



Department of Environmental Quality

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



Matthew H. Mead, Governor

Todd Parfitt, Director

May 22, 2013

Mr. Ken Garoutte
Manager, Safety, Health, Environment & Quality
Cameco Resources
P.O. Box 1210
Glenrock, WY 82637

RE: TFN 3 2/290, Administrative Order Docket No. 3211-00, Casing Leak Investigation Fourth Quarter 2012 Review, Permit 603, Cameco Resources

Dear Mr. Garoutte:

The Land Quality Division (LQD) received the referenced report on March 29, 2013. A technical review has been completed with the comments enclosed. Please provide responses to the comments at your earliest convenience.

Please note that comments remain outstanding for the 3rd Quarter 2012 Report which were sent to Cameco on February 25, 2013. Those comments are re-stated in the enclosed review. Response to those comments would be greatly appreciated at your earliest convenience.

If you have any questions, please contact me at pam.rothwell@wyo.gov or 777-7048.

Sincerely,

Pam Rothwell
District 1 Assistant Supervisor
Land Quality Division

Enclosures

cc: Cameco Resources, Cheyenne, WY
Doug Mandeville, NRC



TFN 3 2/290, CASING LEAK INVESTIGATION, 2012 4th QUARTER REVIEW

ADMINISTRATIVE ORDER DOCKET 3211-00

PERMIT 603, CAMECO RESOURCES

INTRODUCTION

The Land Quality Division (LQD) received the referenced status report on March 29, 2013. There were eight comments on the Third Quarter 2012 Casing Leak Investigation Report that have not been addressed. In addition, there were six items to be submitted with the Fourth Quarter report. Five of the six items that were to be submitted in the Fourth Quarter Report were included in the 2012 Casing Leak Update report.

COMMENTS

4th Quarter 2012 Review Comments

1. Section 1.2 lists wells that failed MIT and were added to Table 2 and Table 3. The text states that three wells were added to Table 2, however it appears that only one well was added to Table 2. The text states that three wells were added to Table 3, however it appears that only one well was added to Table 3. Please add all wells to Tables 2 and 3. **(SI)**
2. The chloride value shown for Well C3-1 is 23 mg/l. The previous sample for this well contained 324 mg/l. Please explain this discrepancy. **(SI)**
3. The 2012 CLI Update report lists 127 wells as part of the investigation. The sampling results from 10 wells are presented in the Fourth Quarter 2012 Report. Please discuss the monitoring activities for the rest of the wells. **(SI)**
4. Section 2.2 states that during the first half of 2013 Cameco will further evaluate the genesis of the impacted water. Please add a discussion of the measures that will be taken to evaluate the genesis of the impacted water. **(SI)**

Outstanding 3rd Quarter 2012 Review Comments – No responses provided to date

1. Section 2.2 states that three new monitoring well clusters will be installed in the western portion of the F-Wellfield in areas where the MIT failure intervals cannot be determined. Please provide additional discussion regarding the scope and results to date, of the failed MIT investigation. **(SI)**
2. Water quality sampling results are presented in paper form. Please provide the water quality data in an Excel spreadsheet. **(SI)**

3. The conductivity values on the Appendix 2 sampling sheets are presented in mmhos/cm, but the legend indicates that the conductivity values are in μ mhos/cm. Please correct the legend or table. **(SI)**
4. The text states that the geologic cross sections show that the shallow sands are discontinuous. However, the cross sections show the sands as being fairly continuous. Please resolve this discrepancy. **(SI)**
5. The cross section maps in Appendix 2 need to identify the wells used in the cross sections. Please identify the wells used in the cross sections. **(SI)**
6. The title of the C-Wellfield South map in Appendix 2 states there are cross sections, but no cross sections are shown on the map or provided. Please correct the title of the C-Wellfield map. **(SI)**
7. All of the cross sections in Appendix 2 are marked "draft privileged and confidential". Please remove the statement from the cross section. **(SI)**
8. The sand interval symbol on the maps for the 146 Sand and 140 Sand appear identical. Please use a different symbol for each sand unit. **(SI)**

Information Requested with the 4th Quarter 2012 Report – see 3rd Quarter 2012 LQD Review

- 1 Updated maps showing additional MIT well failures that occurred during the year and the stratigraphic interval where the failure occurred. **(SI)**

No response provided. The information was provided with the *2012 Casing Leak Status Update* and is acceptable.

