



# 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

John Corra, Director

October 4, 2011

Mr. Josh Leftwich  
Cameco Resources  
2020 Carey Avenue  
Cheyenne, WY 82001

RE: 2009-2010 Annual Report T2 Surety Review, Permits 633, Cameco Resources (CR)

Dear Mr. Leftwich:

The Land Quality Division (LQD) has completed the review of the above referenced report and determined that the estimate to restore groundwater and reclaim the mine site is insufficient. The current bond is set at the amount of \$120,044,400. An increase in the surety for the amount of \$41,204,900.00 is necessary to cover the cost for a third party to restore the groundwater and reclaim the mine site in the event of bond forfeiture. Please find the review enclosed.

The LQD will be forwarding a formal request to increase the surety amount from the Department of Environmental Quality Director in the near future.

If you have any questions, please contact me at [pam.rothwell@wyo.gov](mailto:pam.rothwell@wyo.gov) or 777-7048.

Sincerely,

Pam Rothwell  
Permit Coordinator, District 1 Assistant Supervisor  
Land Quality Division

Enclosures 2009-2010 AR Final Review  
2009-2010 AR Draft Review (August 9, 2011)

cc: Cameco Resources, Cheyenne, WY  
Doug Mandeville, NRC  
Tom Foertsch, BLM, Casper



## 2009-2010 ANNUAL REPORT SURETY T2 REVIEW (FINAL)

### PERMIT 633, CAMECO RESOURCES (CR)

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#### INTRODUCTION

The LQD received responses to the surety comments for the 2010 Annual Report review on June 6, 2011. The responses did not satisfy LQD concerns with regard to covering the cost to restore the groundwater or reclaim the site in the event of bond forfeiture. LQD provided Draft T2 Comments to CR during a meeting at LQD on August 9, 2011 with a final surety amount that would be requested. The Draft review comments are attached to this review for reference and will be included in the file record. Meetings were held on August 10, 11, 15, and September 9, 2011 to further discuss the bond amount set by the LQD. During the meetings, the outstanding T2 comments (No. 32, 33, 36, 38, 44, 47, 49, 53, 55, and 56) were addressed. CR provided a revised surety estimate without response to the draft comments on September 26, 2011. The LQD is accepting the adjustments to the surety without formal response to the draft T2 review comments and is summarizing the negotiated responses in the Comment section below.

The required surety increase is substantial for the following reasons:

- The time period used for restoration of the wellfields must use the approved restoration schedule. A shorter time period has not been adequately justified.
- CR is required to use the Guideline 12, Appendix L plug and abandonment cost for delineation drill holes.
- Refurbishment of the remaining wellfields requires additional costs to be added to the surety.

To complete the reclamation bond estimate, the LQD assumes that a third party would be contracted to complete the reclamation. It is also assumed that the operator would leave the site in the present condition to be reclaimed upon forfeiture of the surety. The LQD surety estimate uses the WDEQ/LQD Guideline 12, Standardized Reclamation Performance Bond Format and Cost Calculation Methods (December 2010 Revision), for cost and production figures.

CR currently has a surety amount of \$78,839,439.00.00 for Permit 633. LQD has calculated changes to the surety and determined a surety amount of \$115,559,854.00 is required to restore the groundwater and reclaim the mine site for the Smith Ranch Mine, Permit 633 based on the draft comments and review of the changes to the surety as a result of those comments. .

In addition to the LQD calculated surety, it is noted that CR's revised estimate submitted on September 9, 2011, includes additional surety to cover costs that were not previously anticipated such as:

- wells that are plugged but not properly abandoned; CR is including the P&A cost to the surety for all wellfield wells until proper abandonment and requests for bond release are processed and approved;
- \$2.4 million has been included for the anticipated costs for the casing leak investigation;
- additional wellfield refurbishment costs for reclamation.

Therefore, CR has revised the surety estimate to resolve the surety comments and added costs to cover anticipated surety increases during the next year is for the amount of \$120,044,303. LQD accepts this as the surety amount for the review. An increase in the surety for the amount of **\$41,204,864.00** will be requested (rounded to the next \$100). A formal request for the increase will be sent from the DEQ Director in the near future.

