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

February 21, 2013

Mr. Kenneth Garoutte
Cameco Resources
PO Box 1210
Glenrock, WY 82637

Subject: October 2012 Inspection Report
Cameco Resources, Permits 603 & 633

Dear Mr. Garoutte:

The Land Quality Division (LQD) conducted the October 2012 inspection with assistance from you and your staff on October 17 and 18, 2012. Please find the inspection report enclosed.

As a result of the inspection, four items will require follow-up by the operator. Please see the Compliance and Assessment section of the report. LQD was pleased with the progress and effort toward mitigation of legacy and ongoing compliance issues. This effort is greatly appreciated.

If you have any questions, please do not hesitate to contact me at pam.rothwell@wyo.gov or 777-7048.

Sincerely,

Pam Rothwell

Pam Rothwell
District 1 Assistant Supervisor
Land Quality Division

Enclosure

cc: Cameco Resources, Cheyenne, WY w/att
Doug Mandeville, NRC w/att

JKS

OCTOBER 2012 INSPECTION REPORT

PERMITS 603 & 633

COMPANY:	Cameco Resources (CR)
LOCATION:	North of Glenrock, Converse County (Smith-Highland Ranch Uranium Project)
DATE OF INSPECTION:	October 17 & 18, 2012
DATE OF REPORT:	January 25, 2012
INSPECTORS:	Pam Rothwell, Permit Coordinator Steve Ingle, LQD Hydrologist
CO. STAFF PRESENT:	Ken Garoutte, CR SHEQ Manager Dave Moody, CR Operations Manager

INTRODUCTION

Focus of Inspection

- Review well completion records and conduct a field inspection of the completed wells in MU-1 (approved under separate report).
- Observe status of mine activities

INSPECTION

Wellfield Release at Well 9I-209

The release that occurred on October 16, 2012 at injection well 9I-209 was observed during the inspection. The affected area of the spill was not delineated on the ground surface with flagging or markers. The affected area was speculated by CR during the inspection. The spill included approximately 50 gallons of injection fluid. The release was thought to have traveled along a two track, and then diverted downslope into a dry draw. Straw waddles or other protection was not identified to restrict flow from the spill. It is believed that the fluid was rapidly absorbed into the native soils negating the need to provide protective barriers. The actual affected area of the dry draw could not be determined during the inspection (**Figure 1**).

East Impoundment

The ongoing investigation of the East Impoundment, believed to have subsurface leaks, was inspected. CR was in the process of moving the perimeter fence to make room for equipment to install a new liner and to install waste disposal tanks (**Figure 2**) for pre-disposal filtering of

waste water discharged to the impoundment. The plan is to use 60 mil, High Density Polyethylene (HDPE), which is an upgraded heavier material, to line the pond. It will be placed on top of the old liner (XR-5 30 mil). The previous liner was replaced in 2005. Currently, the pond construction consists of a low permeability clay liner as the base material. A fine sand layer lies on top of the clay. The sand is overlain with the XR-5 30 mil poly liner. An accumulation of contaminated sediment has built up on top of the poly liner. CR intends to remove the sediment and dispose into the new imported waste tank. The tank will store 11e(2) by-product waste requiring disposal at an accepting facility in Utah. Following removal of the contaminated sediment, CR will place the new liner on top of the old liner.

Due to leakage through the old poly liner, contaminated waste water has been detected in the sand layer as detected by a monitor well which monitors the sand layer. CR does not plan to replace the sand layer during the repairs to the liner.

In addition, the investigation plan (as reviewed by LQD under TFN 5 6/331) includes installation of additional monitor wells and trenches to further investigate a potential for a deeper leakage resulting in a contaminated groundwater plume. CR intends to contact the contractor (Telesto) to begin the installation of the new wells and trenches immediately.

CR's plans were to begin the liner replacement as soon as possible beginning with the west cell. Simultaneous with this construction, the consultant will install the new wells and trenches for the deep leakage investigation. Following completion of the west cell, the liner will be replaced in the east cell.

Mine Unit 9 Reclamation

The sandy soil condition of the southwest permit area has resulted in disturbance that is difficult to reclaim. Reclamation crews were actively installing straw waddles along a channel that has been disturbed by well installation operations **(Figures 3&4)**. CR emphasized that this was a second attempt to stabilize and revegetate the drainage disturbance. It was noted that earthen dams are installed across drainages to contain surface runoff. It appears these impoundment features are utilized to protect the wells located downstream of the dams **(Figure 5&6)**.

Casing Leak Investigation (CLI)

A brief inspection stop was made where Telesto (consultant) was sampling wells installed for the CLI. The CLI wells are distinguished by black well covers **(Figure 7)**. The 3rd Quarter Report will include hydrostatic characteristics. CR has questions regarding restoration requirements for the contaminated aquifers. These will be addressed during a later meeting with LQD.

Purge Storage Reservoir (PSR) No. 2

An ongoing investigation to evaluate a potential leak from the pond into the groundwater has been initiated by CR. New investigation wells were reviewed and approved by LQD. Eight (8) wells are proposed on south, west and east sides of the pond. The eastern-most well location was verified during the inspection.

