

March 8, 2001

Donna Wichers, General Manager
COGEMA Mining, Inc.
P.O. Box 730
Mills, WY 82644

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING THE COGEMA
DECOMMISSIONING PLAN, SOURCE MATERIAL LICENSE SUA-1341

Dear Ms. Wichers:

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the COGEMA Mining, Inc. (COGEMA) decommissioning plan for the Irigaray and Christensen Ranch In-Situ Leach Projects, submitted by letter dated December 19, 2000. Approval of this final plan for soil and building decommissioning cannot be provided until the NRC staff has obtained and reviewed additional information regarding your proposal. The itemized request for this additional information is enclosed. Please respond to the listed items within 30 days or indicate when your responses will be provided.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC PUBLIC Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electron Reading Room).

If you have any questions concerning this letter or the enclosure, please contact Elaine Brummett, the NRC project manager for the Irigaray and Christensen Ranch facilities, at (301) 415-6606 or by e-mail to esb@nrc.gov.

Sincerely,

/RA/

Philip Ting, Chief
Fuel Cycle Licensing Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Docket No: 40-8502
SUA-1341

Enclosure: Decommissioning Plan RAIs

cc: G. Cash, WDEQ-LQD
G. Mooney, WDEQ-LQD
R. Poyser, COGEMA

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NAME	EBrummett		STreby		DGillen		PTing	
DATE	3 / 6/01		N/A		3 / 8/01		3 /8/01	

REQUEST FOR ADDITIONAL INFORMATION CONCERNING
THE DECOMMISSIONING PLAN FOR IRIGARAY AND
CHRISTENSEN RANCH PROJECTS

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the COGEMA Mining, Inc. (COGEMA) decommissioning plan for the Irigaray (IR) and Christensen Ranch (CR) In-Situ Leach Projects, submitted by letter dated December 19, 2000. In order to complete our review, additional information is required, as discussed below.

1. Spills

DISCUSSION: Section 2.3.1 of the plan indicates that there are records of 246 spills of at least 1,000 gallons or containing at least 5 mg/l of uranium. Most of the spills are discussed only in terms of the U3O8 concentration. The radiological data for these spills in plan Appendix A, do not have Ra-226 values for many of the spills, either for the fluid or the contaminated soil. The data does demonstrate that 10 areas at IR and 5 at CR have or had Ra-226 values greater than 7 pCi/g with the highest at 254 pCi/g. The U3O8 values go as high as 1315 pCi/g soil at IR.

REQUEST: Indicate if the 15 areas of elevated soil Ra-226 from spills have been remediated or are designated for future clean-up (see next comment). Also, indicate what analytical method is used to determine the U3O8 concentration, and the equivalent uranium (U-nat) activity concentration.

2. Elevated Gamma and Ra-226

DISCUSSION: The first paragraph on page 36 (Section 3.2.2) indicates that elevated soil gamma levels were difficult to find in order to obtain soil samples with elevated Ra-226 levels. Of the 14 soil sampling locations, Table 3-2 indicates that only one sample had elevated levels (greater than 7 pCi/g) of Ra-226 and two had elevated uranium. From these preliminary data and past records, the areas requiring remediation can be estimated.

REQUEST: Provide the estimated area of land (e.g., sq. feet or meters) that may require remediation. Also, clarify if the sample was obtained before the gamma reading was taken, as stated on page 36.

3. Pregnant Lixiviant

DISCUSSION: Table 3-3 presents the radionuclide content of restoration water in two mine units. These value are then used to estimate soil concentrations after spills and to justify that the constituents of concern are only Ra-226 and uranium. There does not seem to be a similar summary provided for pregnant lixiviant.

REQUEST: Since some spills have been of pregnant lixiviant, provide a summary of the ranges and average radionuclide concentrations for this type of fluid.

4. Lab Sink Drainage

DISCUSSION: Section 4.2.3 (page 43) indicates that lab sink drain plumbing will be removed and surveyed or disposed of as byproduct material. There is no mention of a septic system.