## COMMENTS

- 32 Change to revised surety without response to draft comments is acceptable. LQD requests the number of production and injection wells for each wellfield that are used to calculate the MIT costs be included in the MIT Cost section of future surety estimates. (PCR)
- 33 Change to revised surety without response to draft comments is acceptable. CR has revised the MIT costs for life of mine. The MIT calculation continues to require LQD review comment as it is not easily verified in the format presented. The LQD requests additional line items showing the number of production and injection wells used in the calculation and how the number of MIT's is calculated for the wellfield. Although the information may be available within the surety, it is not convenient for verification. CR's estimated cost is \$3,213,155.04 for Class III well MITs. The LQD will increase surety requirement by the amount of \$1,416,315.00. (PCR)
- 36 Change to revised surety without response to draft comments is acceptable. CR revised the bond estimate to the Total Supervisory Labor Cost to \$12,061,312.98. A response to the draft comment explaining the changes was not provided. The cost adjustments were not reviewed for the derivation of CR's estimate and will remain open for review during future submittals of the bond estimate. LQD accepts the Total Supervisory Labor Cost estimate and will increase the surety requirement by the amount of \$6,292,859.00. (PCR)
- 38 Change to revised surety without response to draft comments is acceptable. The LQD has accepted CR's cost reduction proposal for well plugging and abandonment. The adjusted cost for well plugging and abandonment is accepted to \$13,742,880.00. LQD will increase the surety requirement by the amount of \$10,147,000. Pump removal costs have been included in the detailed itemization associated with plugging and abandoning a well. No additional cost will be required for pump removal.
- CR revised the Hole Abandonment costs to be \$13,445,554.75. LQD will increase the surety requirement by the amount of \$9,448,054.75. (PCR)
- 44 Change to revised surety without response to draft comments is acceptable. CR revised the bond estimate as requested. LQD will increase the surety requirement by the amount of \$2,169,600.00. (PCR)
- 47 No response provided. (PCR)

- 49 Change to revised surety without response to draft comments is acceptable. CR has revised the number of years of operation for building utility costs as requested and estimated the cost for the electric and gas costs for the life of mine to be \$9,630,682.00. The LQD will increase the surety requirement by the amount of \$5,430,201.00. (PCR)
- 53 Change to revised surety without response to draft comments is acceptable. CR has revised the number of years of operation for infrastructure, equipment, maintenance, replacement and repair costs as requested. The LQD will increase the surety requirement by the amount of \$620,000.00 (PCR)
- 55 Change to revised surety without response to draft comments is acceptable. CR has provided refurbishment costs for MU-1, MU-2, MU-3, MU-4, and MU-15, however no costs are provided for MU-15-A, MU-K, or MU-9. The costs provided will be accepted for now. Costs may be required for the newer wellfields going forward depending on whether it is found that MU-15-A, MU-K, or MU-9 need refurbishment. LQD understands that the reason for the refurbishment cost is due to the long time periods that the wellfields were left idle. It is unknown at this time whether the mining operations by themselves have resulted in a necessity to replace wellfield infrastructure.
- The estimated cost for refurbishment for five wellfields is estimated by CR to be \$9,777,852.00. The LQD will increase the surety requirement by this amount. (PCR)
- 56 Change to revised surety without response to draft comments is acceptable. The cost was added as requested. (PCR)

## SUMMARY

The LQD and CR have made significant progress in updating the groundwater restoration and surface reclamation surety. The effort has been laborious and time consuming for both parties, yet it has been extremely important to the LQD to ensure adequate surety is available in the event of bond forfeiture. The LQD greatly appreciates CR's effort to work with LQD on this task.

CR has requested the surety estimate submitted on September 26, 2011 to satisfy the 2009-2010 Annual Report, to also supersede the most recent 2010-2011 Annual Report surety. The LQD agrees that this is appropriate as many of the changes will apply to that time period which ended on June 18, 2011.

The LQD will use the surety copy provided to close out the review of the 2009-2010 Annual Report. A separate copy will be inserted into the 2010-2011 Annual Report (superseding the

previously submitted surety estimate). **The LQD requests two digital copies of the revised surety be provided to LQD addressing each of the submittals. The digital copies should be provided within 10 days of receipt of this letter.**

CR does not consistently use the report periods for the surety estimates that are required by LQD. **Please avoid labeling surety estimates with incorrect time periods for which the reviews are directed.** The intent is to make corrections to surety estimates as a result of review comments and responses for a final approved surety estimate for the report period.

