



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

CERTIFIED MAIL : 7012 1640 0000 8427 5526

January 25, 2013

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

RE: 2011-2012 Annual Report (AR) Review, Permit 633, Cameco Resources (CR)

Dear Mr. Garoutte:

The Land Quality Division (LQD) has completed the referenced review with the exception of the surety estimate. The surety will be reviewed by LQD staff in the near future. Please find review comments enclosed and provide responses to the comments **within 90 days** of receipt of this letter.

If you have any questions, please contact me at 307-777-7048 or pam.rothwell@wyo.gov.

Sincerely,

Pam Rothwell
District 1 Assistant Supervisor
Land Quality Division

Enclosure: Review Comments

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

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PERMIT 633, SMITH RANCH MINE, CAMECO RESOURCES (CR)

2011-2012 ANNUAL REPORT REVIEW

INTRODUCTION

The Land Quality Division (LQD) received the above referenced report on July 31, 2012 for report period June 19, 2011 through June 18, 2012. LQD had granted an extension to submit the report late at CR's request. LQD staff reviewers included Steve Ingle (SI), Brian Goodnough (BG), Lowell Spackman (LS), Robin Jones (RJ) and Pam Rothwell (PCR).

A total of forty-three (43) comments are included in the review. Note: LQD has not completed a review of the surety for the permit. The surety review of the estimate provided in the Annual Report will be completed as soon as possible.

COMMENTS

- 1 Page 6, Section 3, Mining Activities (a) and (b). Table 3-1 and Figures 2-1 and 2-2, Acreage Affected Summary. A visual comparison of the disturbance areas shown on Figures 2-1 and 2-2 with the reported affected acres in the table indicates that all of the affected acres are not reported on the table. It appears that CR is conducting re-seeding following the initial interim reclamation and that the disturbance areas are expanded (see MUs 9, 15, and 15A). All affected acres must be reported. **(PCR)**
- 2 Page 6, Section 3, Mining Activities (a) and (b). Some areas on Figures 2-1 and 2-2 do not include seeded delineations for a visual representation of the affected areas. For example mine units 1, 2, 3, 4, and 4A illustrate wellfield pattern areas, however the disturbance area is not shown. If CR does not have a record of the disturbance area, a ground survey will be needed (comparing native to non-native) to delineate the disturbance. Please provide the information. **(PCR)**
- 3 Page 6, Section 3, Mining Activities (a) and (b). CR is currently permitted to affect approximately 690.45 acres on Permit 633 (Form approvals). An overview of Figures 2-1 and 2-2 indicates there is a much greater affected area. Table 3-1 also, indicates the total affected acres are 1214.858 (which may not include all of the affected areas). The Wyoming Environmental Quality Act (WEQA) § 35-11-406(a)(vi)(C) requires the permit application (Form 1 and Form 11) include the approximate number of acres to be affected. LQD is concerned that not only is CR not accurately reporting the affect acres in the annual report, but the number of affected acres that was approved to be affected has been significantly exceeded. Therefore, it is requested that CR conduct ground surveys using an independent third party, of all disturbances on the permit verifying all non-native areas that have been impacted by the mining operations since the approval of Permit 633. This survey must be conducted during the 2013-2014 report period and reported in that Annual Report. This should include an update to Table 3-1 and Figures 2-

