COGEMA

October 31, 2008

Mr. Keith I McConnell, Deputy Director
Decommissioning & Uranium Recovery Licensing Directorate
Division of Waste Management & Environmental Protection
Office of Federal & State Materials & Environmental Management Programs
U.S. Nuclear Regulatory Commission
11545 Rockville Pike
Rockville, Maryland 20852-2738

Re: Docket No. 40-8502, License No. SUA-1341

Dear Mr. McConnell:

Enclosed please find five sets of replacement pages for insertion in the renewal application (dated May, 2008) for the above referenced license. The revised pages address the following issues which the NRC staff raised with COGEMA Mining during a conference call on October 8, 2008: 1) use of alternate standards approved by the NRC in cases of future wellfield restorations that do not meet all primary restoration goals (based upon target baseline values); 2) modification of the stated number of pore volumes anticipated during restoration to be more reflective of past restoration experience at Christensen Ranch; and 3) modification of the text to reflect timely decommissioning concerning the initiation of groundwater restoration in a mined out wellfield. The page replacements in the document are as follows:

Page Removed	Page Inserted	Description of Change
6-1	6-1	References alternate standards approved by the NRC.
None	6-1a after 6-1	No change-spilled text from previous page.
6-2	6-2	References alternate standards approved by the NRC for consistency with page 6-1.
6-8	6-8	Increases pore volumes for RO/permeate injection phase of restoration to 10 PVD based on historical data for Christensen Ranch. References 10 CFR Part 40, §40.42(d) concerning the timing of the start of restoration in a completed mine unit.
6-9	6-9	No change-spilled text from previous page.

Please advise us of any further needs by the NRC staff during its review of this renewal application.

Tom Hardgrove

Tom Hardgrove
Manager, Environmental & Regulatory Affairs

Encls.
cc: D. B. Spitzberg, U.S. NRC – Region IV

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6.0 RESTORATION AND RECLAMATION PLANS

6.1 GROUNDWATER RESTORATION

The restoration of the existing wellfields at Irigaray was successfully completed and reported to DEQ/LQD and the NRC in "Wellfield Restoration Report, Irigaray Mine", July 2004. The final groundwater restoration of the existing wellfields at Irigaray was approved by DEQ in a letter to COGEMA dated November 1, 2005, and by the NRC in a letter dated September 20, 2006. Subsequently, COGEMA proceeded to plug and abandon the Irigaray wells; that project is 99 percent complete at this time, and the decommissioning of the Irigaray wellfield surface facilities is ongoing. COGEMA also completed the groundwater restoration in all existing Christensen Ranch wellfields and reported the results of that restoration to the agencies in "Wellfield Restoration Report, Christensen Ranch Project, Wyoming", March 5, 2008. The report was submitted under cover of a COGEMA letter dated April 8, 2008. Review of that report by the agencies is pending.

6.1.1 TARGET RESTORATION VALUES

COGEMA's primary goal for restoration has been to return the quality of groundwater at the Irigaray and Christensen Ranch sites to baseline concentrations, using the best practicable technology and economic reasonableness. If the primary goal cannot be achieved for a hazardous constituent in a wellfield, then restoration will meet an alternate standard approved by the NRC, consistent with the requirements of Criterion 5B(5) of Appendix A to 10 CFR Part 40.

Details of the establishment of baseline water quality in a particular mine unit were previously given in Section 5.8 of this application. In summary, groundwater baseline water quality is established for a mine unit by collecting samples from representative injection or recovery wells within that unit and arithmetically averaging the sample results, after outlier removal. The overall average result will be used as the baseline concentration.

Because of the number of sample results used for the average baseline determination, the spatial distance over which the samples were distributed, and the variability between sample results, the final restoration concentration achieved for a particular chemical constituent should be a function of the average baseline and the variability found between sample results used for baseline determination. Accordingly, the target restoration values will be a function of the average baseline, the range of results found in the baseline samples and the variability between sample results as defined by statistical methods agreed upon by the LQD and COGEMA. The range of individual restoration values achieved should fall between tolerance limits calculated with the mine unit baseline data base, using the same tolerance limit method previously provided in Section 5.8 under upper control limit calculations.

Target restoration values for the Christensen Ranch restoration program have been established in each individual baseline data package for Mine Units 2, 3, 4, 5, and 6 submitted to and approved by the regulatory agencies. Target values were set as the

baseline mean with an acceptable range provided by tolerance limits, to account for the baseline variability. This is necessary because we know that the exact average baseline value for a particular constituent will probably not be met at restoration, therefore the restored concentration should fall within a range of acceptable values around the mean baseline value. This range has been calculated with tolerance limits. This particular method for establishing target restoration values is currently under review by LQD and may be modified in the future to use statistical confidence limits for the mean instead of tolerance limits. For non-detectable values, the target is to restore to the same proportion of non-detectable values.