The remainder of the 2009-2010 Annual Report review comments sent to CR on April 8, 2011 (Comments 1-24) cover all non-surety review comments. CR and LQD have focused on the surety comments in effort to get surety updates in place. Many of the remaining comments were written to allow CR to address the changes through the 2011-2012 Annual Report. However, Comments 5, 7, 8, 9, 18, 19, 20 and 24 require the 2009-2010 Annual Report to be corrected and responses provided to the comments. **Please provide these responses within 30 days in effort to deem the report complete.**

During the meeting on September 9, 2011, the reviewer was made aware of proposed changes to the surety in response to the draft T2 review. The reviewer will allow the T2 review to be handled through the meetings that were held and will accept the adjustments to the surety document. However, CR must understand that without draft responses to the comments it is not possible to retain all details of the meeting conversation as verification of the changes made. It would have been helpful to receive responses to the draft comments. CR should understand that meetings, conference calls, emails, one-to-one conversations, etc. do not replace the need for response to comments. **Please continue to provide response to comments.**

Finally, the LQD has issue with the management of the surety in regard to changes to unit costs without consultation with the LQD and also with the formatting of surety calculation for LQD verification. Without a critical analysis of the surety during each Annual Report, changes are easily overlooked by LQD. **Please continue to bold all changes with each Annual Report submittal.** If it is a change that will potentially be a concern, please discuss the change before submitting it for review. **Please also, provide all information necessary under each sub-heading of the surety to allow verification of the cost.**

## 2009-2010 ANNUAL REPORT SURETY T2 REVIEW

(DRAFT-AUGUST 9, 2011 with Note added on 10/4/11)

### PERMIT 633, CAMECO RESOURCES (CR)

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#### INTRODUCTION

The LQD received responses to the surety comments for the 2010 Annual Report review on June 6, 2011. The responses have not satisfied LQD concerns with regard to covering the cost to restore the groundwater or reclaim the site in the event of bond forfeiture. Therefore, LQD has assigned costs to the deficient items based on the available information. The required surety increase is substantial for the following reasons:

- The time period used for restoration of the wellfields must use the approved restoration schedule. A shorter time period has not been adequately justified.
- The requested information for plug and abandonment of wells has not been provided. In addition, LQD's observation of a well plugging event at SRHUP mines provided evidence that the surety does not include all equipment and labor used. Therefore, the Guideline costs will continue to be used for this surety review.
- Refurbishment of the remaining wellfields requires additional costs to be added to the surety.
- Pumping costs from the wellfields to the RO units.

To complete the reclamation bond estimate, the LQD assumes that a third party would be contracted to complete the reclamation. It is also assumed that the operator would leave the site in the present condition to be reclaimed upon forfeiture of the surety.

The LQD surety estimate uses the WDEQ/LQD Guideline 12, Standardized Reclamation Performance Bond Format and Cost Calculation Methods (December 2010 Revision), for cost and production figures.

CR currently has a surety amount of \$54,532,900.00 for Permit 633. The proposed surety for the report period is estimated to be \$67,208,199.00. The assigned cost noted in each of the following comments has been used to calculate the change in the cost for the line item. LQD has calculated the changes to the surety and determined a surety amount of **\$140,493,352.00** is required to restore the groundwater and reclaim the mine site for the Smith Ranch Mine, Permit 633. Therefore, an increase for the amount of **\$85,960,500.00 (rounded to the next \$100)** will be required. A formal request for the increase will be sent from the DEQ Director in the near future.

(NOTE: CR increased the surety to \$78,839,439.00 on independent of this surety review on July 25, 2011)

