January 5, 2011

Mr. Doug Mandeville
U.S. Nuclear Regulatory Commission
Two White Flint North
11545 Rockville Pike, T7E18
Rockville, MD 20852-2738

RE: Second Round Review of Revised Restoration Plan, R2 Review
Permit 603 and 633, Cameco Resources

Dear Doug:

The Land Quality Division (LQD) sent second round comments to Cameco Resources on November 8, 2010 with concerns for the proposed extended restoration schedule. I have enclosed those reviews for your information.

If you have any questions, please contact me at [redacted] or 307-777-7048.

Sincerely,

Pam Rothwell

Pam Rothwell
Permit Coordinator/District I Assistant Supervisor
Land Quality Division

Enclosures

cc: Christopher Bruster, Cameco Resources, Cheyenne WY

November 8, 2010

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

RE: TFN 5 1/119, Non-Significant Revision, Revised Restoration Plan, T2 Review
Permit 603, Highland Uranium Project, Cameco Resources (CR)

Dear Mr. Kallas:

The Land Quality Division (LQD) has completed the review of responses received on September 16, 2010. Due to the revised information sent with the responses, the LQD has provided additional comment on the new proposed changes. Please find the review enclosed.

There is concern with the extended time period proposed in the restoration schedule of the revision. CR will need to provide justification for this proposed time extension to restore the groundwater. It is recommended that CR schedule a meeting with LQD to discuss the enclosed review.

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

Sincerely,

Pam Rothwell

Pam Rothwell
Permit Coordinator/District I Assistant Supervisor
Land Quality Division

cc: Joe Brister, Cameco Resources, Cheyenne, WY

TFN 5 1/119, REVISED RESTORATION SCHEDULE, T2 REVIEW

Page 2

CAMECO RESOURCES, HIGHLAND URANIUM PROJECT, PERMIT 603

INTRODUCTION

On July 23, 2009 Cameco Resources (CR), Land Quality Division (LQD) and the Nuclear Regulatory Commission (NRC) discussed groundwater restoration plans at the Smith-Highland ISL mines. CR proposed using less groundwater sweep (GWS) than had traditionally been utilized as little benefit has been recognized with GWS. The focus would be a slower process, maintaining the cone of depression with a 20% bleed and using reverse osmosis (RO). It was suggested by CR that groundwater modeling would be used to develop plans for wellfield restoration. During the meeting CR indicated a new restoration schedule would be submitted to reflect these proposed changes.

LQD received the proposed change on August 17, 2009 which consisted of a single page change to the permit reclamation plan (Attachment 1, Highland Uranium Project – Estimated Time Table of Restoration Activities). Technical review comments were sent to CR on December 21, 2009. CR submitted responses to comments on September 17, 2010 with a completely new schedule for review and included text changes to the operations and reclamation plans. Therefore, the following review includes a review of the responses as well as new comments to address the revised proposal.

COMMENTS

1 **Response Not Acceptable.** The response discusses the short term disposal capacity issues that resulted in delays in restoration of the current wellfields that are in restoration, but does not explain the long delays for currently producing wellfields. The maintenance, infrastructure installation and replacement wells would have been incorporated into the present schedule and therefore not affect the timelines. Please provide justification for changing the start of restoration and for extending the length of time for restoration. (SI)

2 **Response Acceptable.** The timelines now match. (SI)

3 **Response Not Acceptable.** The pre-restoration phase needs to have a separate time bar. Please include a pre-restoration time bar on Attachment 1. (SI)

4 **Response Not Acceptable.** The water balance in Attachment 3 only lists RO Reject and Post Production MU Control. Please include groundwater sweep in the water balance. (SI)

5 **Response Not Acceptable.** The pre-conditioning phase should be shown separately on the table. The text describing the actions taken during this phase does not completely discuss the pre-restoration phase activities. Additional wellfield preparation activities have included re-plumbing header houses, well cleanouts and pipeline installation.

Please show the pre-conditioning phase time bar on Attachment 1 and add additional discussion of the wellfield preparation activities to the text. (SI)

6 Response Acceptable. (SI)

7 Response Acceptable. (SI)

8 Response Acceptable. (SI)

9 **Response Not Acceptable.** The response states that the average monthly inflow to PSR#2 is 180 gallons a minute. The average irrigation rate shown on Attachment 3 for Smith Ranch and Amendment 3 for Highland includes 180 gallons per minute for each permit for a total average application rate of 360 gallons per minute. Please correct the attachments. (SI)

