

January 7, 2005

Mr. Tim G. Bonzer, Compliance Lead
Radiation Management Unit
Hazardous Materials and Waste Management Division
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80245-1530

Subject: Notice of Violation - Radioactive Materials License Number Colo. 369-01 regarding findings from CDPHE inspection of November 15-19, 2004, by Jennifer Opila and Ed Stroud dated December 7, 2004.

Dear Mr. Bonzer,

The following information is provided regarding findings by Mrs. Jennifer Opila and Mr. Ed Stroud of the Hazardous Materials and Waste Management Division during the site inspection conducted November 14-19, 2004. The majority of the findings were provided during the exit interview on November 19, 2004.

The six items characterized as non-compliance, four items of concern, and two recommendations from the inspection report are reiterated below followed by our analysis and response.

Inspection Item of Noncompliance:

1. *RH 14.5 of the Regulations, and License Condition 15.4, 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.

Cotter Response

Cotter Corporation has performed a root cause analysis for the incident of October 10, 2004 regarding raking out the calciner. This incident was initially reported to the Radiation Management Unit (RMU) by telephone on October 13, 2004 with a follow-up report provided to the RMU on November 12, 2004.

The incident involved raking (scaling) yellowcake from the calciner to the barreling station. The ARSO and the shift supervisor on the first shift had discussions on October 8, 2004 regarding precautions and monitoring for raking (scaling) of the calciner if raking were to be conducted. Based on that conclusion, when the shift supervisor initiated the work on October 10, 2004 he provided a 30 minute training session to the operators prior to initiation of the work. This oral communication between the ARSO and the shift supervisor, combined with the 30 minute training provided by the shift supervisor, served the functional equivalent of a Radiation Work Permit although not thoroughly reviewed and documented as a formal RWP.

Cotter Corporation has determined that the root cause of this activity being performed without ALARA considerations being formally evaluated and absent the issuance of a written Radiation Work Permit (RWP) was:

- Adequate training had not been provided to supervisory personnel as to what constitutes a non-routine activity involving radioactive materials and that a non-routine activity involving radioactive materials required a RWP. Specific factors are:
 - Non-routine activities involving radioactive materials had not been clearly defined for supervisory personnel.
 - No written policy separate from the RWP Procedure existed which instructs supervisory personnel that a RWP is required for non-routine activities involving radioactive materials.

The following corrective actions have been completed or are planned:

- During Quarterly Training sessions held December 28-30, 2004 Cotter and Contractor employees were instructed that a RWP is required for any activity involving radioactive material that is non-routine and/or does not have written instructions.
- A read only program for recently approved procedures has been initiated. All supervisors will be required to read RH-060 Radiation Work Permit.
- Cotter Corporation will review the Radiation Protection Program Procedure AD-010 Corporate Policy Statement, as well as RH-060 Radiation Work Permit to determine if any changes to these procedures are needed. It should be noted that Procedure RH-060 currently states that RWP's are required "for any maintenance or other work which has not been described in a written operating or maintenance procedure", and more specifically at Section 2.3 that "Work involving processing equipment, e.g. work in a tank containing or suspected to contain concentrated uranium (yellowcake or pregnant solution) in a dry form or in such a form that contamination by ingestion or inhalation of radioactive material could occur" requires the issuance of a RWP.
- A separate written policy statement for distribution to all Milling Facility Employees notifying site personnel as to these important requirements for RWP implementation and that these requirements have been promulgated by the Radiation Work Permit procedure.
- A checklist of guidelines for non-routine and RWP implementation will be prepared.
- A special training for supervisory personnel will be held to provide guidelines for RWP implementation.

Inspection Item of Noncompliance:

2. *License Condition 19.4, and Cotter Procedure 2-11, referenced in License Condition 11, required 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 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.

Cotter Response

Please see the response to Item 1 above.

Inspection Item of Noncompliance:

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.

Cotter Response

Please see the response to Item 1 above. Since a RWP was not initiated the formal review, where the selection of respiratory equipment type would have been specified, was not completed. In the future, non-routine activities will adhere to the RWP requirements of RH-060 and, as such, a written RWP will be issued including the selection of respiratory equipment type.

Inspection Item of Noncompliance:

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.

Cotter Response

An ALARA Review Committee meeting was held on March 26, 2003 which was documented as a combined last quarter 2002 and a first quarter 2003 meeting. At the combined quarterly meeting ALARA review matters related to activities involving both quarterly periods were discussed, thus serving the intended purpose of two quarterly meetings. In addition to the quarterly issues review, a protocol for standardizing quarterly meeting dates was adopted at this meeting.

Inspection Item of Noncompliance:

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.

Cotter Response

All Rules and Regulations and RML notices were posted in the guard shack, main office bulletin board, and product control room prior to the inspection. The NOTICE TO EMPLOYEES [(OR-RH-15) older version – from CDPHE] was posted on the office bulletin board, guard shack, and product control room.

