the cause of any unexpected harmful effects to workers or the environment, or irreversible damage to workers or the environment detected and not otherwise identified by the licensee.
- 33.3 If statements in referenced documents conflict, the most recent document listed below shall prevail unless otherwise specified in this license.
34. Referenced Proposals and Commitments:

Referenced Proposals and Commitments: The *Colorado Rules and Regulations Pertaining to Radiation Control* shall govern unless the licensee's statements, representations, and procedures contained in the application and correspondence are more restrictive than the Regulations. Except as specifically provided otherwise by this license, the licensee shall possess and use radioactive material described in Item 6 of this license in accordance with statements, representations, and procedures contained in:

- A. the application and attachments dated September 15, 2003;
- B. the financial assurance arrangements for D&D and LTC;
- C. *Cotter Uranium Millsite Remedial Action Plan* (hereafter "RAP") which is attached as Appendix A to the *Consent Decree, Order, Judgment and Reference to Special Master filed in the United States District Court for the District of Colorado, Civil Action No.83-C-2389, "State of Colorado vs. Cotter Corporation, a New Mexico Corporation"* (the "Consent Decree"), April 4, 1988.
- D. October 10, 1994, *Access Agreement* to retain necessary control of the property designated in Exhibits A and B to the *Access Agreement*; survey of lands exchanged between Cotter Corporation and the Shadow Hills Golf Club as recorded by Fremont County.
- E. *Quality Assurance/Quality Control Plan for the Cotter Corporation Canon City Mill Remedial Action Plan Technical Sampling and Monitoring Studies*, revised March 5, 1999, and as subsequently revised with prior written approval by the Division.
- F. the correspondence and attachments dated February 12, 2004, and July 30, 2004;
- G. *Findings Of Fact, Conclusions Of Law, Order And Decision*, In Re: The Cotter Corporation's Request For Adjudicatory Hearing On Radioactive Materials License No. 369-01, Amendment 42, Richard W. Dana, Appointed Hearing Officer, April 2006.
- H. *Cotter's Site Security Manual*
- I. *Cotter's Site Safety Manual*
- J. Hazard Analysis, July 2006, as revised from time to time, for each operable unit as defined in the Operations Manual and including the zirconium process facilities.
- K. Soil Volume Sampling Plan, Cotter Corp. Cañon City Milling Facility, March 2006.
- L. The correspondence and attachments dated August 29, 2007.
- M. The correspondence and attachments dated November 26, 2007.

State of Colorado
Department of Public Health and Environment

RADIOACTIVE MATERIALS LICENSE

- N. The correspondence dated February 4, 2008.
- O. The correspondence dated April 15, 2008.
- P. The correspondence dated May 8, 2008.
- Q. The correspondence dated August 8, 2008.
- R. The correspondence dated August 27, 2008.

