

STATE OF COLORADO

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

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Subject: Notice of Violation

This letter is a Notice of Violation of certain requirements of Title 25, Article 11, CRS 1989, Colorado Radioactive Materials License Number 369-01, and the State of Colorado *Rules and Regulations Pertaining to Radiation Control* (the Regulations). These violations were identified in an unannounced inspection conducted at your Canon City facility on November 15-19, 2004 by Jennifer Opila and Ed Stroud of this Division. The inspection consisted of selective examinations of procedures and records, independent radiation measurements, and observations and interviews made by the inspectors.

Based on the Information collected during this inspection, the following Items of Noncompliance with the State of Colorado *Rules and Regulations Pertaining to Radiation Control* (The Regulations) and the Conditions of your Radioactive Materials License were noted:

1. RH 4.5 of the Regulations, and License Condition 18.4, require, in part, the establishment and implementation of a radiation protection program to achieve occupational doses that are as low as is reasonably achievable (ALARA). Further, Cotter Procedure 1.6, referenced in License Condition 11, requires that all activities involving potential exposures to licensed radioactive materials be evaluated for ALARA considerations.

Contrary to these requirements, on October 10, 2004, supervisory personnel at the mill initiated work on the calciner unit, on three successive shifts, without written procedures or an ALARA review. The work involved potential exposures to high levels of contamination and airborne radioactive materials. Consequently, exposures to plant personnel were not kept as low as reasonably achievable (ALARA).

As described above, the licensee is required to establish and implement an effective ALARA program. Failure to review work for ALARA considerations (by three different supervisors) indicates a breakdown in this part of the program. Therefore, to adequately address this problem and prevent recurrence, a root cause analysis for this incident must be completed and forwarded with your reply to this letter. Corrective actions to prevent recurrence must be based on the results of the root cause analysis.

2. License Condition 19.4, and Cotter Procedure 2-11, referenced in License Condition 11, require the use of a Radiation Work Permit (RWP) for any work that has radiation safety implications and for which no written procedures exist.

Contrary to these requirements, an RWP was not issued for the work on the calciner unit on October 10-11, 2004. The work involved potential exposures to high levels of contamination and airborne radioactive materials, and there were no approved procedures available.

Radiation Work Permits must be issued and used as required in the License. RWPs contain job specific information about expected radiological conditions, the required protective equipment to be used for the work, and any other special precautions or hazards associated with the work. The RWP signature page also serves as additional documentation that the workers have read and understand the special conditions associated with the work.

3. RH 4.24.2.1 of the Regulations requires, in part, that licensees select and use respiratory protection equipment that will adequately protect workers from unnecessary exposures to airborne radioactive materials. Specifically, the equipment must provide a protection factor greater than the multiple by which peak concentrations of airborne radioactivity are expected to exceed the values in Appendix B, Table 1, Column 3 of the Regulations.

Contrary to this requirement, respiratory equipment with an applied protection factor of 25 was selected and used in an area where the concentration of airborne radioactive materials had the potential to be much higher than 25 times the values listed in Appendix B, Table 1, Column 3, and, therefore, was inadequate for the planned work.

Respiratory protection equipment must be selected and used as described in the Regulations to keep worker exposures as low as reasonably achievable. The proper selection and use of respiratory protection equipment is an essential part of an effective radiation protection program.

4. Cotter Procedure 1-6, referenced in License Condition 11, requires, in part, that the ALARA Review Committee (ARC) meet at least quarterly to: establish and track annual ALARA goals, review weekly and quarterly inspections, review Radiation Work Permits, and make recommendations on proposed modifications or improvements to process, facilities equipment, procedures or other aspects. Further, License Condition 29.3 requires the Radiation Safety Officer (RSO) to conduct a quarterly audit to include: a review of the logs and reports of inspections conducted pursuant to LC 29.1 and LC 29.2, an evaluation of the adequacy of implementation of license requirements, and recommendations in writing to the mill manager for any necessary corrective actions. (Note: the RSO's quarterly audit and the ARC meeting are normally conducted simultaneously).

Contrary to these requirements, records provided at the time of the inspection indicated that there were only three ARC meetings and quarterly RSO audits conducted during 2003.

RSO quarterly audits and ARC meetings must be completed as required above. These items are integral to the functioning and oversight of the radiation protection program.

5. RH 10.2 of the Regulations requires, in part, that required notices to workers, such as the Notice to Employees, a copy of the radioactive materials license, and the Colorado Rules and Regulations Pertaining to Radiation Control, be conspicuously posted by the licensee in a sufficient number of places to permit workers to observe them on the way to or from work locations.

Contrary to this requirement, inspectors observed that the required notices were not posted by the licensee in areas where contractors and site employees would see them on the way to or from work locations. For example, there were no postings in the contractor's office, break trailer, or women's locker room. In addition, only the Notice to Employees was posted in the men's locker room.

