



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 25, 2016

Mr. Mike Thomas, Director - SHEQ
Cameco Resources - North Butte
550 North Poplar Street, Suite 100
Casper, WY 82601

**RE: 2015-2016 Annual Report Review, Cameco Resources, North Butte ISR Project,
Permit No. 632**

Dear Mr. Thomas:

The Wyoming Department of Environmental Quality/Land Quality Division (LQD) has reviewed the 2015-2016 Annual Report for Cameco Resources' North Butte ISR Project, Permit No. 632. The enclosed memorandum provides LQD's review comments which request additional clarification and/or information in order to complete the review. Please see the enclosed review memorandum and submit appropriate responses or information. Once adequate responses are received, this Annual Report will be recommended for approval.

If you have any questions, please contact me at 307-675-5619.

Sincerely,

Luke McMahan, P.G.
Project Geologist
WDEQ-LQD District 3

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Attachment: 2015-2016 Annual Report Review Memorandum

cc: Cheyenne File w/ attachment
Mr. Doug Mandeville, U.S. NRC, MS T-8F5, 11545 Rockville Pike, Rockville, MD 20852
w/attachment



10/16
5/26/16



WYOMING

2015-2016 Annual Report Review Memorandum

TO: File: PT632, Cameco Resources, North Butte ISR Project, 2015-2016 Annual Report

FROM: Luke McMahan, Project Geologist, District III *LM*

DATE: May 25, 2016

SUBJECT: Permit No. 632, North Butte ISR Project, 2015-2016 Annual Report Review

DISCUSSION:

This memorandum presents my review comments for the Cameco Resources, North Butte ISR Project 2015-2016 Annual Report. The following comments have been provided to Cameco North Butte under cover letter dated May 25, 2016 and request Cameco to provide clarification and/or additional information in order to recommend approval of the subject Annual Report. The Report was received by LQD District III on February 1, 2016 under cover letter dated January 28, 2016 from Mr. Tyler Schiltz of Cameco Resources. The Report covers the activities at the North Butte ISR Project from the period of January 30, 2015 through January 29, 2016. The WDEQ/LQD In Situ Annual Report Format (ISARF July 2013) was utilized in reviewing the contents of this Annual Report.

REVIEW COMMENTS:

General Review

1. Submittal of Electronic Data; the ISARF states "*In addition to the two (2) electronic copies of the ISAR that is required, LQD requests certain information be submitted in electronic format to aid in review and long term tracking of activities*". The requested information listed below has not been provided electronically in the annual report or in quarterly reports. Please provide the following data in electronic format;
 - Uranium Surface Water Flow Data
 - Uranium Surface Water Station Details
2. Section II.(I), Environmental Monitoring; the report states that a samples were collected from NBSWS1, NBI-2 and NBI-6. Section I, Environmental Monitoring of the ISARF states that "*Along with hard copies submit all water quality and quantity data electronically*". Hard copy surface water monitoring data has not been provided with the

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(General review comments cont.)

annual report or in quarterly reports. Please provide hard copies of the surface water data (quality and quantity) for insertion in the annual report. Additionally, please update one of the report maps or provide a new map to show the locations of the surface water monitoring stations/sites; or provide a reference in the text of this section where the specific map with these locations can be found in the permit document.

3. Section II.B of the ISARF requires that the annual report provide the total quantity of recovery fluid injected and the total quantity of recovery fluid extracted during the reporting period for each wellfield area. It appears that the quantities provided in the annual report are the total of all active wellfields. Please revise Section II.B on Page 3 of the annual report or provide an additional table so that these quantities are provided for each active wellfield.
4. Page 9, Section V Reclamation Performance Bond; this section in the report text attributes the \$3,178,300 decrease in the bond estimate to being the result of replacing several previously approximated building, pond, and road dimensions with dimensions recently measured from an as-built Autocad map. However, the decrease appears to be predominantly the result of revisions to flare factors and pore volumes associated with each mine unit and how that affects groundwater restoration costs. Please provide some additional discussion in this section regarding the new information Cameco is using to re-evaluate these values.
5. Map 4, 2015 Long Term Surface Disturbance and Topsoil Inventory; this map does not show the location of culverts installed for mining operations. Please update the map to show the locations of culverts that will need to be removed during reclamation of the main access road.

Reclamation Performance Bond Estimate Review

6. Section V.B of the ISARF requires the bond estimate to be accompanied by a projected time schedule (Gantt chart) showing the completion schedule for each major reclamation operation/task. A reclamation schedule of this nature has not been provided with the annual report. Please provide a Gantt chart showing the reclamation completion schedule for North Butte Mine.
7. Master Costs; Please revise the title on the Master Costs Sheet so that it references North Butte Uranium Project.