- S. Radiological Health and Safety Procedures Manual as approved by the Division dated November 22, 2004:
 - AD 010, Corporate Policy Statement, Revision #2, dated 7/30/04
 - AD 020 Preparation, Control, and Distribution of Procedures, Revision #3, dated 7/30/04
 - AD 030 Organization, Revision #2, dated 7/30/04
 - AD 040 Radiation Protection Program Performance Review, Revision #2, dated 7/21/04
 - AD 050 Medical Examinations, Revision #4, dated 7/21/04
 - AD 060 Training Records Documentation and Tracking, Revision #3, dated 7/30/04
 - AD 070 Materials Acceptance, Revision #3, dated 7/30/04
 - AD 080 ALARA Program, Revision #2, dated 7/30/04
 - ER 010 Emergency Response, Revision #4, dated 4/6/04
 - EV 010 Environmental Dose Assessment, Revision #2, dated 7/30/04
 - EV 020 Environmental Air Particulate Sampling, Revision #5, dated 7/29/04
 - EV 021 Calibration of Environmental Air Samplers, Revision #2, dated 3/22/04
 - EV 030 Radon 222/220 Air Surveys, Revision #2, dated 7/27/04
 - EV 040 Water Quality Monitoring, Revision #3, dated 7/21/04
 - EV 041 Measurement of pH of Water Samples, Revision #1, dated 7/21/04
 - EV 042 Measurement of Electrical Conductivities of Water Samples, Revision #1, dated 7/21/04
 - EV 043 Water Level Measurements, Revision #1, dated 7/21/04
 - EV 044 Sampling Equipment Decontamination, Revision #1, dated 7/21/04
 - EV 045 Oxygen in Water, Revision #1, dated 7/21/04
 - EV 060 Vegetation Sampling, Revision #2, dated 4/14/04
 - EV 070 Environmental Thermoluminescent Dosimetry, Revision #1, dated 7/31/03
 - EV 080 Stack Sampling, Revision #2, dated 7/27/04
 - EV 090 Arkansas River Water Sample Collection, Revision #0, dated 1/13/04
 - EV 100 Impoundment Liner Breakthrough and Corrective Measures, Revision #2, dated 7/2/04
 - EV 110 Soil Sampling, Revision #4, dated 4/14/04
 - EV 120 Radon Flux Measurement, Revision #2, dated 7/30/04
 - EV 130 Weather Monitoring, Revision #1, dated 3/1/04
 - RH 010 Radiological Health and Safety Training, Revision #3, dated 7/22/04
 - RH 020 Decontamination, Revision #2, dated 7/28/04
 - RH 030 Postings, Revision #2, dated 7/20/04
 - RH 050 Uranium Bioassay, Revision #3, dated 7/30/04
 - RH 051 Special Health Investigations - Thorium, Revision #3, dated 4/15/04
 - RH 060 Radiation Work Permit, Revision #4, dated 7/30/04
 - RH 070 Release of Equipment to Unrestricted Areas, Revision #6, dated 7/30/04

State of Colorado
Department of Public Health and Environment

RADIOACTIVE MATERIALS LICENSE

- RH 100 Shipments of Yellowcake, Ore or Contaminated Equipment, Revision #3, dated 3/1/04
- RH 110 Beta and/or Gamma Exposure Rate Surveys, Revision #4, dated 7/30/04
- RH 120 Alpha, Beta-Gamma Contamination Surveys, Revision #4, dated 7/29/04
- RH 121 Alpha, Beta-Gamma Smear Sampling, Revision #7, dated 7/29/04
- RH 130 Occupational General Air Particulate Survey, Revision #4, dated 7/29/04
- RH 140 Radon-222/Radon-220 Decay Product Surveys, Revision #4, dated 7/29/04
- RH 150 Occupational Breathing Zone Monitoring, Revision #3, dated 7/29/04
- RH 152 Calibration of Air Samplers Using Mass Air Flow Method, Revision #3, dated 3/19/04
- RH 160 Source Leak Test, Shutter Test, and Inventory, Revision #3, dated 4/15/04
- RH 170 Industrial Device Installation, Revision #3, dated 7/26/04
- RH 180 Respirator Inspection, Maintenance, Cleaning and Storage, Revision #2, dated 7/21/04
- RH 190 Respirator Use and Fit Test, Revision #2, dated 7/21/04
- RH 200 Personnel Release Surveys, Revision #5, dated 7/30/04
- RH 210 Personal Radiation Monitors, Revision #2, dated 7/29/04
- RH 211 Pocket Ion-chamber Dosimeter Calibration, Revision #1, dated 1/14/04
- RH 300 Occupational Dose Assessment, Revision #0, dated 8/19/02
- RH 310 Pregnant Women, Revision #1, dated 1/9/04