## COMMENTS

- 32 **Response Not Acceptable.** CR has removed the number of wells used to calculate the MITs. LQD will use the number of wells reported in the Well Abandonment section of the surety (see Comment No. 33). **(PCR)**
- 33 **Response Not Acceptable.** The information used to verify the calculation for the number of MITs is not provided. LQD has used the life of mine time period of the approved restoration schedule and the wells listed in the Well Abandonment section of the surety. The cost for MITs for Class III wells under Permit 633 is estimated to be **\$2,796,801**. With review of the proposed costs, LQD will increase the surety estimate by the amount **\$644,074.00**. **(PCR)**
- 34 Response Acceptable. **(PCR)**
- 35 Response Acceptable. **(PCR)**
- 36 **Response Not Acceptable.** CR has not effectively demonstrated that multiple wellfields can be in restoration simultaneously. There are many unknown factors regarding the sequencing of wellfield restoration including the limitation of groundwater flows. The LQD will use the approved schedule and sequence for wellfield restoration which indicates the end of stabilization monitoring for MU-2 is approximately late 2034, which is 23 years from mid-2011. The Total Supervisory Labor Cost is estimated to be **\$11,949,994.00**. With the review of the proposed costs, LQD will increase the surety estimate by the amount of **\$6,181,534.00**. **(PCR)**
- 37 Response Acceptable. CR used the correct number of years to calculate the number of MITs. **(PCR)**
- 38 **Response Not Acceptable.** The LQD observed a well plugging operation during the June 2011 inspection and noted several additional costs that are not included in the surety estimate. The equipment list should include a dedicated forklift used to transport the cement and plug gel during the plugging operation. Also, two pickup trucks were required; one to tow the hose reel and one for the hopper. Dedicated pickup trucks should be included in the estimate. A large compressor was also required which should be dedicated to the plugging operations. (Note: the State will contract a third party for the plugging operations and cannot assume the additional equipment is on site for use.) The reviewer could not locate the labor costs for the plugging operations. In addition, the Site Location cost could not be found in the surety. Other costs not accounted for in the plugging and abandonment operations are the costs to top-off the holes with bentonite after the seal has subsided. This additional cost will need to be evaluated during the next surety review.

LQD discussed the cost reduction proposal with CR during the April 2011 Inspection and through subsequent emails and telephone correspondence, each time requesting a detailed cross reference to the Guideline 12, Appendix L requirements to the surety showing where

each of the required costs could be found. This cross reference was requested by the LQD Interim Administrator, Alan Edwards. LQD again requested the cross reference in a letter dated April 18, 2011. CR has not provided the cross reference. CR has included a cost quote from a drilling operator who does routine work for Cameco Resources. This is regarded as a potentially biased quote that the State may not be able to duplicate in the event of bond forfeiture.

Therefore, the LQD will continue to use the Guideline 12 costs until CR has adequately addressed the concerns to reduce the cost. The cost to plug the wells is estimated to be **\$22,363,326.00**. With the review of the proposed costs, the LQD will increase the surety by the amount of **\$12,216,326.00**.

A pump removal cost is not included in the Guideline 12 estimate for well abandonment. This has been noted as an oversight that requires LQD changes to the Guideline. CR has estimated a cost of approximately \$0.30/foot for a pulling unit to remove pumps/tubing. LQD has calculated an additional cost of **\$1,134,343.00** to remove pumps from the production wells and tubing from the production, injection and monitor wells. (i.e., WF REC, Section II) in addition to the sealing cost. With the review of the proposed costs, the LQD will increase the surety estimate by the amount of **\$1,134,343.00**. (PCR)

The cost to contour and seed the monitor wells is not found in the Well Abandonment section of the surety. The addition of these costs should be evaluated during the next surety review.

Finally, delineation hole abandonment costs must continue to use Guideline 12 costs. LQD has estimated the cost for the drill holes in MU-10 and MU-7 and the proposed 600 delineation holes to be drilled to 750 feet to be **\$3,646,200.00**. With the review of the proposed costs, the LQD will increase the surety by the amount of **\$1,306,200.00**. (PCR)

- 39 Response Acceptable. CR agrees to update the permit to describe all waste disposal and the facilities used for each type of disposal. (PCR)
- 40 Response Acceptable. CR has adjusted the disposal fees and transport costs. In future responses, CR must indicated all of the changes to the surety as a result of the changes made to a specific section (i.e., changes to the Master Cost that feeds the rest of the surety is not acceptable. LQD does not have an intricate understanding of the spreadsheet formulas and therefore, cannot verify where the corrections are made as a result of the changes to a specific formula. LQD will accept the changes to the Master Cost but may have additional comments in the future, if the tracking of those costs reveals other concerns. (PCR)
- 41 Response Acceptable. The WF REC tables have been corrected. (PCR)
- 42 Response Acceptable. CR has explained the change in chipped volume/Lft. (PCR)