(Bond review comments cont.)

8. Master Costs; actual costs from 2014 are provided for Chemical & Material Costs, and Analytical Costs. For these items, are actual costs available for North Butte from 2015? If so, please update the surety accordingly or provide clarification why the 2014 costs are applicable for this surety estimate.
9. GWF-WF, Section I.F.1.a, Monitoring and Sampling Costs; this section does not show any pre-restoration excursion monitoring samples for Mine Unit 1. Please clarify why this monitoring cost is excluded or update this section accordingly.
10. GWR-SITE, Section II.B, Booster Pump Operation Costs; this section is listed as having no cost. Please clarify why booster pumps would not be used during groundwater restoration or update this section accordingly.
11. WF-BLDGS, Section IV.E, Buried Trunkline; Map 4 displays the proposed trunkline associated with Mine Unit 3 and Section II.K of the Report indicates that development of Mine Unit 3 will continue in 2016. Removal and disposal costs associated with the proposed Mine Unit 3 trunkline do not appear to be addressed in Section IV.E of the Surety Estimate. Will trunkline for Mine Unit 3 be installed during 2016? If so, please update the surety accordingly or indicate where this cost is already addressed in the surety estimate.
12. WF-BLDGS, Section IV.E, Buried Trunkline; under the Assumptions of this section, the length of the wastewater pipeline trench is listed as 4,600 feet. Item IV.E.2(a) lists the length of the 4" Disposal Line as 2,600 feet. Based on Map 4, it appears that the total length of the Disposal Line would also be approximately 4,600 feet, extending from the Disposal Well down to the Satellite Facility. And, for approximately 2,600 feet of this distance, the 4" Disposal Line appears to have a dedicated trench (green line on Map 4). Please clarify, does the 4" line extend from the disposal well all the way to the Satellite Facility? Or, does the 4" line transition to a larger trunkline size where the total distance of the disposal line is accounted for under both Item 2.a and 2.b or 2.c? The length of the 4" Disposal Line is listed as 4,600 feet in the previous annual report. Please confirm that the correct length for Wastewater Disposal Line has been applied and update this section if needed.
13. WF-REC, Worksheet V, Wellfield & Satellite Surface Reclamation; this Worksheet does not appear to address surface reclamation (topsoil stripping, topsoil replacement, seeding, etc.) associated with reclaiming the trench excavation after removing existing and proposed trunklines, specifically for large trunkline excavation/removal. Please explain where these costs are applied or update the surety estimate accordingly.

(Bond review comments cont.)

14. WF-REC, Worksheet V, Wellfield & Satellite Surface Reclamation; Section V.A.2 addresses surface reclamation of the Staging Area (3.86 acres). It's not clear which disturbance this is referencing, however it appears to be associated with the disturbance/staging area around the deep disposal well site in Section 13. In evaluating the existing surface disturbance shown on Map 2 and on Map 4 (excluding the wellfield pattern areas, surge pond, satellite facility, Deep Disposal Well Site, and the main access road), Map 2 shows additional surface disturbance indicated as "Temporary Disturbance Area" and Map 4 shows additional disturbance indicated as "PW-1 Disturbance Area", "Laydown Area" and "Silo Disturbance Area/WW-1 Disturbance Area" which do not appear to be accounted for under surface reclamation addressed on this worksheet or elsewhere in the surety estimate. Please indicate where surface reclamation of these areas is accounted for in the surety estimate or update the surety estimate accordingly. Additionally, please review Table 5 and confirm that any areas of disturbance listed on this table, that aren't addressed in the surety estimate, have been accounted for in the total acreage of surface disturbance requiring reclamation.
15. EQUIP, Section VI.C and BLDGS, Section VII.D, Health and Safety Costs; these sections indicate that health and safety costs are "accounted for on II.GWR SITE COSTS". Costs associated with radiation safety equipment and labor (i.e. radiation safety officer) are not evident in the referenced section. Please clarify which line item(s) cover these costs under II.GWR SITE COSTS.
16. BLDGS, Worksheet VII, Demolition and Disposal; the two office buildings do not appear to be accounted for in this Worksheet. Please update the surety estimate accordingly to account for removal of these buildings.
17. MISC-REC, Section VIII.A, Access Road Reclamation; please clarify how the cost of culvert removal and disposal are accounted for under this section. Please update this section if needed.

SUMMARY:

In accordance with the comments listed above, additional information is required in order to deem this Annual Report approved.

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