T. The Cotter Radiochemistry Laboratory Procedures:

- 2-122 Lead Recovery by AA for Lead-210 Determination, Ver. 1, dated 05/24/2006
- 2-123 Iron (Fe) by AA using Direct Aspiration, Ver. 1, dated 11/20/2006
- 2-124 Molybdenum or Selenium (Mo or Se) by AA using Graphite Furnace, Ver. 1, dated 01-06-2007
- 2-125 Calcium (Ca), Iron (Fe), Potassium (K), Magnesium (Mg), Manganese (Mn), Molybdenum (Mo), Sodium, (Na), and Vanadium (V) by AA using Direct Aspiration, Ver. 1, dated 01/06/2007
- 3-1 Preparation, control, and Distribution of Procedures, Ver. 2, dated 12/07/2006
- 3-2 Standard/Source Reagent Preparation, Ver. 1, dated 05/19/2006
- 3-3 Calibration and Verification of Laboratory Balances and Weights, Ver. 1, dated 05/19/2006
- 3-4 Calibration and Verification of Laboratory Pipettes, Ver. 1, dated 05/19/2006
- 3-5 Counting and Analysis of Radiochemistry Samples, Ver. 2, dated 09/06/2006
- 5-1 Gross Alpha and Beta Measurements of Air Sample Filters, Ver. 1, dated 03/28/2006
- 5-2 Gross Alpha and Beta Measurements of Soil, Water, and Other Matrices, Ver. 1., 11/27/2006
- 5-5 Uranium Measurement by Kinetic Phosphorescence, Ver. 2, dated 09/07/2006
- 5-9 Radiochemical Procedure for Radium-226/224, Isotopic Thorium, Isotopic Uranium, Polonium-210 and Lead-210, Ver. 2, dated 12/07/2006
- D-01 Preparation of Soil, Sediment, Filter, Urine, Water, Fecal and Vegetation (biota) Samples for Radiochemical Analysis, Ver. 1, dated 05/22/2006

State of Colorado
Department of Public Health and Environment

RADIOACTIVE MATERIALS LICENSE

FOR THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Date: ___10/07/08 ___ By: _original signed by Steve Tarlton_____

State of Colorado
Department of Public Health and Environment

RADIOACTIVE MATERIALS LICENSE

Annex A

Perimeter Fence Metes and Bounds Description (South Area)

Commencing at the South $\frac{1}{4}$ of Section 9, being a GLO Brass Cap, from whence the Southwest corner of said Section 9 bears S 89° 01' 57" W a distance of 2652.89 feet, said line forming the Basis of Bearing for this description; thence S 89° 24' 00" E a distance of 26.67 feet to an existing fence corner, said point being the Point of Beginning. Thence along an existing fence line the following (52) fifty-two courses:

1. thence N 82°00'02" E a distance of 1436.22 feet
2. thence S 30°57'42" E a distance of 954.97 feet;
3. thence S 35°13'18" E a distance of 930.91 feet;
4. thence S 37°59'30" W a distance of 476.71 feet;
5. thence S 07°26'55" W a distance of 698.33 feet;
6. thence S 51°26'07" W a distance of 38.63 feet;
7. thence S 61°22'14" W a distance of 41.69 feet;
8. thence S 60°29'31" W a distance of 99.83 feet;
9. thence S 57°12'05" W a distance of 87.66 feet;
10. thence S 05°22'39" W a distance of 130.45 feet;
11. thence S 06°31'49" E a distance of 513.41 feet;
12. thence S 78°45'46" E a distance of 469.98 feet;
13. thence S 03°10'19" E a distance of 306.96 feet;
14. thence S 58°56'38" W a distance of 681.37 feet;
15. thence S 50°39'07" W a distance of 319.68 feet;
16. thence S 44°13'22" W a distance of 363.64 feet;
17. thence S 00°18'37" E a distance of 152.17 feet;
18. thence S 19°38'35" W a distance of 29.50 feet;
19. thence S 34°17'20" W a distance of 50.31 feet;
20. thence S 47°31'08" W a distance of 96.60 feet;
21. thence S 44°45'27" W a distance of 39.94 feet;
22. thence S 41°50'56" W a distance of 49.86 feet;
23. thence S 33°58'14" W a distance of 39.42 feet;
24. thence S 25°08'49" W a distance of 8.31 feet;
25. thence S 16°00'35" W a distance of 13.00 feet;
26. thence S 07°14'46" W a distance of 8.27 feet;
27. thence S 04°23'27" E a distance of 18.72 feet;
28. thence S 13°02'56" E a distance of 10.15 feet;
29. thence S 20°57'35" E a distance of 59.71 feet;
30. thence S 26°07'04" E a distance of 79.67 feet;
31. thence S 16°15'33" E a distance of 155.69 feet;
32. thence S 83°08'41" W a distance of 1166.75 feet;
33. thence N 58°27'24" W a distance of 1396.03 feet;
34. thence N 49°23'41" W a distance of 1909.64 feet;
35. thence N 01°08'05" W a distance of 3194.96 feet;
36. thence N 00°59'52" W a distance of 34.73 feet;

