



March 28, 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  
Mail Stop T-8F5  
U.S. Nuclear Regulatory Commission  
11545 Rockville Pike  
Rockville, Maryland 20852-2738

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

Dear Mr. McConnell:

The following is submitted in response to the request for additional information (RAI) attached to your letter dated March 4, 2008, concerning the potential impacts of a return of the Irigaray/Christensen Ranch project to an operating status from a decommissioning status:

- 1) Request: Provide information on any new outside activities taking place near the Irigaray/Christensen Ranch facility that are likely to have environmental impacts similar in significance to the proposed action or cause added stress on shared resources.

Response: COGEMA Mining, Inc. (CMI) is aware of two other uranium companies that are active or possibly are planning activity in the immediate vicinity (within two miles) of Christensen Ranch. Near term (the next two to three years) these companies' activities likely would be limited to drilling programs to further define ore bodies or to install a limited number of monitor wells. It is possible that they might also conduct non-impacting baseline environmental studies preparatory to eventual application for mine permits and source material licenses. Note that one company has an established mine permit located in Section 36, T45N, R77W adjacent to the CMI Christensen Ranch mine permit. Currently there is no activity on that adjacent mine permit. Any drilling programs by other uranium companies typically would entail establishment of temporary access routes to drilling locations as well as drill sites disturbance involving mud pits excavation and possible sites leveling. These disturbances are short lived, requiring timely site reclamation by the companies.

Because the uranium ore bodies in the area are similar in terms of general depths and grade, one can assume that these potential projects would be in situ recovery operations as opposed to conventional mines. Assuming these companies proceed with their projects, they would eventually develop well fields and processing facilities. The configuration of such facilities would

Letter, COGEMA Mining Inc. to USNRC, SUA-1341, Docket No. 040-08502, March 28, 2008.

be speculative at this time. The maximum possible extent of impact would involve each facility having its own yellowcake dryer, resulting in some multiple of the single Irigaray/Christensen Ranch impact. Cumulative impacts on the Wasatch aquifer due to ISR water withdrawal would be localized and limited in timeframe to the operational life of individual mining units of each operation, assuming restoration programs that follow in step with mining completion in individual units. Net water withdrawal from the aquifer during operation for each ISR facility would be limited to the bleed water that would go to deep disposal wells or surface evaporation ponds.

There are other potential uranium extraction operations (ISR) that could be developed at greater distances (say out to twenty-five miles) from Irigaray/Christensen Ranch. Probably the most viable ones are the North Butte and Ruth properties held by Cameco Resources, and Reno Creek held by Uranium One.

There has been coal bed methane (CBM) development in the general area of Christensen Ranch. To date that development has not been proximate to the CMI site. There are plans for further CBM drilling and extraction that will occur much closer to existing and future Christensen Ranch well fields. There are three different companies that hold leases for CBM adjacent to Irigaray or Christensen Ranch. One of those firms plans to initiate a drilling program proximate to Christensen Ranch during the summer, 2008. A second CBM operator plans well drilling in late 2008 or 2009. CMI has received no feedback from the third firm, although all of these leases near Irigaray and Christensen Ranch were awarded at about the same time, so the timing of lease development should be similar for all three operators.

In general terms, CBM wells are installed at a density of one per 80 acres. Considering the size of the Irigaray and Christensen Ranch permits and including a one mile perimeter around the permit areas, a total of just under 40,000 acres are involved. If all lease areas were developed the result would be about 500 CBM wells. A portion of these new CBM wells would be located within the Irigaray/Christensen Ranch permit areas. Besides the well heads themselves, there would be associated development in the form of access roads and buried pipelines and electrical utilities. After the completion of wells development and associated utilities, the maintenance of the CBM wells would require minimal personnel. The largest operator in the area plans on sending pumped water to Midwest, Wyoming via pipeline for use in an enhanced oil recovery operation. The other CBM operators will likely discharge pumped water under WYPDES permits. Depths for CBM wells in the area will be 1,200-1,500 feet, some 500 to 1,000 feet deeper than Christensen Ranch ISR wells; we expect that the underlying aquitard to the Christensen Ranch uranium production zone will effectively preclude interaction between CBM wells and Christensen Ranch wells.

- 2) Provide information on changes to local transportation that are likely to occur due to a transition from decommissioning status to operating status.

Response: There are currently twelve full time employees at both sites. Those workers commute

Letter, COGEMA Mining Inc. to USNRC, SUA-1341, Docket No. 040-08502, March 28, 2008.

to work in five vehicles on a four days/week schedule. Forty personnel are anticipated under an operating status. The daily commute to and from work will likely involve seven to eight vehicles Monday-Friday. Weekends will involve three vehicles. Most commuters will drive from Buffalo, Wyoming; a few will come from the directions of Kaycee or Casper/Midwest.

The drilling contractor will have approximately twenty employees commuting on a daily basis (five days per week) in five vehicles. Those commuters could come from Buffalo or the Casper direction.

