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

July 23, 2010

Mr. Angelo Kallas
Cameco Resources, Inc.
PO Box 1210
Glenrock, WY 82637

Subject: June 2010 Inspection Report, Cameco Resources, Permits 603 and 633

Dear Mr. Kallas:

Please find enclosed the above referenced report. The June inspection was conducted with assistance from your staff on June 22, 2010. Please review the report at your convenience. If you have any corrections, please respond in writing so that it may become part of the permanent record.

The enclosed report summarizes the surface water hydrology inspection by Mr. Jonathan Stauffer. The vegetation inspection by Mr. Robin Jones will be forwarded at a later date when it is completed. If you have any questions, please do not hesitate to contact me at prothw@wyo.gov or 777-7048, jstauf@wyo.gov or 777-7069 or rjones@wyo.gov or 777-8956.

Sincerely,

Pam Rothwell

Pam Rothwell
District 1 Assistant Supervisor
Land Quality Division

cc: Joe Brister, Cameco Resources, Lakewood, CO
Douglas Mandeville, NRC

JUNE 2010 INSPECTION REPORT
DISTRICT 1/LAND QUALITY DIVISION

COMPANY:	Cameco Resources (CR), Highland Ranch, Permit #603 & Smith Ranch, Permit 633
LOCATION:	North of Glenrock, off Ross Road
DATE OF INPECTION:	June 22, 2010
DATE OF REPORT:	July 12, 2010
INSPECTORS:	Jonathan Stauffer, Surface Water Hydrologist, District 1 Robin Jones, Vegetation Ecologist, District 1
COMPANY REPRENTATIVES:	Shawn DeGraugh, Joe Brister, Ken Garoutte.

INTRODUCTION

Cameco Resources has proposed the consolidation of permit number 603 and permit number 633. As a result of the review it was determined an on-site evaluation would be prudent to inspect sediment control practices at the CR mines to determine if CR was installing the practices correctly and if the sediment control plan appeared appropriate. In addition, it was decided that it would help to evaluate vegetation with an onsite review. Several areas of active mining, reclamation, and construction were inspected to determine if the sediment control practices were appropriate. Vegetation success was also evaluated in various reclamation units. The following summarizes the surface water hydrology site review. The vegetation review will be forwarded to CR when the review is finalized.

INSPECTION AND COMMENTS

Roadside Ditches:
LQD inspected several roadside ditches along the main access roads throughout the mine. In most locations, CR has installed hay bale check dams to enhance deposition of sediment from roads within the ditches. The hay bale check dams are providing a moderate level of sediment control, but many of the individual structures are exhibiting problems related to maintenance and duration of installation. Common problems with many of the structures were related to the height of installation, and the amount of sediment deposition upstream of the structures. Many of the hay bales were installed with the top of the bale higher than the top of the ditch bank. This installation method is incorrect. LQD reviewed proper installation with CR, and informed CR that the structures need to be keyed-in to the bottom and sides of the ditch, the height of the center bale should be between one-half and two-thirds the depth of the ditch, sediment should be removed when the depth of deposition is approximately half the depth of the ditch, and that the hay bales should be replaced more frequently. **Photos #1 and #2** demonstrate deficiencies that were typically found with the hay bale check dams. Those deficiencies are: 1) top of the bales are too high, causing erosion around the structure and into the roadbed once sediment deposition fills to the height of the roadbed (blue arrow in Photo #1), 2) degradation of structure integrity as the hay bales become unconsolidated over time, and 3) sediment deposition allowed to remain

in-place after filling to the height of the roadbed. Considering that these structures are likely to remain in-place for many years, LQD recommended the replacement of the hay bale check dams with properly constructed rock check dams. The rock check dams should be installed with a low-flow point in the center, and used to provide long-term channel stability to allow the development of a densely vegetated roadside ditch. See attached Figure 1 for installation example drawings. CR should leave sediment deposition in-place, and hand seed all deposition upstream of the structures to encourage the development of a vegetated ditch.