State of Colorado
Department of Public Health and Environment

RADIOACTIVE MATERIALS LICENSE

37. thence N 04°40'44" E a distance of 28.91 feet;
38. thence S 80°19'21" E a distance of 64.02 feet;
39. thence S 77°28'54" E a distance of 315.51 feet;
40. thence S 73°22'46" E a distance of 212.51 feet;
41. thence S 68°45'24" E a distance of 365.64 feet;
42. thence S 65°30'57" E a distance of 99.79 feet;
43. thence S 41°32'39" E a distance of 50.25 feet;
44. thence S 23°25'49" E a distance of 49.44 feet;
45. thence S 00°52'47" E a distance of 99.43 feet;
46. thence S 13°38'36" W a distance of 99.73 feet;
47. thence S 78°57'29" E a distance of 200.78 feet;
48. thence N 11°14'56" E a distance of 314.03 feet;
49. thence N 68°45'12" W a distance of 439.42 feet;
50. thence N 30°34'03" W a distance of 30.52 feet;
51. thence N 08°54'36" E a distance of 177.56 feet;
52. thence N 89°01'09" E a distance of 1779.49 feet to the Point of Beginning, containing 487.75 acres, more or less.

Total fence length = 20,391 linear feet, more or less.

Perimeter Fence Metes and Bounds Description (North Area)

Commencing at the South ¼ corner of Section 9, being a GLO Brass Cap, from whence the Southwest corner of said Section 9 bears S 89° 01'57"W a distance of 2652.89 feet, said line forming the Basis of Bearing for this description; thence S 88° 59'43"W a distance of 1,752.83 feet to an existing fence corner, said point being the Point of Beginning. Thence S 89° 28'12"W a distance of 167.20 feet to a found property corner, said point being the southwest corner of Tract A, Shadow Hills Golf Club Inc.; thence along the northwesterly line of said Tract A the following four courses:

1. thence N 64°40'37" E a distance of 614.12 feet;
2. thence N 39°43'49" E a distance of 592.75 feet to a found property corner;
3. thence N 59°46'39" E a distance of 644.41 feet to a found property corner;
4. thence N 48°36'44" E a distance of 541.88 feet to a found property corner;

thence N 00°29'19 W a distance of 2844.32 feet to an existing fence corner; thence along an existing fenceline the following twenty-six (26) courses:

1. thence N 89°42'50" E a distance of 2633.15 feet;
2. thence S 40°25'54" E a distance of 63.38 feet;
3. thence S 00°26'48" E a distance of 159.54 feet;
4. thence S 00°12'41" E a distance of 276.29 feet;
5. thence S 00°16'35' W a distance of 186.41 feet;
6. thence S 08°48'29" W a distance of 95.71 feet;
7. thence S 00°12'46" E a distance of 549.03 feet;