Materials delivery under routine operating conditions would be as follows:

- a) tractor-trailer rigs –
  - i) oxygen: 1/week
  - ii) carbon dioxide: 1/week
  - iii) soda ash: 1/week
  - iv) yellowcake transport: 2/month
  - v) fuel: 1/month
  - vi) drilling supplies-
    - cement: 1/week
    - mud: 2/month
    - pipe: 2/month
- b) smaller vehicles - 2/week

In addition, there would be traffic between Christensen Ranch and Irigaray (17 miles) involving one round trip resin haul each day and a variable number of trips with small vehicles. During initial startup and development of any new well fields there will be additional minimal truck traffic to deliver occasional loads of building supplies or concrete for the construction of modular header buildings. As discussed under item 6 below, no major construction projects are planned due to the restart of operations.

The above traffic changes would be in effect throughout the operational life of the project (13 years if only the Christensen Ranch reserves are developed). Subsequent restoration (for three years after the end of production) would see a return to the staffing and traffic levels currently experienced in a decommissioning mode. There are remaining reserves at Irigaray that potentially could be developed, but that would occur near the end of the project, and their development would be speculative at this time.

Currently there are no new roads planned that were not considered in the 1998 license renewal. The development of new roads by CMI under future operation plans (total life-of-project) would be limited to the creation of access to new well fields. This would entail the eventual construction of approximately eighty acres of new dirt/gravel roads within the permit area. CBM development in the immediate area will likely involve the use of existing roads as much as possible augmented

Letter, COGEMA Mining Inc. to USNRC, SUA-1341, Docket No. 040-08502, March 28, 2008.

by additional routes to reach individual wellheads. As noted above there could be as many as 500 new CBM wells in and adjacent to the CMI permit area. Because of the wide spacing of CBM wells compared to ISR wells, the creation of new roads to service CBM development probably will be much more extensive than that associated with CMI well field development. Once initial CBM development is completed, daily traffic to CBM wellheads likely will be minimal (one to two vehicles).

3) Provide information on changes in population demographics in the surrounding communities from those evaluated in the 1998 EA along with expected changes in demographics that are likely to occur due to a transition from decommissioning status to operating status.

Response: The local demographics have not changed significantly for some locations, but they have changed for certain population centers. The Irigaray/Christensen Ranch sites remain isolated with a very low local population made up of residents at nearby ranches. The attached table summarizes the local population as well as the latest population estimates for the various communities in the general area. The larger communities have experienced modest to strong population growth in recent years, attributed primarily to a strong economy centered on the energy industry (oil, gas, and coal). While the uranium industry holds promise of contributing to increased employment, for the most part that contribution is some time off for most uranium companies due to the lag time in acquiring necessary permits/licenses and developing properties.

As indicated in the response to item 2 above, a return to production at Irigaray/Christensen Ranch will result in a net increase of twenty-eight employees. It is anticipated that most of these new employees will be drawn from Buffalo, Kaycee, or northern Natrona County. Some workers may be recruited from as far as Casper. The current unemployment rates for these towns varies from three to four percent. Considering the relatively small increment in workers for Irigaray/Christensen Ranch it is felt that a return to operating status will not have a significant socioeconomic impact on the surrounding communities. Employment in the oil and gas, coal mining, and services sectors has always been much more significant than the ISR uranium industry; that situation will not change with a startup of Christensen Ranch operations or any other uranium operations in the general area.

4) Provide a discussion of any changes in noise levels caused by activities at the Irigaray/Christensen Ranch facility that are likely to occur due to a transition from decommissioning status to operating status.

Response: Noise levels at the Irigaray and Christensen Ranch facilities will increase commensurate with the level of activity of operating facilities. Since groundwater restoration on previously mined units has been completed at both sites, the plants are currently inactive. The Irigaray plant will only be used for resin elution, precipitation, and product drying. Noise will be effectively contained within the plant. There are no near term plans for further mine unit

Letter, COGEMA Mining Inc. to USNRC, SUA-1341, Docket No. 040-08502, March 28, 2008.

development at Irigaray, so no drilling activity is anticipated. Decommissioning activity focusing on no longer needed portions of the plant is nearly complete, eliminating a source of noise. There will be an increase in vehicle traffic to and from Irigaray as discussed in item 2 above, but since the nearest residence (the Irigaray Ranch) is four miles from the plant, noise impacts at that residence will be nil.

At the Christensen Ranch facility the startup of the plant will generate more noise, primarily due to pump motors, but most of the noise will be contained by the plant building. Plant noise levels should not be significantly different from those experienced during restoration operations. There will be a significant increase in drilling activity at Christensen Ranch which will result in increased noise from drill rigs and attendant activity (mainly increased vehicle traffic). Considering the remoteness of the site (the nearest residence to the plant is three miles away), little noise impact from drilling activity is anticipated. General vehicle traffic to and from the site will result in increased noise, but again the remoteness of the site will result in minimal noise impacts: there will be few human receptors.