Headcut Reclamation:
LQD inspected a headcut reclamation and channel stabilization project shown in **Photo #3**. CR made extensive use of straw wattles to stabilize the channel and headcut. In general, the work appears to have been installed appropriately and has been effective in stabilizing the erosion. The use of single-layer wattles as upslope diversion/sediment detention structures and as cross-channel check dams, and of stacked wattles as bank stabilization structures is generally acceptable to LQD. The use of stacked wattles to stabilize a headcut feature would be considered experimental. As shown in photo #3, one of the wattles used to stabilize the headcut knickpoint is no longer functioning as installed (yellow arrow). LQD suggested that CR continue monitoring this work on a regular basis, and if the structures do not appear to be functioning properly, consider replacing the wattles with rock structures (particularly to stabilize the headcut knickpoint).

Slopes and Channels in Reclaimed Areas:
LQD noted several areas of rilling slopes on reclaimed areas. CR and LQD should monitor reclaimed slopes to determine if the reclaimed areas are developing adequate stands of vegetation to stabilize the reclaimed slopes. If rilling continues, or begins to develop into gullies, CR should install stabilization measures to allow the vegetation to develop. Stabilization measures might include wattles, small rock check dams within rills or gullies, erosion control matting/geotextiles on the slope faces, or other measures. In many reclaimed areas, CR has installed wattles at the bottom of slopes where the slopes transition into the native or reclaimed channels flowing through reclaimed areas. This measure appears to be relatively effective in preventing the deposition of slope erosion into the channels, and LQD recommends the continued use of this measure.

Active Construction Site:
LQD inspected the Satellite 2 active construction site. The perimeter sediment control was inadequate at this site. CR used silt fence as the primary sediment control for the site. However, most of the silt fence was not keyed-in to the soil, and there were several areas where the silt fence and posts were lying on the ground. Because of these issues, any sediment-laden runoff that encounters the silt fence perimeter control flows over or under the silt fence without proper filtration. CR installed wattles at the top of the fill slopes in the construction area to reduce the amount of flow running down the fill slopes. LQD recommends continuing this measure. CR should increase monitoring frequency of all perimeter control measures at construction sites to more quickly identify locations where maintenance is required, and implement maintenance and repairs immediately upon identifying these locations. Additionally, sediment deposition was noted beyond the perimeter controls in this area. LQD informed CR that sediment deposition beyond perimeter controls should be removed from channels as soon as the deposition is noted,

and perimeter controls repaired or enhanced to ensure that sediment is retained within the site perimeter.

Reclamation in Spill Area – Mine Unit H near Header Houses # 11 and #12:
The reclamation is very successful in this area. At the downstream end of the reclaimed area, CR installed a large hay bale check dam as perimeter sediment control **(Photo #4)**. The watershed in this reclaimed area is stable and well-vegetated with no erosion evident **(Photos #5 and #6)**. Because the watershed is stable and well-vegetated, LQD believes it would be appropriate to remove the hay bale structure and the associated t-posts. The t-posts should be removed from the site. The straw from the bales may be spread lightly across the reclamation.

Active Development of Drilling Locations:
LQD inspected two areas of active drilling development. The development areas are essentially completely disturbed due to the density of drilling development. LQD informed CR that some form of perimeter sediment control should be installed prior to disturbance in any development area. LQD suggested the use of a row (or multiple rows) of silt fence or low-profile rock structures installed on the downslope portion of the overall development area to limit off-site impacts from the development area into nearby drainages.

CONCLUSION

The recommendations provided through the inspection should assist CR with controlling sedimentation caused by the progressive and steady increase in disturbance due to an increase in the number of wellfields currently in operation, reclamation or development. CR will need to implement these recommendations to control the erosion and sedimentation noted during many previous inspections. LQD will continue to inspect the disturbances for erosion and sediment control.

PHOTO ADDENDUM

Photo #1: Example of common problem with hay bale check dams at the site – flanking scour as water flows around the structure once structure is filled with upstream sediment.

Photo #2: Typical hay bale check dam installation. Bales are installed too high creating the potential for flanking scour as the structure fills with sediment. Bales are degrading due to the amount of time in-place.