REQUEST: Indicate if the lab sink drain plumbing includes a septic system that will be surveyed.

5. NPDES Permit Discharge

DISCUSSION: Section 4.3 (page 43) mentions discharge of treated pond solutions is done under existing NPDES permits. However, since the Commission policy decision of July 2000, the discharge is regulated under 10 CFR Part 20.

REQUEST: This section should be revised to indicate current regulation of the effluent discharge by NRC under Part 20.

6. Background Data

DISCUSSION: COGEMA determined the soil background level of U-nat, Ra-226, Th-230, and Pb-210, in part, by using pre-operational sample data. Page 7 of the plan indicates that the samples taken at environmental monitoring stations were from the top 2 inches (5 cm) of soil as a composite of ten samples from 10 by 10 foot (9.3 m²) areas. Five other pre-operational samples from IR were over a depth of 30 cm with no area or composite nature mentioned. Most of the samples from CR were not from sampling stations but the depth and area size that the samples were taken from, are not indicated. Table 2-4 (page 18) indicates that at six CR locations, there is not much variation in Ra-226 concentration with various depths but there is variation with the only Th-230 location sampled at various depths. There is no comparable data from the IR site. Since background samples from the top 15 cm and an area of 100 m² are best for use with the Criterion 6(6) Ra-226 standard, it is not clear that the background data is adequate. For some of the data, it is stated that the analytical method is unknown and there is no mention of the quality control program, therefore, the reliability of the data is suspect.

REQUEST: Indicate which background data were obtained from the surface 15 cm of soil and an area of 100 m² or any additional reasons why the sample depth intervals are adequate. Also, indicate which data were subjected to adequate quality control and assurance measures. In addition, indicate if all these sample locations are geologically and chemically similar to the contaminated areas.

7. Interior of Pipes

DISCUSSION: Section 5.1 (page 44) of the plan indicates that pipes will be released if measurements at traps and access points, if representative, meet criteria and (page 45) only alpha levels will be measured. The staff is aware that some other nuclear facilities use a pipe crawler or other detection system to obtain radiological data from pipe interiors. Also, if a metal pipe is rusty inside, alpha measurements are not reliable and beta measurements are usually done to detect the first two progeny of U-238, if uranium is the primary contaminant.

REQUEST: Justify the proposed method of surveying pipes as adequate to demonstrate release criteria have been met. Indicate how COGEMA will determine if a trap or access point is representative of the entire pipe and what is the typical distance between such points.

8. Contamination Limits

DISCUSSION: Section 7.1 (page 51) indicates that, based on radium benchmark dose modeling, the uranium limit in the surface 15 cm of soil can be 400 pCi/g and 1200 pCi/g in subsurface layers but that an ALARA effort would be made. Section 7.2.3 (page 61) states that cleanup limit for deep excavations is 15 pCi/g Ra-226 or the equivalent uranium/radium level.

REQUEST: Indicate if an administrative limit or ALARA goal has been chosen for subsurface Ra-226 and for the uranium concentrations and if the proposed uranium limits consider the chemical toxicity. Also, estimate what subsurface areas (location and depth) might be under consideration for application of the subsurface criterion beside pipe trenches.

9. Surface Activity Measurements

DISCUSSION: Section 3.1.1 of the plan (page 31) indicates that beta contamination levels of the buildings are not reported because of the influence of gamma radiation from the pipes and tanks. The NRC staff is concerned that wall and floor surfaces may be rough such that alpha measurements for the final survey will underestimate the contamination level.

REQUEST: Indicate how only total alpha measurements will be adequate to characterize the surface activity of buildings and structures, given the uneven surface of some of the contaminated material. Indicate if alpha and beta measurement comparisons have been done.

10. Procedure for Surface Activity

DISCUSSION: Section 3.1.2 (page 31) states that surface activity measurements by the consultant, ERG, and COGEMA agree well. This is not accurate if the measurements were taken in the same locations as indicated in Table 3-1, e.g., IR location number 1 is 8,197 dpm for ERG and 182 dpm for COGEMA measurements.