NEW COMMENTS

10 Page RP-7, second complete paragraph. The text uses the term "RTVs" Please define the acronym in the text. (PCR)

11 Page RP-7. The revised text describes the progressive change-over to restoration whereby portions of a wellfield may be brought into restoration at any one time. CR will need to clearly describe the transition from production to restoration in the text, i.e., how long it will take to convert a wellfield to full restoration from production? Is this considered the pre-restoration period? How is the "end of injection" water quality average for the wellfield derived if the entire wellfield is not sampled at the same time? At what point does CR declare the wellfield is in restoration for the beginning of active restoration sampling (i.e., every two months for conductivity, chloride and uranium?). Please provide a detailed discussion of the transition from production to groundwater restoration in the text. (PCR)

12 Page RP-7 & 7A. The proposal describes the restoration well pattern in contrast to the production pattern as considerably different. CR must provide a typical restoration wellfiled pattern which includes an average number of injection and recovery wells used and an average number of additional restoration wells necessary to complete restoration (per pattern area). LQD needs assurance that the surety covers an average number of new restoration wells to complete groundwater restoration of all mining units for the life of mine. (PCR)

13 Page RP-7, second paragraph. CR states that a ground water restoration plan for a mine unit will be developed prior to starting the restoration activities. CR should provide this plan to the LQD. Please add the commitment to develop a detailed restoration plan for the

mine units for LQD review and approval. NOTE: LQD is currently reviewing the notifications for initiation of groundwater sampling for restoration for MUs D and E and will be sending a letter with recommendations for the information needed in the wellfield restoration plans. (PCR)

14 Attachment 1, Restoration Schedule shows a time bar for the addition of bioremediation/chemical reductant. Please include the water usage for this phase in the water balance. (PCR)

15 Attachment 3, 2010 Projected Water Balance. The water balance and restoration schedule are based on updated estimated calculations submitted in September of 2010. The original schedule was proposed in August 2009. LQD continues to have comments which will likely require further changes to the schedule (i.e., groundwater sweep estimates and reductant estimates). LQD is unsure of the disposal well usage on the schedule due to delays in completion of disposal wells. Is MU-E currently in groundwater sweep and also proposing to mine in a new zone? Please revise the schedule to accurately reflect the 2010 water balance. (PCR)

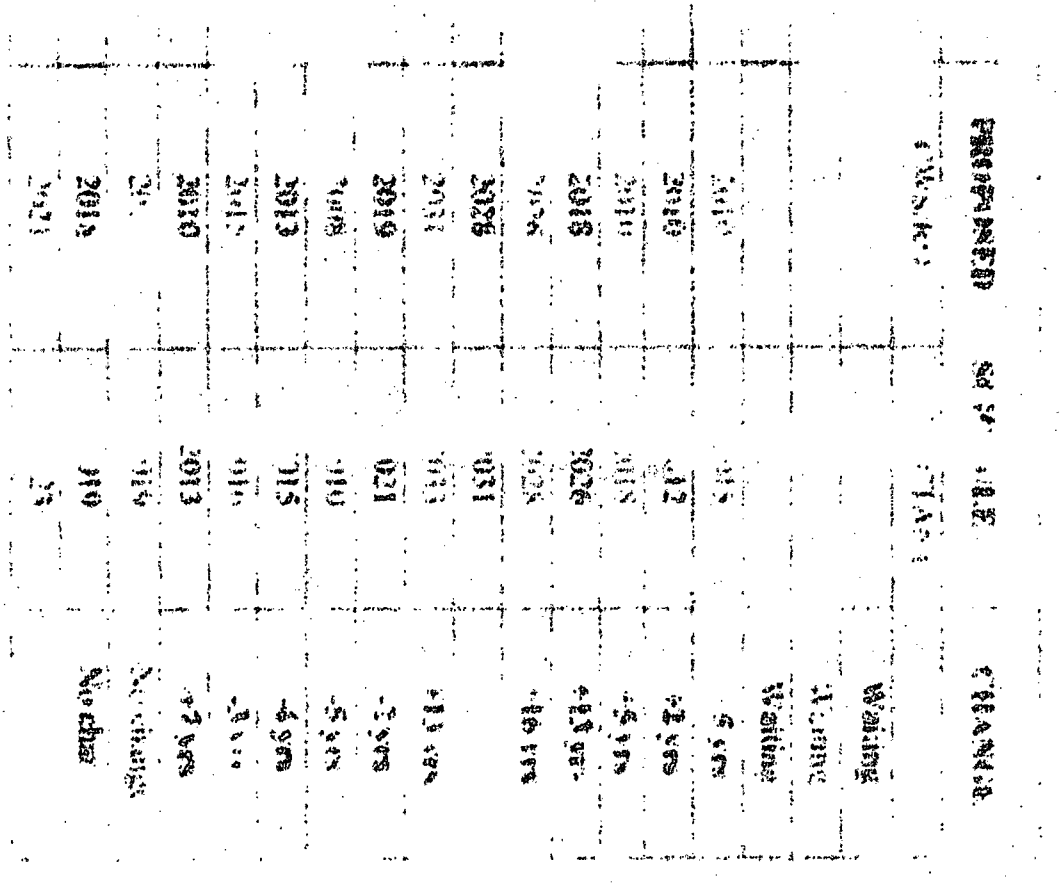
16 Page OP-4. The text describes groundwater restoration as concurrent with mining but also deferred due to mining in adjacent mine units and also designed to achieve the fastest restoration possible given the ability of the aquifer to yield water. These limitations on restoration are not considered reasons to delay restoration. CR will need to demonstrate that there is a balance of the water usage for mining and restoration. The reviewer summarized the changes between the approved permit schedules and the proposed schedules (see the Attachment to comments). In summary, the restoration time has been extended in eight wellfields from 2 to 16 years and has been reduced in four wellfields from 2 to 5 years. CR will need to provide detailed justification for extending the period of restoration in the eight wellfields. It is recommended that CR meet with LQD to discuss the proposed delay in restoration. Further reviews could potentially delay the approval of the revised schedule. (PCR)