Secondary restoration standards approved by the NRC may be reflective of the pre-mining use suitability criteria as established by the WDEQ. Most of the ore zone groundwater at Christensen Ranch had been classified by WDEQ as Class I Domestic, with the general exception of radium-226. Subsequently, the November 2001-issued joint WDEQ-LQD and Wyoming Water Quality Division Advisory Board policy regarding the non-treatability of radium in water (due to the problem of safe disposal of water treatment by-products) effectively resulted in the re-classification of Christensen wellfield (exempt aquifer) areas as Class IV. Other classifications at Christensen range from Class I, II, III and IV in the shallow zones, to Class I in the deep zones.

Target values for each individual Mine Unit at Christensen Ranch can be found in the individual baseline data packages for each mine unit and in the Christensen Ranch restoration report noted above.

6.1.2 RESTORATION PROCESSES

The restoration programs conducted in the past, and planned for the future involve essentially three phases of restoration processes. They are as follows:

1: Groundwater Sweep
2: Reverse Osmosis with Permeate Injection (includes metals reduction)
3: Groundwater Recirculation
4: Stabilization Monitoring

These phases of restoration have been shown to be effective in previous restoration efforts, including the 5I7 R & D site, the Irigaray E-Field restoration, Christensen Ranch Willow Creek R & D site, the Irigaray Units 1 through 9, and Christensen Ranch Units 2 through 6. The first three phases are active restoration processes. The last phase of restoration is the stability monitoring phase, where the groundwater is monitored for a minimum of nine months to assure that the restored concentrations are stable. A description of each restoration process is provided below.

The pore volume displacements (PVD) presented are derived from the average volumes experienced at Christensen Ranch during the restoration of Mine Units 2 through 6:

Treatment:	Groundwater Sweep
Flowrate:	Up to 300 gpm
Volume:	1 PVD
	Bleed to treatment, surface discharge, deep injection well, ponds, or other wastewater management practices approved in the future. Sweep solutions may be treated, stored and reinjected into other mine units undergoing restoration to minimize overall groundwater consumption and wastewater disposal volumes.
Treatment:	RO/permeate injection
Flowrate:	Up to 500 gpm
Volume:	10 PVD
	Brine to deep well injection, lined ponds, treatment and surface discharge or reinjection into another unit undergoing restoration, or other wastewater management practices approved in the future.
Treatment:	Recirculation
Flowrate:	Up to 500 gpm
Volume:	1 PVD
Treatment:	Stabilization Monitoring
Flowrate:	None
Time Period:	Minimum of 9 months

Groundwater volumes produced during restoration will depend upon the size of the mine unit and corresponding pore volume.

6.1.3.1 Restoration Schedule

It is anticipated that mining in a particular unit will be completed in a three year period. Restoration of a mine unit will follow the completion of mining consistent with the requirements of 10 CFR Part 40, §40.42(d) as may be modified by NRC agreement to a request under §40.42(f) (if such a request is submitted by COGEMA). If the mine unit is located adjacent to an active mining area or shares a trunkline with an active mining area, restoration may be delayed until the mining is accomplished in the adjacent unit or the trunkline is available for restoration. At that time, the mine unit in which production was just completed may serve as a buffer zone between the unit ready for restoration and another mine unit in a production mode. Restoration of each mine unit is designed to be accomplished within a two to three year period to keep up with the mining schedules. Mining and reclamation timetables for the Christensen Ranch area were previously discussed in Section 3.6.

6.1.3.2 Monitoring During Restoration

The proposed schedule for monitoring various recovery streams, designated restoration wells, and monitor wells for the well fields undergoing restoration is provided in Table 6.1.

6.1.3.3 Determination of Restoration Success

After the restoration in an area has been achieved, and the post-restoration stabilization monitoring program is completed, a report will be completed summarizing the results of the restoration program. The restoration results will be compared with the restoration target values (discussed in Section 6.1.1 above). The report will also provide the results of the stability monitoring program. The report will be submitted to the regulatory agencies for their review and approval. The acceptance of the well field restoration and stability success will be based on the ability to meet the goals of the restoration program and the lack of significant increasing trends during the stability monitoring period.

After concurrence from the WDEQ and USNRC that the restoration goals have been achieved and stability criteria have been met, decommissioning and surface reclamation of the restored area will be initiated as described in Sections 6.2 and 6.3.

6.1.4 IRIGARAY RESTORATION HISTORY

Please see the previously referenced Wellfield Restoration Report Irigaray Mine, July 2004, for a complete discussion of the groundwater restoration at Irigaray.

6.1.5 CHRISTENSEN RANCH RESTORATION HISTORY

Please see the previously referenced Wellfield Restoration Report, Christensen Ranch Project, Wyoming, March 5, 2008, for a complete discussion of the groundwater restoration to date at Christensen Ranch. The planned restoration program for future mine units at Christensen Ranch will be that described in Section 6.1.2, above. The program will be tailored to meet the individual characteristics of each mine unit, but will essentially follow Section 6.1.2.