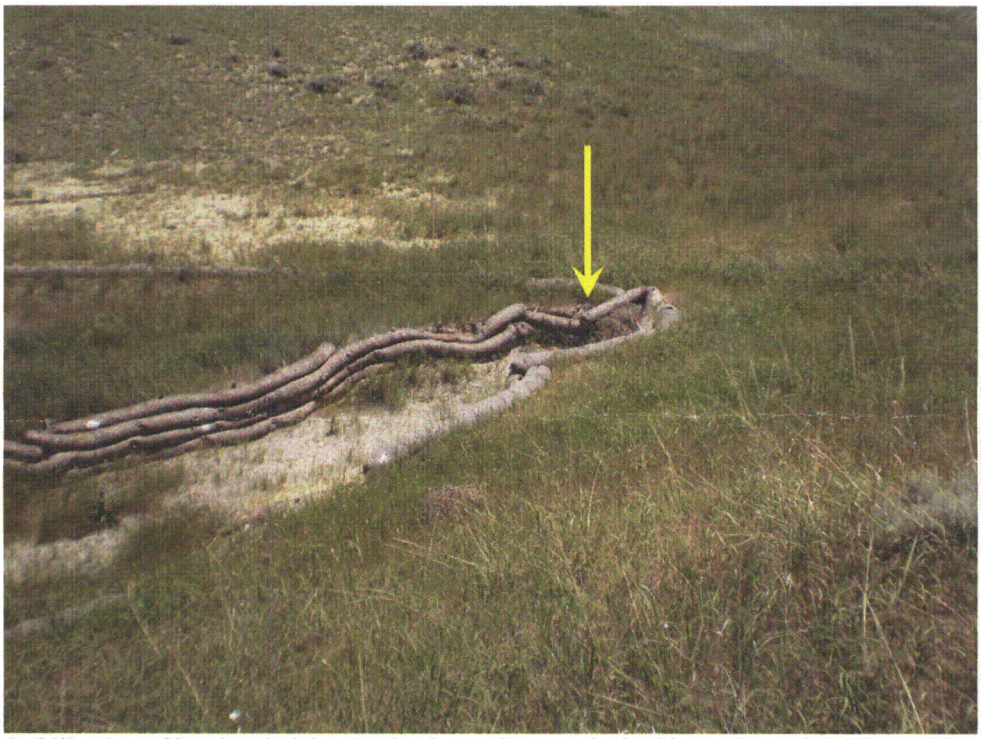


Photo #3: Stabilization of headcut knickpoint, banks, and stream bed with wattles. The stabilization is generally successful, but monitoring of the knickpoint stabilization is warranted due to movement of wattles at the knickpoint.

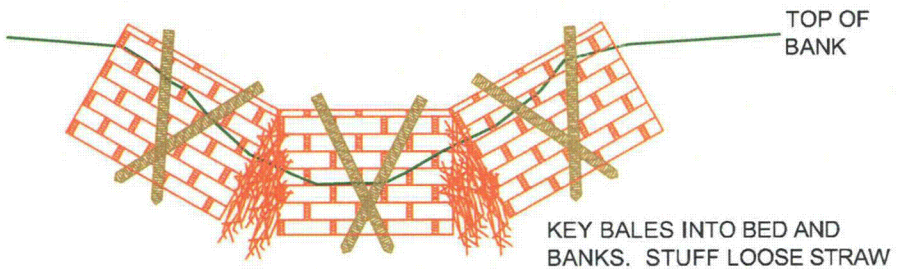
Photo #4: Degraded hay bale check dam in Mine Unit H spill reclamation. Structure can be removed due to the stability and vegetative success of the watershed upstream.

Photo #5: Upstream view (from the fenceline) of the Mine Unit H spill reclamation watershed in the vicinity of Header Houses #11 and #12. Watershed is stable and well vegetated.

Photo #6: Downstream view (from the fenceline) of the Mine Unit H spill reclamation watershed in the vicinity of Header Houses #11 and #12. Watershed is stable and well vegetated.

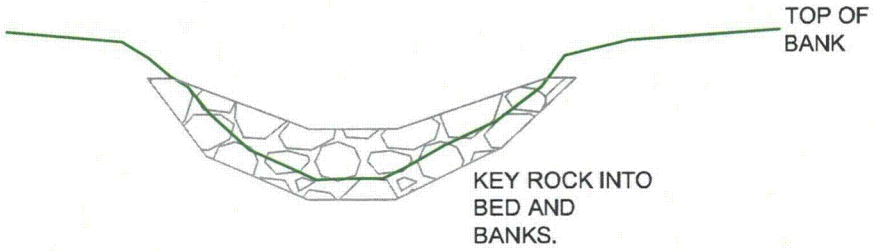
FIGURE 1: CHECK DAM INSTALLATION EXAMPLES

STRAW BALES



CROSS-SECTION VIEW

ROCK



CROSS-SECTION VIEW