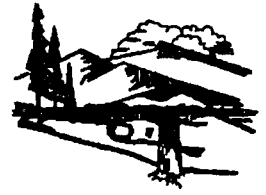




# Department of Environmental Quality



To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Matt Mead, Governor

John Corra, Director

January 11, 2011

Mr. Larry Arbogast  
Uranium One, USA, Inc.  
907 North Poplar Street, Suite 260  
Casper, WY 82601

**RE: Irigaray-Christensen Operations, Review of 2006-2007 and 2007-2008 Annual Reports and Semiannual Monitoring Reports, Permit No. 478,**

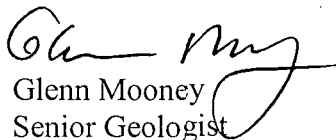
Dear Mr. Arbogast:

I have reviewed the 2006-2007 and 2007-2008 Annual Reports on the Irigaray and Christensen Ranch Operations.

In my memo I requested clarifications of a couple of minor items in each of these reports.

Please feel free to call me if you have any questions.

Sincerely,

  
Glenn Mooney  
Senior Geologist

\gm

Attachment

cc: Cheyenne File w/attach.  
NRC-MD w/attach.

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## MEMORANDUM

**TO:** File, Uranium One USA's Irigaray-Christensen Ranch In Situ Uranium Operations, Permit No. 478

**FROM:** Glenn Mooney *GM*

**DATE:** January 11, 2011

**SUBJECT:** Reviews of 2006-2007 and 2007-2008 Annual Reports and SemiAnnual Monitoring Reports

### Introduction

A review was conducted of these Annual Reports, which covered the periods July 1, 2006, to June 30, 2007, and July 1, 2007 to June 30, 2008. The 2006 Annual Effluent and Monitoring Report and Semi-Annual Monitoring Report, July 1 through December 31, 2006, and the 2007 Annual Effluent and Monitoring Report and Semi-Annual Monitoring Report, July 1 through December 31, 2007, were also reviewed.

This memo references COGEMA Mining Company which was owner and operator of the Irigaray- Christensen Ranch operation and holder of Mining Permit No. 478 until January 25, 2010, when the permit was officially transferred to Uranium One, USA.

### Chronology

According to the Annual Reports, the following milestones and other occurrences happened during the past report year:

2005-2006	Well plugging and abandonment of unused trend and research wells begins at Irigaray
July 2005	Fourth and final round of stabilization monitoring completed in Christensen Ranch Unit 3
November 2005	DEQ/LQD approves restoration of Irigaray Units 1-9
March 2006	Fourth and final round of stabilization monitoring completed in Christensen Ranch Unit 6
Summer 2006	Removal of wellfield buildings and basements begins in Irigaray Production Units 5, 6, 7, 8 and 9. Soil surveys carried out with potentially contaminated soil sent to Shirley Basin disposal site.

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June 2006	Removal of buried piping and electrical cable carried out at Christensen Ranch Module 6-3.
July 2006	Reclamation of Irigaray Pond D resumes with removal of sludge, liner and leak detection systems.
September 20, 2006	NRC approves Irigaray groundwater restoration.
June 8, 2007	Christensen Ranch Wellfield 7 Data package submitted to District III.
December 10, 2007	COGEMA files application to update Permit No. 478 to meet new Land Quality Chapter 11 requirements.
March 5, 2008	COGEMA files application for NonSignificant Revision to change well completion procedures and casing types to comply with Chapter 11 requirements.
April 8, 2008	COGEMA submits copy of report on restoration of Christensen Ranch Well Field Units 2 – 6 to Land Quality Division.
June 2008	Wellhead removal complete in Irigaray Units 1-9

**Excursions**

At the end of the 2007-2008 report period only one monitor well at Christensen Ranch remained on excursion status. Monitor Well 5MW66 went on excursion status on July 21, 2004, and has remained in excursion since. The excursion parameters have continued to trend upward according to recent sampling.

**Monitor Well Excursions**

Excursion status in a monitor well at both Irigaray and Christensen Ranch is determined when two or more of the three excursion parameters, conductivity, chloride and total alkalinity, are found during biweekly sampling to be at or above a predetermined level known as the Upper Control Limit or UCL.

COGEMA files a monthly report listing those wells that have been in excursion status during the previous month.

Other than 5MW66, other wells that have been in excursion status during the report periods included the following:

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On April 25, 2007, COGEMA informed District III that Monitor Well 5MW48 in Unit 5 had gone into excursion status. A letter on May 29, 2007, removed the well from excursion.

On September 6, 2007, COGEMA reported Monitor Well 4MW1 had gone into excursion. This well was taken off excursion on October 9, 2009. On October 9, 2007, COGEMA reported that excursion status for Monitor Well 4MW1 had been terminated.