At the time of the inspection, Notices of Violation and responses were posted at the guard shack, maintenance lunchroom trailer, ICM lunch trailer (*when on-site), Kessler lunchroom (*when on-site), product control room, Radiation Safety Clerk's office, and main office bulletin board.

After the inspection, all rules and regulations and RML new notices were posted in the guard shack, maintenance lunchroom (electric shop), utility lunchroom, product control room, ICM lunchroom, men's/women's change-house, survey trailer, laboratory lunchroom, Kessler's lunchroom trailer, and main office bulletin board. Additionally, the NOTICE TO EMPLOYEES (OR-RH-15) new version received this year during the inspection was posted in the same locations as the rules and regulations and RML notice listed above.

All Notices of Violations and responses are posted in all the same areas listed in the above paragraph except the laboratory lunchroom. Notices of Violations are also posted in the contractor's lunchroom.

Inspection Item of Noncompliance:

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 as 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 null. 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.

Cotter Response

The existing air sampler calibrator was sent off site for annual calibration and was broken by the vendor in the process of recalibration. Unexpectedly, we were left without any other calibration unit because of the vendor error. We will soon be purchasing a new calibrator to replace the old one with the aid of the vendor responsible for the setback. When received, the new calibrator will be used to back calculate and if necessary readjust volume for any sampler that fell out of calibration date. This will correct the setback and provide us with the necessary adjusted volumes to apply to the samplers that fell out of calibration.

Inspection 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.)*

Cotter Response

None Required

- 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.*

Cotter Response

During times when routine or announced inspections are conducted as in the case of this situation, management makes an announcement during the daily meeting of when inspections will be performed or when CDPHE officials are onsite. A union representative is informed of this

announcement and asked to attend the inspection close out meeting when all inspections are complete. The foremen attending the daily meeting will additionally then pass along the information that the division is presently onsite and give Cotter personnel the opportunity to meet or provide comment to any CDPHE representative during the course of all inspections. All employees are encouraged to ask questions or talk with a representative from the division at any time.

In this case, the inspector made an initial announcement of the day and time the inspectors would be conducting a building inspection and then decided to do the inspection with the Assistant Radiation Safety Officer at an earlier date. A union representative was not informed and therefore was not available for the inspection. However, a union representative attended the closeout interview on November 19, 2004.

A checklist will be used by safety/security personnel and the RSO in the future to ensure that appropriate supervisory personnel and union representatives are notified that an inspector is onsite.

Inspection Items of concern:

- 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. Inspector 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.*

Cotter Response

A formal contact list will be established to include a rotation of responsibilities for all authorized users during weekdays, evenings, and weekends to ensure at least one person is immediately available at all times to respond to an emergency.

Inspection Items of concern:

- 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 gaining 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.*

Cotter Response

This recommendation is acknowledged and improved efforts will be made regarding the documentation of additional training in the event that an individual scores below the passing grade. In this case, the individual scored just below the minimum passing grade and the RSO did not feel it be necessary to retest over all of the items. The RSO sat with the individual to re-instruct the items that were missed and based on the RSO's opinion the individual did not need to be retested to begin work as he had been properly counseled regarding the missed questions. Should this situation occur in future test circumstances, proper documentation of the re-instruction effort will be attached to the final test.

Inspection 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.*

Cotter Response

This recommendation will be researched further for potential implementation practicalities at the facility and will be recommended for use in our ALARA program. This is a favorable recommendation that will be evaluated for utilization in tasks where airborne exposure potentials could be higher. The HEPA vacuum unit has been Cotter's latest ALARA improvement and was purchased within the last 5 months to be applied to all areas in the facility where grinding, sanding, or cleanup is appropriate. Attachment tools can be added to this unit to immediately reduce airborne particulate for grinding and sanding applications. This unit has been an exceptionally effective addition to our ALARA program and proves to be very useful for the control of airborne particulate when carrying out these jobs duties.

Inspection Recommendations:

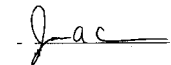
- b) *Portable breathing zone air samplers used at the mill are calibrated using what is called a bubbler device. Newer technology exists which is faster, easier to use, and more accurate. The new calibration devices should be evaluated for use at the mill.*

Cotter Response

Our approved procedure for breathing zone sampler calibration is recognized as being an adequate method and still efficient and effective for calibration. This recommendation will be examined thoroughly if time and manpower efficiency becomes a factor. At this point in time, the current approved procedure for breathing zone calibration is believed adequate for all our intents and purposes.

If you have questions regarding this response, please contact me at (719) 275-7413.

Sincerely,



Jim Cain
Environmental Coordinator/
Radiation Safety Officer

JC: kju

cc: Mr. Pat Mutz
Mr. Steve Landau
Mr. Steve Tarlton