REQUEST: Indicate if the sample locations in Table 3-1 are the same for ERG and COGEMA measurements. Also, indicate which procedure, ERG's or COGEMA's, will be used for the final status survey (Appendix C) and why that procedure is adequate, e.g. adequate sensitivity.

11. Surface Activity Limits

DISCUSSION: COGEMA presents the release limits for alpha radiation contaminated material in Section 5.1 (page 44). These values are from NRC Regulatory Guide 1.86 for the uranium chain radionuclides. The licensee should be aware that if the major contaminant is radium or thorium, then the release limits are lower as the limit for these radionuclides is 100 dpm per 100 cm² for average total alpha.

REQUEST: Indicate what areas are expected to have Ra-226 as the major surface activity component and provide a revised Section 5.1 to acknowledge the surface activity limits that apply to most byproduct material contamination.

12. Pipe Decontamination

DISCUSSION: Section 3.4 (page 39) proposes to reduce radioactivity inside pipes by flushing them with hydrochloric acid solution. The successful test was performed by soaking short sections of pipe in 10 percent acid for 2 hours.

REQUEST: Indicate why flushing is assumed to be as successful as soaking the pipe. Also, indicate how much pipe (lineal feet or miles) might be decontaminated in this manner.

13. Gamma Measurement

DISCUSSION: Section 7.2.4 (page 61) indicates that verification gamma meter readings are to be taken as integrated count rate gamma scan readings of at least 1 minute within each grid or a minimum of 7 gamma records per grid via the GPS survey.

REQUEST: Indicate why it is assumed that 7 gamma records per grid with GPS survey will provide reliable data and be comparable to the other method proposed.

14. Monitoring

DISCUSSION: Page 66 last paragraph indicates that the annual external survey for beta radiation and the daily ventilation inspections will be eliminated and that the surface swipes will be done monthly, not weekly. Table 8-1 (page 67) only addresses one aspect of monitoring to be done during yellowcake dryer operation.

REQUEST: Justify that these changes in monitoring are protective considering that dryer operation will take place 2-3 weeks/yr and plant decommissioning will be performed.

15. Procedure D-5

REQUEST: Appendix E, procedure D-5, page 2 should indicate that the walls of deep excavations will be scanned if contamination could extend laterally.

16. Field Data

REQUEST: Provide or describe the QA/QC program for field data acquisition e.g., gamma measurements.

17. Decommissioning Costs

DISCUSSION: As indicated in Section 11 (page 74) of the plan, the cost estimate for the decommissioning plan is dated August 18 (actually August 17), 2000. The staff could not identify specific decommissioning items in this estimate.

REQUEST: Indicate what line item in the August submittal contains the estimated cost for the radiological monitoring and measurements that will be needed for soil and building cleanup, verification, and for building and equipment dismantlement. Also, itemize these costs (e.g., technician and RSO time, soil analysis, report preparation) that would be incurred if a third party had to perform the decommissioning according to the proposed plan.

18. Non-Radiological Hazardous Constituents

REQUEST: Indicate where in the decommissioning plan the non-radiological hazardous constituents of byproduct material are addressed in compliance with Criterion 6(7).

19. Table 9-1

DISCUSSION: Sections 9.4, 9.6 (page 70), and 9.7 state that Table 9-1 (page 71) reflects reduced sampling frequencies proposed for decommissioning. Also, Table 9-1 does not include IR location 5 for surface water samples as in the current program (Table 5.25 of the license application).

REQUEST: Justify the various proposed changes reflected in Table 9-1.

20. Environmental Reports

REQUEST: To assist the staff in preparation of an environmental assessment for this license amendment, indicate the date of the latest environmental report, wildlife survey, and cultural resources survey. Also, summarize the results of any of these reports if a copy has not been submitted to the NRC.