On March 12, 2008, LQD-District III was notified that Monitor Wells 4MW1 in Unit 4 and 2MW89 in Unit 2 had both gone into excursion status. After corrective action, excursion in 4MW1 was terminated on April 11, 2008.

On April 16, 2008, COGEMA reported that Monitor Well 5MW48 in Unit 5 had again gone into excursion status.

On May 22, 2008, COGEMA reported that 5MW48 had been taken off excursion.

On June 13, 2008, a letter from COGEMA reported that 2MW89 was taken off excursion status because of improved water quality.

Review of the excursion file found that no excursion reports had been filed since June 13<sup>th</sup>, even the quarterly reports agreed to be filed for 5MW66. Larry Arbogast of COGEMA was telephoned on January 15, 2009, and he confirmed that 5MW66 was still on excursion. He said he had been filing excursion reports with the NRC, but had overlooked filing reports with WDEQ/LQD.

### **Restoration**

The 2006-2007 Annual Report states that Christensen Ranch Unit 5 final stability monitoring samples were taken in August of 2004, with WDEQ personnel present to split samples. Mark Taylor who was Land Quality uranium permit coordinator at that time, states that he has no knowledge of any split sampling at that time. There are no records to support DEQ/LQD sampling at this time. COGEMA should explain this apparent discrepancy.

### **Monitoring Data**

The report document contains a large amount of monitoring data for the Christensen Ranch monitor wells. Each well, except the ones which were in excursion status, was sampled quarterly.

The trend wells drilled around part of the perimeter of Christensen Ranch Unit 6 are showing high levels of the excursion parameters.

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**Mechanical Integrity Testing**

The 2006 Annual Effluent and Monitoring report states 190 wells were tested in 2006 with three wells failing. The 2007 Annual Effluent and Monitoring report states 455 wells were tested in 2007 with 30 wells failing. Both reports contain detailed summaries of wells tested and pressures involved during the testing operations.

The 2007 report's detailed list has only 29 wells listed as failing, but Well 5AU50-1 is shown with a "P" for passing but has no recorded pressure s for final pressure and pressure lost, indicating it did not pass the test. The "P" appears to be a mistake.

As reported in the 2006-2007 Annual Report, COGEMA tested 144 wells, all in Christensen Ranch Units 7 and 5. All passed. The listing was somewhat difficult to decipher as each well's results were spread over three pages without formatting making it uncertain as to what data belonged to what well.

The 2007-2008 Report had formatting in the form of tables which made it clear which data went with each well. This Report reported that 544 wells at Christensen Ranch had been tested with 30 failures. These wells were in Mine Units 5 and 7 and also included a number of regional monitoring wells and monitoring well associated with the well fields. There is no indication as to what was done with the failed wells as to whether they were repaired or abandoned.

A list of 23 abandoned wells was supplied, but all the wells listed were at Irigaray.

**Surface Disturbances**

There was no additional land disturbed during the report periods.

**Reclamation**

The 2006 Annual Effluent and Monitoring report states 402 wells were abandoned in 2006. The 2007 Annual Effluent and Monitoring report states 696 wells were abandoned in 2007. Most of these wells were at Irigaray. The 2006-2007 Report states that the remaining 58 wells at Irigaray were expected to be abandoned in 2007.

**Future Plans**

The Reports stated that with the increase in uranium prices, mining operations can be expected to resume at Christensen Ranch during 2009. A September 30, 2008, letter from the NRC contained approval of License Amendment No. 13 which returned COGEMA's NRC license to operating status.

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Work has been carried out toward readying both the Irigaray and Christensen Ranch plants for resumption of operations by replacement of portions of the concrete plant floors in both buildings.

**Bond**

A detailed bond review will be carried out on the estimate included with the most recent Annual Report, the 2009-2010 Report. This review will be submitted under separate cover at a later date.

**Conclusions**

Review of the 2006-2007 and 2007-2008 Annual Reports for Permit No. 478 found that groundwater restoration has been completed at Irigaray and accepted by both the WDEQ and the NRC. Groundwater restoration has been completed at the Christensen Ranch operations. The Report supplies adequate information in nearly all areas.

There were some minor problems with the Reports. The 2006-2007 Report's account of an August 2004 split sampling session with the Land Quality Division should be verified since there is no record of any split sampling at that time.

The status of the MIT on Well 5AU50-1 should be clarified as the 2006-2007 Report left it unclear as to whether this well passed or failed the MIT.

Future Reports should address the fates of wells that have failed MIT. Land Quality Division NonCoal Rules and Regulations, Chapter 11, Sections 7, 13 and 15 all address wells which have failed MIT, with Section 13(a)(iii) and Section 15(b)(iii) most relevant. This information could also be included in the quarterly MIT reports required by Chapter 11, Section 15(b).

Explanations of these problems should be accompanied by replacement pages with correct information for the Reports in question, when appropriate.

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