- 1 and 2-2. CR will also be required to submit a revised Form 11 to correct the affected acres. **(PCR)**
- 4 Affected Acres on Permit 603. Similar discrepancies between the total affected areas reported in Table 3-1 and illustrated on Figures 2-1 and 2-2 are found on Permit 603. Although the total affected acres approved for Permit 603 is fairly conservative, the accuracy of the affected acres is questioned. Therefore, CR should survey the disturbances on Permit 603 and report corrections in the 2013-2014 Annual Report. If an updated Form 11 is warranted, CR will be asked to do so. **(PCR)**
 - 5 Page 8, Section 3, Mining Activities (g)(3). It is requested that CR provide within the annual report, a tabulation of all spills. The table should indicate the approximate location and size, and the volume and type of fluid that was released. The table should be maintained with new releases added each report period. It is important that LQD have the information available in a format other than a map for surety review. This information should also be provided for Permit 603 Annual Report. **(PCR)**
 - 6 Page 8, Section 3, Mining Activities (g)(3). Please describe the results of soil tests within the spill area and any clean-up methods that were used to remediate wellfield releases. This information should also be provided for Permit 603 Annual Report. **(PCR)**
 - 7 Page 8, Section 3, Mining Activities (h), Injection/Production Flows. The requirement in Chapter 11, Section 15(c)(iii) is to report quantities of recovery fluid injected and recovered for each wellfield. The intent of the regulation is to identify activities within individual wellfields according to the approved plan. Reporting the injected and recovered fluids as circulated through the processing plant does not allow tracking of wellfield activities. CR must provide the fluids injected and recovered in each wellfield. Please provide the information in both Permit 603 and 633 Annual Reports. **(PCR)**
 - 8 Page 9, Wellfields, Mine Unit 15/15A. CR will need to separate MU 15 and MU 15A into separate discussions as they are operating under two separate schedules. Please provide a discussion in the annual report describing the status of production throughout each of the mine units include the header houses that are operating. **(PCR)**
 - 9 Page 10, Deep Disposal Wells. The LQD is aware of the injectivity tests completed on CR's deep injection wells and the report submitted by Subsurface Construction Corp. LQD is currently reviewing the report with concerns for the disposal capacity for the mine site. Further technical comment will be forthcoming to CR addressing these concerns. **(PCR)**
 - 10 Page 13, Groundwater Restoration Activities, Mine Unit 2. Page 9 of the report states the wellfield will remain operational during the next report period with plans to initiate development of header house 2-5. Page 14 of the report states that restoration activities are expected to start within the next report period. The approved restoration plan indicates restoration will begin in 2014. However, the proposed restoration plan under LQD review indicates the wellfield will begin restoration in 2012. LQD is preparing to

approve the proposed plan. Please explain the plans to restore according to the proposed plan (TFN 5 3/121) and correct the annual report accordingly. (NOTE: It is conceivable that the mine unit could be restoring and producing simultaneously. CR will need to explain if this is the case). **(PCR)**

- 11 Page 13, Groundwater Restoration Activities, Mine Unit 9. The mine unit is not included in the approved restoration schedule shown in the annual report. Please provide a discussion in the annual report describing the status of production throughout the wellfield and when restoration is anticipated. CR should explain the error in the restoration schedule and how it is being addressed with a permit change. **(PCR)**
- 12 Page 13, Groundwater Restoration Activities, Mine Unit 15/15A. A discussion has not been provided to describe the status of the wellfields. The two wellfields were started at different times with production in MU-15 essentially complete. The approved mine plan indicates restoration should have started in 2010 yet the proposed restoration plan indicates restoration will not begin until 2015. This would indicate that the wellfield will essentially be idle with very low or no production for several years. This is not acceptable. CR will be required to demonstrate viable production from the wellfield or begin restoration. Please provide sufficient information in the annual report to demonstrate production in MU-15. If this information is not available, CR must discuss in the text, when restoration will begin in MU-15. **(PCR)**
- 13 Page 13, Groundwater Restoration Activities, Mine Unit K. The mine unit restoration schedule is included in Permit 603 AR. Please reference the Permit 603 restoration schedule with an explanation as to the reason it is not included in the annual report for Permit 633. **(PCR)**
- 14 Page 13, Groundwater Restoration Activities, Mine Unit K-North. Neither the approved restoration schedule, nor the proposed restoration schedule (TFN 5 3/121) includes MU-K-North. Please describe the restoration plans for this mine unit in the annual report. **(PCR)**
- 15 Page 14, Groundwater Restoration Activities, Mine Unit 4/4A. The text states that end-of-mining Guideline 8 sampling of MP wells are provided in Table 10-7. Please submit the information for review under the Restoration Plan (TFN 5 2/310). **(PCR)**
- 16 Page 17, Wastewater Treatment and Disposal. The text states that the 5.5 mile pipeline network to connect Smith Ranch Central Processing Plant to Satellite 2 is delayed until capacity is available at Satellite 2 in 2028. When CR was questioned many times, the reason for delays in restoration and also for an explanation of the lack of ability to accelerate restoration, CR has stated the limitations are the disposal capacity. It would appear that the Satellite plant itself may also be a reason for the limitations. Please expand the discussion, with clear explanation of what is needed at Satellite 2 to increase the capacity. **(PCR)**