Noise impacts on wildlife due to routine ongoing operations at the Irigaray/Christensen Ranch will not differ from what occurred when the facilities previously operated. As a generalized observation, during past operations wildlife appeared to be fairly tolerant of routine, operational noise – they appeared to acclimate to the activity noise in the area.

5) Provide a discussion of the changes in visual and scenic quality of the Irigaray/Christensen Ranch facility that are likely to occur due to a transition from decommissioning status to operating status.

Response: There will be no expansion of the plants due to an operational startup. Facilities changes will be minimal. The only new construction that might have some impact on visual/scenic qualities would be new module header buildings to service new well fields, and the placement of individual well houses associated with new well fields. There will also be some new road construction to the new well fields and excavation of pipeline trenches. Additionally, the presence of operating drill rigs with elevated masts would have some short term visual impacts. The immediate area of Christensen Ranch operations consists of variable terrain with numerous intermittent drainages. As such the visibility of site facilities is limited to fairly close range. The only exception would be the view from the North Pumpkin Butte. The Christensen Ranch site would be visible from the North Butte, but again the incremental change in facilities with a startup will be minimal. Balancing the development of any new well fields will be the abandonment of older well fields where restoration has been completed and there has been regulatory approval to decommission. Christensen Ranch future development will not intrude onto the Pumpkin Buttes proper (Mine Unit 7 is adjacent to the North Butte and was partially developed with the completion of a number of wells in 1998-1999). The immediate area of both the Irigaray and Christensen Ranch facilities is not of unique scenic value, being fairly typical Wyoming rangeland.

A

Letter, COGEMA Mining Inc. to USNRC, SUA-1341, Docket No. 040-08502, March 28, 2008.

6) Provide information on logistical activities that are likely to occur due to a transition from decommissioning status to operating status.

Response: New facilities, as indicated above, will be relatively limited in scope. There will be a continuation of ongoing maintenance activities at both the Irigaray and Christensen Ranch plants involving the cleaning and re-coating of various tanks, concrete floor refurbishment, filter press work, and the refurbishment of pumps and plant plumbing. Such activities are all internal to the plants with no peripheral impacts. The existing soda ash storage tank located externally to the Christensen Ranch plant will also be replaced. The initial development of Christensen Ranch M.U. 7 will involve well completions, four module buildings installation, and completion of pipelines and utilities. Module buildings are relatively small (typical dimensions are 15' by 40'). The new well field construction will encompass a collective total of 180 acres of new disturbance (at the most). The only other new facilities anticipated are the erection of a new man camp module dormitory building at Christensen Ranch. It will have a maximum capacity of twelve employees, and will be located adjacent to the office/maintenance buildings site. It will be placed within the existing disturbance footprint of the site. A new single-wide mobile home will be situated at Irigaray to provide housing for a couple of plant operators. The new trailer will replace a trailer that had been sold and removed from the property. Somewhat offsetting any new facilities (all located at Christensen Ranch) will be the completion of well fields decommissioning at Irigaray which will significantly shrink the disturbance footprint at that facility.

Please let us know if there are any other informational needs by the NRC staff to complete action on our amendment request to return Irigaray/Christensen Ranch to operating status.



Tom Hardgrove  
Manager, Environmental & Regulatory Affairs

cc: D. B. Spitzberg, U.S. NRC – Region IV  
BLM, Buffalo Field Office  
Glenn Mooney, WY DEQ/LQD

**RANCH AND TOWN POPULATIONS NEAR THE IRIGARAY  
AND CHRISTENSEN RANCH PLANT SITES  
(2008 Communications with Local Ranches and 2005 Estimate)**

Name	Distance and Direction from Irigaray Plant site	Distance and Direction from Christensen Plant Site	Population
John Christensen Ranch <sup>1</sup>	11 miles SE	3 miles SSE	1
Reculusa Ranch <sup>1</sup>	4 miles WSW	9 miles WNW	3
ZL Bar Ranch (Streeter) <sup>1</sup>	6 miles WSW	10 miles W	9
Christensen Ranch #2 <sup>1</sup>	10 miles E	8 miles NE	3
Urruty Ranch <sup>1</sup>	8 miles SW	9 miles W	0
Irigaray Ranch <sup>1</sup>	4 miles N	11 miles NW	6
Brown Ranch <sup>1</sup>	14 miles SE	9 miles SSE	12
Pfister Ranch <sup>1</sup>	13 miles ESE	6 miles ESE	2
Wright <sup>2</sup>	31 miles ESE	28 miles E	1,425
Edgerton <sup>2</sup>	32 miles S	29 miles SSW	173
Midwest <sup>2</sup>	33 miles SSW	30 miles SW	431
Buffalo <sup>2</sup>	42 miles NW	50 miles NW	4,290
Kaycee <sup>2</sup>	28 miles WSW	32 miles W	273
Gillette <sup>2</sup>	42 miles NE	43 miles NNE	22,685
Balance of Johnson Co. <sup>2</sup>	-----	-----	3,158

<sup>1</sup> 2008 communication with local ranch

<sup>2</sup> July, 2005 estimate, Wyoming Dept. of Administration and Information