Information must be posted as described above. Corrective actions must include the posting of the required information, and a plan to prevent recurrence.

6. License Condition 27.5 requires the licensee to conduct an air-sampling program to assess airborne radioactivity concentrations to which employees may be exposed. Cotter Procedure 2-5, referenced in License Condition 11, requires air sampling equipment to be calibrated on a regular schedule (quarterly, per the assistant RSO).

Contrary to these requirements, an air sampler used to collect general samples within the mill was observed to be out of calibration (per the calibration sticker) and in use at the time of the inspection. In addition, records made available at the time of the inspection indicated that a total of 4 air samplers (#1079-1, #0585-1, #408667-2, #408457) were out of calibration, and that two more (#1190, #681) would be out of calibration within several weeks, resulting in an apparent shortage of calibrated air samplers for use within the mill. Information from the licensee indicated that the device used to calibrate the air samplers had been sent off-site for an annual calibration, and had not been returned by the vendor.

Air sampling equipment must be maintained as described in the procedures referenced in the License Conditions. In addition, provisions must be made to replace older equipment, as necessary, and obtain replacement equipment in a timely manner when unexpected situations arise.

The following Items of Concern and Recommendations were identified by the inspectors during this inspection, and warrant your reply.

Items of Concern

- A. During the inspection, the Radiation Safety Officer informed inspectors that a possible overexposure incident had occurred, and was currently under investigation. The incident involved the accidental ingestion of uranium compounds by a worker at the mill. (The Division received a written report for this incident on 12/3/04, after this inspection was concluded. Results of the incident investigation will be addressed in a separate letter.)
- B. Division representatives received information that some of the workers at the mill had not been notified that the inspectors were on site for the routine inspection, and, therefore, were not given an opportunity to meet with inspectors or accompany them during the inspection of physical conditions, as is required by RH 10 of the Regulations.
- C. License Condition 14.3 requires, in part, at least one Authorized User to be on hand at the facility or immediately available at all times as specified in License Condition 11.1. Inspectors noted that cell phones and a call down list are used to meet these requirements on evenings and weekends when an Authorized User is not at the facility. However, there is no formal coordination amongst the Authorized Users to assure that there is at least one person immediately available at all times to respond to an emergency. A written procedure should be adopted which insures that at least one Authorized User will be immediately available and fit for duty to respond to the site in the event of an emergency.
- D. A maintenance worker completed the Radiation Safety Exam in May 2004. He scored below the passing grade of 70% required by the licensee's training procedure and there was no documentation of a retest or that additional training was provided. The Radiation Safety Officer explained that he provided additional training to the individual, but this was not documented. In the future, if an individual does not pass the exam and there is no retest given, some documentation should be maintained showing that additional training was provided.

Recommendations

- a) Survey information reviewed during the inspection indicated that a major source of worker exposures at the mill is through the inhalation of airborne dusts. It was also noted that the licensee does not possess a portable HEPA ventilation unit. The licensee recently purchased a HEPA vacuum unit, with encouraging results, and should investigate the use and dose reduction potential of a large, portable ventilation unit. These units can be moved from job to job to provide high ventilation rates to reduce airborne contaminants and lower worker exposures.
- b) Portable breathing zone air samplers used at the mill are calibrated using what is called a bubbler device. Newer technology exists which is faster, easier to use, and more accurate. The new calibration devices should be evaluated for use at the mill.

Your written response must be submitted within thirty (30) days of receipt of this letter and must include: (1) corrective steps which have been taken to achieve compliance; (2) plans to achieve compliance with the requirements which cannot be remedied within thirty (30) days; and (3) other relevant information. Any compliance schedules or plans agreed to by the Division, as allowing reasonable opportunity to comply, must specify implementation deadlines. If these deadlines are not met, this will provide the Division a basis, without further notice, to institute proceedings for suspension, revocation or modification of your license, as provided in RH 3.23 of the Regulations. Failure to take corrective actions or to respond to this letter as described above could also result in proceedings to impose the above referenced penalties.

As required by RH 10.2 of the Regulations, this Notice of Violation must be posted so as to permit individuals engaged in licensed activities to observe it on the way to or from any particular licensed activity location to which the document applies. Any acknowledgement to this report by the licensee shall be posted within five (5) working days after dispatched by the licensee. Such documents shall remain posted for a minimum of five (5) working days or until actions correcting the violations have been completed, whichever is later.

If you have any questions concerning this letter, please contact Mr. Ed Stroud of this Division at (303) 692-3418.

Tim G. Bonzer, Compliance Lead
Radiation Management Unit
Hazardous Materials and Waste Management Division

CF: Patrick Mutz, Mill Manager