- 17 No permanent reclamation was completed for the report period. No response is necessary. **(LS)**
- 18 Cameco Resources (CR) continues to install additional wellfields that require soil salvage, protection/stockpiling, and temporary seeding. CR is reminded to adhere to the commitments in the permit in Section 6.2.3 to ensure protection and salvage of all suitable soil. In addition, erosion control as outlined in the permit in Section 6.2.3.1 is critical to ensure protection of the soil on both reclaimed and native lands. No response is necessary. **(LS)**
- 19 A commitment on page 6-6B of the permit states that the average stripping depths, areas, and volumes for temporary stockpiles will be tabulated and accounted for on maps submitted with the Annual Reports. The LQD did not locate this information. Please respond with a reference to the location of this information or provide the information in the Annual Report. **(LS)**
- 20 Please correct the ?? in the first sentence of the Deep Disposal Well Section on page 10. **(SI)**
- 21 The text states that the meteorological data is in Table 10.5. The meteorological data is in Table 10-6. Please correct the text. **(SI)**
- 22 Table 10-6 lists the total rainfall for December 2011 as 12.3 inches. The Douglas weather station only recorded 0.37 inches over the same period. Please check this value for errors. Note this would also reduce the total annual rainfall from 23.08 inches. **(SI)**
- 23 Pages 20 and 21 state that ambient air quality, radon and gamma radiation monitoring results are included in Appendix C. These results are not in Appendix C. Please include the ambient air quality, radon and gamma radiation monitoring results in Appendix C. **(SI)**
- 24 Table 3-5 contains only the facility water balance. As specified in Chapter 11, Section 15(c)(iii) injection and production flows for each wellfield should be specified. The citation also requires a description of how these flows were determined. Please include the injection and production flows for each wellfield and a description of how the flows were determined. **(SI)**
- 25 The Table of Contents indicates that Appendix D contains constituent tables and iso-concentration maps. Appendix D only contains restoration graphs from Mine Unit 1. Please add the constituent tables and iso-concentration maps to Appendix D. **(SI)**
- 26 Section 3, Mining Activities (f) (5), Sediment ponds, containment ponds: Cameco stated one (1) sediment pond was constructed in Mine Unit 10. The name of the sediment pond was not listed in the AR or location shown on Plate 1 or Plates associated to Mine Unit 10 (Plates 1-1 through 1-8). Please list the name of the sediment pond, legal location

within the text, and illustrate the location on the Plate 1 and the associated Mine Unit 10 Plate. In addition, please list all the names of constructed sediment ponds and illustrate locations on Plate 1 and Plates 1-1 through 1-8. **(BG)**

- 27 Section 3, Mining Activities (f) (5), Sediment ponds, containment ponds: Cameco stated one (1) sediment pond was constructed in Mine Unit 10. Please clarify and discuss the intended purpose of the sediment pond and reference approved sediment pond designs. In addition, please reference all the approved sediment pond designs for all constructed sediment ponds. **(BG)**
- 28 Section 8, Monitoring Activities (b) Surface Water Analysis and Discharge Data, Impoundment Storage Ponds: Cameco stated the West Pond was not in use during the 2011-2012 reporting period. Please explain why the West Pond was not in use and reasons why the pond was not sampled. **(BG)**
- 29 Section 8, Monitoring Activities (b) Surface Water Analysis and Discharge Data, Stock Ponds: Cameco stated as part of the NRC Source Materials License requires the sampling of several stock ponds once every quarter for natural uranium and radium-226. Cameco only provided 3rd & 4th Quarter 2011 monitoring results. Please provide the monitoring results for the 2012 1st & 2nd quarters or explain why the locations were not sampled and why monitoring results were excluded from the AR. **(BG)**
- 30 Appendix C, Table 4, Water Sampling Data, Environmental Monitoring Sites, 3rd & 4th Quarters 2011. Cameco listed the monitoring frequency as 3rd & 4th quarter and did not list the dates the samples were collected. Please list the 3rd & 4th Quarter sample collection dates on Table 4 and provide the dates samples were collected for 2012, 1st & 2nd quarters.