- 43 Response Acceptable. CR has explained the disposal costs and made necessary corrections. **(PCR)**
- 44 **Response Not Acceptable.** LQD accepts the buildup cost for the ¼ ton pickup, however, the remaining years of operations is 23 years (see response to Comment 36). The vehicle (WF REC) operation costs for the pickups is estimated to be **\$4,158,400.00**. With review of the proposed costs, LQD will increase the surety estimate by the amount of \$2,169,600.
- 45 Response Acceptable. CR has provided the explanation as requested. **(PCR)**
- 46 Response Acceptable. CR has explained the county landfill disposal costs. **(PCR)**
- 47 **Response Conditionally Acceptable.** CR has explained the NRC disposal costs and made necessary changes to the surety. However, the response states concrete and soil disposal and transport costs are \$14.88/ft<sup>3</sup>. The revised surety indicates that cost is \$10.44. It appears the table is correct. CR should verify the correction in the next review of the surety. LQD will accept the \$10.44 value for this review but may revisit the cost during the next surety review. **(PCR)**
- 48 Response Acceptable. CR has explained the plans to Satellite 3. A change to the water balance will be reviewed under the Combo Revision. **(PCR)**
- 49 **Response Not Acceptable.** LQD will use 2032 (as shown on the approved water balance for MU-2) for the life for the electric and gas costs for buildings. The electric and gas costs for the buildings is estimated to be **\$9,089,811.00**. With the review of the proposed costs, the LQD will increase the surety estimate by the amount of \$4,889,330.00. **NOTE:** The reviewer suspects that the power cost CR uses is very low, i.e., \$0.04780/Kwhr/yr. This cost may need to be adjusted during the next surety review. **(PCR)**
- 50 Comment applies to Permit 603. **(PCR)**
- 51 Comment applies to Permit 603. **(PCR)**
- 52 Comment applies to Permit 603. **(PCR)**
- 53 **Response Not Acceptable.** LQD will use the life of mine period remaining of 21 years of infrastructure, equipment, maintenance, replacement and repairs cost (see Comment No. 36). The cost is estimated to be **\$1,302,000.00**. With the review of the proposed costs, the LQD will increase the surety estimate by the amount of \$620,000. **(PCR)**
- 54 Response Acceptable. CR has explained the removal of the capitol costs. **(PCR)**
- 55 **Response Not Acceptable.** The response states, CR estimates \$1,000,000.00 to refurbish

MU-F. However, the surety estimate listed under GW REST includes a cost of \$4,879,870.00 to refurbish the wellfield. LQD will use this cost for the remaining wellfields requiring restoration including MU-2, MU-3, MU-9, MU-15, MU-15A, and MU-K. LQD assumes refurbishment of MU-1 and MU-4 has been completed. The estimated cost for refurbishment of the six remaining wellfields is **\$29,279,220.00**. With the review of the proposed costs, the LQD will increase the surety estimate by the amount of **\$29,279,220.00**. **(PCR)**

- 56 **Response Not Acceptable.** The response states that the pumping cost from the wellfield (booster stations) to the RO units is found on the UC-GWS DDW Se Treat and UC-Electrical Power sheets. The cost could not be found. Assuming there are 15, 40 horsepower booster pumps, the annual operating cost would be \$12,494.84 each. With the review of the proposed costs, the LQD will increase the surety amount by **\$187,500.00**. **(PCR for SI)**
- 57 Response Acceptable. **(SI)**
- 58 Response Acceptable. The number of wells that can be plugged per day has been reduced to four. **(SI)**
- 59 Response Acceptable. The delineation hole depth has been corrected. The number of wells that can be plugged per day has been reduced to four. **(SI)**
- 60 Response Acceptable. **(SI)**
- 61 Response Acceptable. **(SI)**
- 62 Response Acceptable. **(SI)**
- 63 Response Acceptable. The Casper Well Mud Engineer portion of the UC-WA sheet has been removed. See response to Comment 38 for additional discussion of well abandonment costs.
- 64 Response Acceptable. CR commits to provide information on the schedule for refurbishment of the Highland Central Processing Plant within the 2011 Annual Report. **(PCR)**
- 65 Response Acceptable. CR provided the surety responses within 60 days. **(PCR)**