- 2 Maps with a full inventory of injection wells that have failed within the C, E, and F-Wellfields will be included. **(SI)**

No response provided. The information was provided with the *2012 Casing Leak Status Update* and is acceptable.

- 3 As built survey data for new wells will be submitted. **(SI)**

No response provided. The information was provided with the *2012 Casing Leak Status Update* and is acceptable.

- 4 The results of a full round of groundwater sampling will be conducted on all CLI monitoring wells. **(SI)**

No response provided. The information was provided with the *2012 Casing Leak Status Update* and is acceptable.

5 Aquifer testing results will be presented. **(SI)**

No response provided. The information was provided with the *2012 Casing Leak Status Update* and is acceptable.

6 Areas of potentially affected groundwater within the C, E and F wellfields may be presented. **(SI)**

Item 6 was not addressed in the Fourth Quarter Report or in 2012 Casing Leak Update Report. Please provide a response to the comment with the information requested. **(SI)**

Expanded Casing Leak Investigation

The following points were agreed upon during the February 27, 2013 meeting (see meeting notes attached):

- Expanded investigation based on relative high percentage of failed MIT's, will include MU's D, H, I, 2, 3, and 4;
- Timeline for the expanded investigation will be provided in the 1st Quarter 2013 Report.

TFN 3 2/290 & TFN 3 1/251, PERMIT 603, CAMECO RESOURCES

MEETING SUMMARY, FEBRUARY 27, 2013

DISCUSSION OF CASING LEAK INVESTIGATION AND PURGE STORAGE RESERVOIR

Cameco Resources (CR) requested a meeting for February 27, 2013, to present the highlights of the next quarterly report for the Casing Leak Investigation (CLI) and also updates for the investigation of the PSR-2 leakage. Attendees included Ken Garoutte, Mike Beshore, Dave Moody, Scott Bakken and Erin Stevens of CR and Robin Jones, Steve Ingle and Pam Rothwell of LQD.

A power-point presentation was provided to summarize the CLI groundwater investigation including wells identified to date that have failed MITs, local geology (cross sections), installed monitor wells (and clusters), delineation of potentiometric surface maps of some of the shallow aquifers, geochemical characterization, potential groundwater contaminant sources and plans going forward. The consolidated fourth quarter 2012 report is near completion and will be submitted in the near future.

Concerns remaining to be addressed include:

- Further defining lateral extent of the contaminated areas;
- Discussion of clean-up standards with NRC for mutual agreement with LQD prior to going forward with remediation;
- Confirmation of clean-up standards in areas of elevated background parameters;
- LQD review of a revised monitoring plan (proposed in the 4th Q report);
- Source of information supporting discussion of settling ponds used under the North Morton Mine;
- Evaluation of isolated "bullseyes" in MU-C (south) and MU-E that could focus on initial treatment (pump and treat), to begin prior to completion of characterization of all areas;
- Investigate option to separate MU-C (north) from the Administrative Order and combine with PSR-2 investigation under a separate action;
- Develop a plan for remediation including a water balance showing the use of the evacuated groundwater; discussion of the clean-up process, generic diagrams of treatment process, map identifying new infrastructure used for the process, and surety update;
- Disclosure to DEQ/Water Quality Division of by-product contamination in non-exempt aquifers;
- Expanded investigation based on relative high percentage of failed MIT's, will include MU's D, H, I, 2, 3, and 4;
- Timeline for the expanded investigation will be provided in the 1st Quarter 2013 Report.

There was general agreement among the meeting participants to continue to work on the list of outstanding issues with effort to initiate remediation of targeted areas as the issues are resolved. CR will continue to work on completing characterization of areas not completed and also expand to other wellfields using the same approach.