Cameco listed "Not Running" as a reason for not sampling the ground water wells and windmills. Please explain why samples were not collected during the quarterly monitoring period.

The GW-20 groundwater well location is not illustrated on the Plate 1 Smith Ranch – Highland Uranium Project. Please illustrate the location on Plate 1 and associated Plates 1-1 through 1-8.

The GW-7 groundwater well location is illustrated on the Plate 1 Smith Ranch – Highland Uranium Project. The GW-7 monitoring data was not listed on Table 4, Water Sampling Data, Environmental Monitoring Sites, 3rd & 4th Quarters 2011. Please submit the monitoring results for the GW-7 or explain why the groundwater well was not sampled and monitoring results were excluded from the AR. **(BG)**

- 31 Section 8, Monitoring Activities (c) Precipitation Data: Cameco listed the Meteorological data and information in Table 10-5 and should be listed on Table 10-6. The meteorological station was not located on the map during this review. Please

illustrate Meteorological station on map and list the legal location in the text under Section 8, Monitoring Activities (c) Precipitation Data. **(BG)**

- 32 Table 10-6, Weather Station Data Summary, May 2011 – April 2012: Cameco listed the Rain Daily Average in Table 10-6 and for the month of Dec-11 the value listed was 12.30 inches of Rain Fall Total. Please explain or correct recorded value listed on Table 10-6, Weather Station Data Summary, May 2011- April 2012. **(BG)**
- 33 Page 19, 8 Monitoring Activities, (h) Wildlife Data. The report states that wildlife surveys were conducted in accordance with the 2010 WSFWS and WGFD approved Smith Ranch-Highland./Reynolds Ranch Wildlife Monitoring Plan. The LQD has not been informed of these plans. Please provide a copy of the plans in the Annual Report. **(PCR)**
- 34 Page 23, Other special conditions. LQD continues to evaluate the compliance issues listed in the Summary of Violations (August 8, 2011 letter to CR) for issuance of Notices of Violation. No response is necessary. **(PCR)**
- 35 Table 10-1 (drilled during report period, plugged and capped). A total of 61 delineation holes are reported in the title, yet there are only 58 holes listed in the table and shown on the Plates 3-4, 3-5, 3-6 and 3-8. Please correct the discrepancy. **(PCR)**
- 36 Page 24, 2011-2012 Delineation Drilling. The first paragraph references Table 1 and also 414 new holes that have been reclaimed and reported in Table 10-2 including a bond release request. This is an incorrect statement. Table 1 includes 61 (58 listed) drill holes. The text should discuss the intent of Table 10-1 is to provide drill hole completion information for the report period. **(PCR)**
- 37 Table 10-2 is titled *2010-2011 Annual Report: Plugged and Abandonment with Bond Release Request*. The table includes drill holes from several report periods. Please clarify the intent of the table. **(PCR)**
- 38 Table 10-2 reports 1055 drill holes in the title. A tally of the holes listed in the table includes 53 holes drilled in the 2008-2009 report period, 639 holes drilled in the 09-10 report period, and 832 drill holes drilled in the 2010-2011 report period for a total of 1524 drill holes. Please correct the discrepancy. (Note: CR includes a request to release plug and abandonment bond on holes listed in Table 10-2. LQD cannot review, inspect or release surety until the Table is accurate). **(PCR)**
- 39 Table 10-1 includes a column titled *Avg. yd³*. Please clarify the column. **(PCR)**
- 40 Please provide the LQD approval dates for all drilling that was completed during the report period. **(PCR)**
- 41 The drill holes listed in the legends of the drill hole Plates do not correspond to drill holes in the Tables. This will need to be corrected to allow cross check of the holes listed on

the Tables and Figures. The nomenclature in the legends of the Plates should correspond to the nomenclature of the Tables. **(PCR)**

- 42 Please provide a map showing the drill holes listed in Table 10-3 for inspection of re-vegetation release of surety. **(PCR)**
- 43 Table 10-3, Vegetation Bond Release Request. CR has requested bond release for 827 drill holes. Please provide a column on the Table indicating the date of plug and abandonment and also indicate the LQD approval date for the release of liability for the plugging cost. **(PCR)**