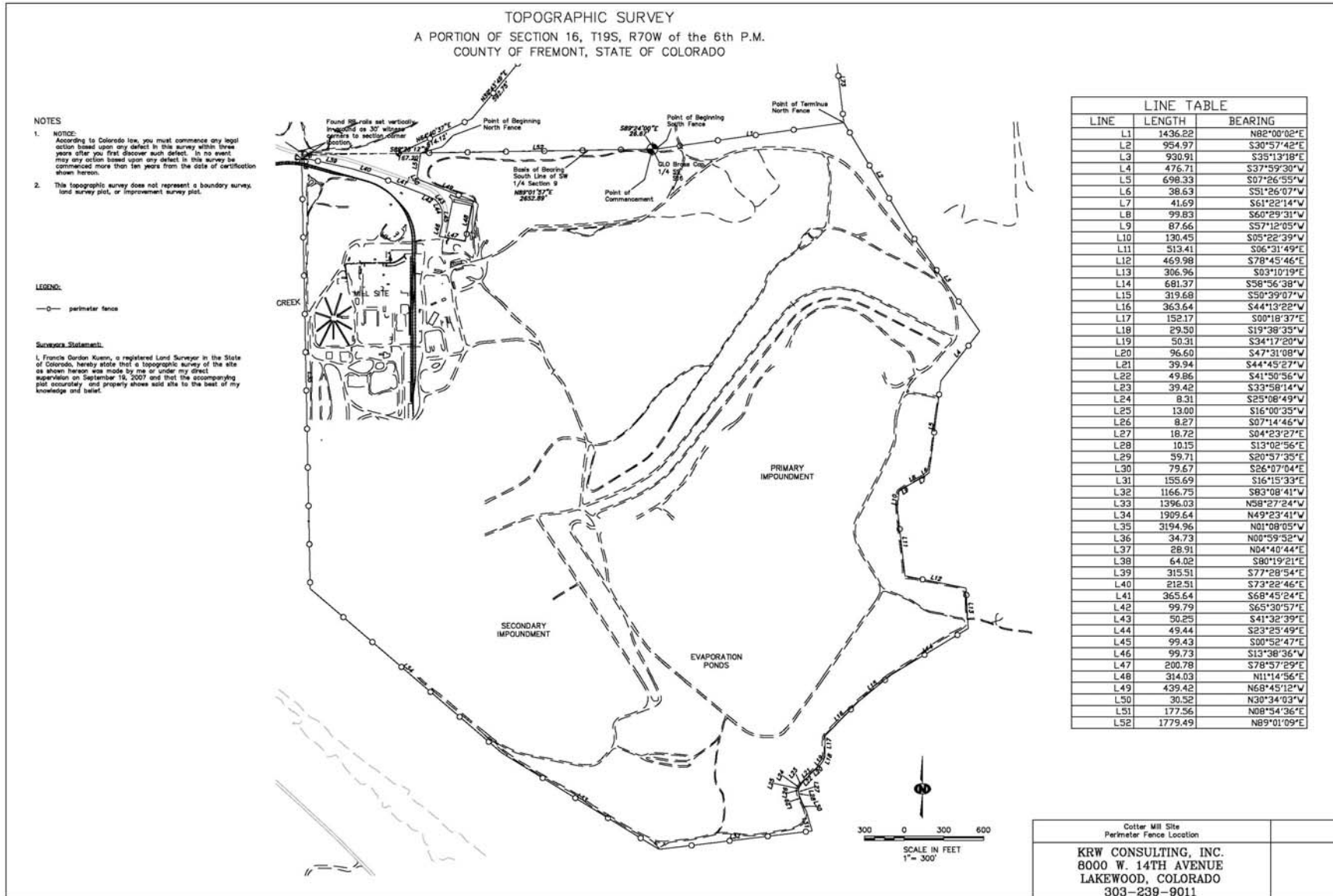
State of Colorado
Department of Public Health and Environment

RADIOACTIVE MATERIALS LICENSE

8. thence N 76°46'38" W a distance of 390.37 feet;
9. thence S 70°17'43" W a distance of 77.54 feet;
10. thence S 80°13'06" W a distance of 118.49 feet;
11. thence S 87°39'54" W a distance of 79.47 feet;
12. thence S 48°44'57" W a distance of 231.49 feet;
13. thence S 05°38'07" E a distance of 470.54 feet;
14. thence S 22°45'53" W a distance of 290.65 feet;
15. thence S 66°11'46" W a distance of 273.65 feet;
16. thence S 27°55'45" W a distance of 173.01 feet;
17. thence S 22°58'04" W a distance of 238.79 feet;
18. thence S 19°19'18" W a distance of 189.80 feet;
19. thence S 10°45'58" W a distance of 13.81 feet;
20. thence S 13°20'20" E a distance of 23.71 feet;
21. thence S 17°04'33" E a distance of 237.77 feet;
22. thence S 07°28'41" E a distance of 226.85 feet;
23. thence S 26°51'28" E a distance of 83.34 feet;
24. thence S 48°00'33" E a distance of 4.71 feet;
25. thence S 23°02'03" W a distance of 16.47 feet;
26. thence S 06°40'33" E a distance of 623.90 feet to an existing fence corner, said point being the point of terminus for this legal description, said point also being N 82° 09'25" E a distance of 1462.60 feet from the S ¼ corner of said Section 9. Total area = 206.04 acres, more or less. Total fence length = 13,720.73 linear feet, more or less.

State of Colorado
 Department of Public Health and Environment

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