17 Attachment 2, Mine Unit Extraction Rates and Poor Volumes will need to be revised to reflect the updated water balance and schedule. (PCR)

18 CR will need to place a high priority on completing the restoration schedule changes as the approved schedule has errors which must be corrected as soon as possible (i.e., MU-K is included under the wrong permit). It is recommended that CR schedule a meeting to discuss the concerns with the restoration schedule in effort to accelerate the approval of the revision. (PCR)

19 Page OP-4. The text describes the projected schedule in Attachment 3. It should reference Attachment 1. Please correct the text. (PCR)

20 Please continue to carry Wellfields A, B and C on the restoration schedule and show the current phase of restoration . The restoration schedule should also show stability monitoring, and wellfield reclamation for a clear understanding of the bond required through the life of mine. **(PCN)**



TFN 5 1/119, 72 REVIEW, ATTACHMENT

PERMITS 603 & 633, CAMECO RESOURCES

COMPARISON OF GROUNDWATER RESTORATION SCHEDULES (APPROVED/PROPOSED)

WELLFIELDS	APPROVED PERMIT		PROPOSED SCHEDULE		CHANGE
	GWS	RO	GWS/RO	REDUCTANT	
MU-A					Waiting
MU-B					Waiting
MU-C		2008			Waiting
MU-D	2010	2010	2010	2015	+ 5 yrs
MU-D ext	2010	2010	2010	2012	+2 yrs
MU-E	2010	2013	2010	2018	+5 yrs
MU-F	2011	2013	2018	2026	+13 yrs
MU-H	2013	2016	2026	2028	+16 yrs
MU-I	2013	2016	2028	2031	+15 yrs
MU-J	2018	2020	2031	2033	+13 yrs
MU-K	2020	2023	2019	2021	-2 yrs
MU-1	2008	2010	2008	2010	-5 yrs
MU-2	2014	2020	2013	2015	-4 yrs
MU-3	2014	2020	2015	2016	-3 yrs
MU-4	2009	2016	2010	2013	+7 yrs
MU-15	2010	2012	2016	2019	No change
MU-15A	2016	2019	2018	2019	No change
MU-9			2021	2023	

Department of Environmental Quality

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

Dave Freudenthal, Governor

John Corra, Director

November 8, 2010

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

RE: TFN 5 3/12I, Non-Significant Revision, Revised Restoration Plan, T2 Review
Permit 633, Highland Uranium Project, Cameco Resources (CR)

Dear Mr. Kallas:

The Land Quality Division (LQD) has completed the review of responses received on September 16, 2010. Due to the revised information sent with the responses, the LQD has provided additional comment on the new proposed changes. Please find the review enclosed.

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

Sincerely,

Pam Rothwell

Pam Rothwell
Permit Coordinator/District I Assistant Supervisor
Land Quality Division

cc: Joe Brister, Cameco Resources, Cheyenne, WY

TFN 5 3/121; REVISED RESTORATION SCHEDULE, T2 REVIEW

CAMECO RESOURCES, HIGHLAND URANIUM PROJECT, PERMIT 633

INTRODUCTION

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11 Page 6-2A & 6-2B. The proposal describes the restoration well pattern in contrast to the production pattern as considerably different. CR must provide a typical restoration wellfield pattern which includes an average number of injection and recovery wells used and an average number of additional restoration wells necessary to complete restoration. LQD needs assurance that the surety covers an average number of new restoration wells to complete groundwater restoration of all mining units for the life of mine. (PCR)

12 Page 6-2A, second paragraph. CR states that a ground water restoration plan for a mine unit will be developed prior to starting the restoration activities. CR should provide this plan to the LQD. Please add the commitment to develop a detailed restoration plan for the mine units for LQD review and approval. NOTE: LQD is currently reviewing the notifications for initiation of groundwater sampling for restoration for MUs D and E and will be sending a letter with recommendations for the information needed in the wellfield restoration plans. (PCR)

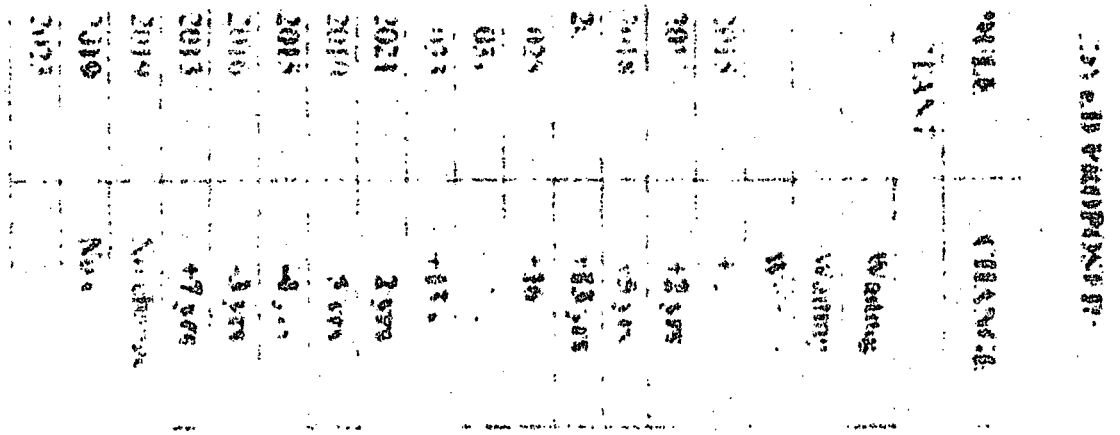
13 Attachment 1, Restoration Schedule shows a time bar for the addition of bioremediation/chemical reductant. Please include the water consumption for this phase in the water balance. (PCR)

14 Attachment 3, 2010 Projected Water Balance. The water balance and restoration schedule are based on updated estimated calculations submitted in September of 2010. The original schedule was proposed in August 2009. LQD continues to have comments which will likely require further changes to the schedule (i.e., groundwater sweep estimates and reductant estimates). In addition, the disposal capacity is incorrect due to delays in completion of new disposal wells. Other changes such as Mine Unit E schedule for groundwater sweep is in question in lieu of the proposal to mine in a different zone. The schedule should be as current as possible for approval. Please revise the schedule to accurately reflect the 2010 water balance. (PCR)

15 Page 3-8. The revised text describes groundwater restoration could take up to sixteen years. This is a drastic change from the approved text. The reviewer summarized the changes between the approved permit schedules and the proposed schedules (see the Attachment to comments). In summary, the restoration time has been extended in eight wellfields from 2 to 16 years and has been reduced in four wellfields from 2 to 5 years. CR will need to provide detailed justification for extending the period of restoration in the eight wellfields. It is recommended that CR discuss the justification with LQD for a clear understanding of the intent of the delay. Further reviews could potentially delay the approval of the revised schedule. (PCR)

16 Attachment 2, Mine Unit Extraction Rates and Pore Volumes will need to be revised to reflect the updated water balance and schedule. (PCR)

17 CR will need to place a high priority on completing the restoration schedule changes as the approved schedule has errors which must be corrected as soon as possible (i.e., MU-9 is not shown on the Permit 633 restoration schedule and MU-K is included under the wrong permit). It is recommended that CR schedule a meeting to discuss responses to comments in effort to accelerate the approval of this revision. (PCR)



TFN 5 3/121, T2 REVIEW, ATTACHMENT

PERMITS 603 & 633, CAMECO RESOURCES

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WELLFIELDS	APPROVED PERMIT		PROPOSED SCHEDULE		CHANGE
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MU-B					Waiting
MU-C		2008			Waiting
MU-D	2010	2010	2010	2015	+5 yrs
MU-D ext	2010	2010	2010	2012	+2 yrs
MU-E	2010	2013	2010	2018	+5 yrs
MU-F	2011	2013	2018	2026	+13 yrs
MU-H	2013	2016	2026	2028	+16 yrs
MU-I	2013	2016	2028	2031	+15 yrs
MU-J	2018	2020	2031	2033	+13 yrs
MU-K	2020	2023	2019	2021	-2 yrs
MU-1	2008	2010	2008	2010	-5 yrs
MU-2	2014	2020	2013	2015	-4 yrs
MU-3	2014	2020	2015	2016	-3 yrs
MU-4	2009	2016	2010	2013	+7 yrs
MU-1S	2010	2012	2016	2019	No change
MU-1SA	2016	2019	2018	2019	No change
MU-9			2021	2023	