FM-009 Excursion

A new monitor well **(Figure 8)** was installed approximately 15 feet from well FM-009 in effort to draw excursion fluid back into the wellfield (as detected at FM-009). Production well FP-170 was re-piped into header house F-11 **(Figure 9)**. Currently, no effect due to pumping of FP-170 has been identified at the either monitor well and well FM-009 remains on excursion.

Bellhole No. 41 Release

A production fluid release was reported from Bellhole No. 41 on March 10, 2012 adjacent to Mine Unit H. The cause was identified as failure of a steel tee in the bellhole. CR showed the replaced steel joints of the bellhole to the inspector using High Density Polyethylene (HDPE) pipe **(Figure 10)**. CR is replacing the steel tees at bellholes in Mine Units H, F, and E to reduce the likelihood of a failure in additional bellholes.

Highland Plant Renovation (HPR)

A tour of the perimeter of the HPR saw no activity during the inspection. Recent work activity has been managed by an independent contractor (Russell Construction). The work was discontinued until approval of an Air Quality Permit was obtained. CR plans to have the renovation complete for operations mid-year 2013.

COMPLIANCE and ASSESSMENT

1 According to W.S. § 35-11-415(b)(viii), the operator is required to, *Prevent, throughout the mining and reclamation operation, and for a period of five (5) years after the operation has been terminated, pollution of surface and subsurface waters on the land affected by the institution of plantings and revegetation, the construction of drainage systems and treatment facilities including settling ponds and the casing, sealing of boreholes, shafts, and wells so that no pollution is allowed to drain untreated into surface or subsurface, water in accordance with the state or federal water quality standards, whichever are higher, as may be required in the approved reclamation plan.*

To allow opportunity for inspection verification of potential pollution to surface waters of the State, **it is requested that all wellfield releases or other spills of radiologic or non-radiologic fluids/materials that enter surface waters of the State, be delineated with obvious markings for the inspectors to observe when on-site.** These markings must be maintained until the State inspector has had opportunity to observe the spill area unless otherwise instructed by LQD. Please delineate with pin flags or other adequate surface delineation methods, the spill area for all releases that potentially affect waters of the State.

2 The addition of storage tanks for the byproduct waste at the East Impoundment facility will need to be added to the surety, if it not already included in the surety. **Please add this cost to the 2012-2013 surety estimate.**

3 During the inspection, it was agreed that to satisfy the outstanding comments under TFN 5 5/331 regarding the construction and design of the replacement liner for the East Impoundment, an as-built design would be submitted following the installation. **Please submit the as-built designs for LQD concurrence prior to using the repaired pond.**

4 CR has constructed earthen dams across channels as flood control and/or erosion control structures to protect wells in the mine units and to enhance surface reclamation success following installation of a wellfield. The inspector has noted these structures during wellfield inspections of several mine units. LQD Guideline 4, Reference Document 5 provides minimal discussion of these structures as it has not been intuitively obvious that these structures are routinely used at ISL mine sites. LQD Guideline 13, Section V provides more detailed discussion for *Pit Protection or Flood Control Structures* including *designs should be directly incorporated into the permit.*

In addition, Chapter 11, Section 4(a)(iv) requires *…description of and design plan for all impoundments…*

It is anticipated that CR may have numerous flood control dams on the Smith Ranch/Highland facilities that are not included in the permit. The recent Letter of Conference and Conciliation addressing the well completions in Mine Unit 10 requires CR *to provide designs and descriptions for all surface impoundments (i.e., dams) for all storm water control structures on the mine site. A similar comment is included in the Permit Combination/Amendment (comment No. 167). For review efficiency LQD will require that the Permit Combination/Amendment, Comment No. 167, address all surface impoundments including those constructed for storm water protection to the wellfields.*

This compliance requirement is therefore, deferred to the Permit Combination/Amendment (TFN 5 6/100).

5 The two day inspection for Well Completions in MU-1 and the inspection of various mine activities across the adjoining permits demonstrated that CR is making considerable effort to address compliance concerns including:

- Reclamations crews addressing erosion control;
- Active monitoring of CLI wells was ongoing;
- Activity in the East Impoundment area was ongoing to remediate leaks in the pond;
- Replacement of bell hole joints/piping to avoid potential spills was noted;
- Mitigation efforts for an excursion in MU-F was noted;
- New monitor wells installed at PSR-2;
- Staffing resources are near or at full capacity with excellent communication between staff and departments;
- The staff was courteous and willing to discuss issues and answer questions from the regulators.

PHOTOS

Figure 1 Flow path of wellfield release from Well 9I-209; not delineated.

Figure 2 View of tanks imported for disposal of clean-out sediment (11e(2) byproduct) from the East Impoundment.

Figure 3 View of drainage protection installation in MU-9.

Figure 4 View of hydro seeded areas of the drainage in Figure 3.

Figure 5 View of earthen dam across drainage in Figure 4.

Figure 6 View of earthen dam across drainage.

Figure 7 View of Telesto consultants sampling CLI well.

Figure 8 View of new monitor well, installed to control excursion at FM-009.

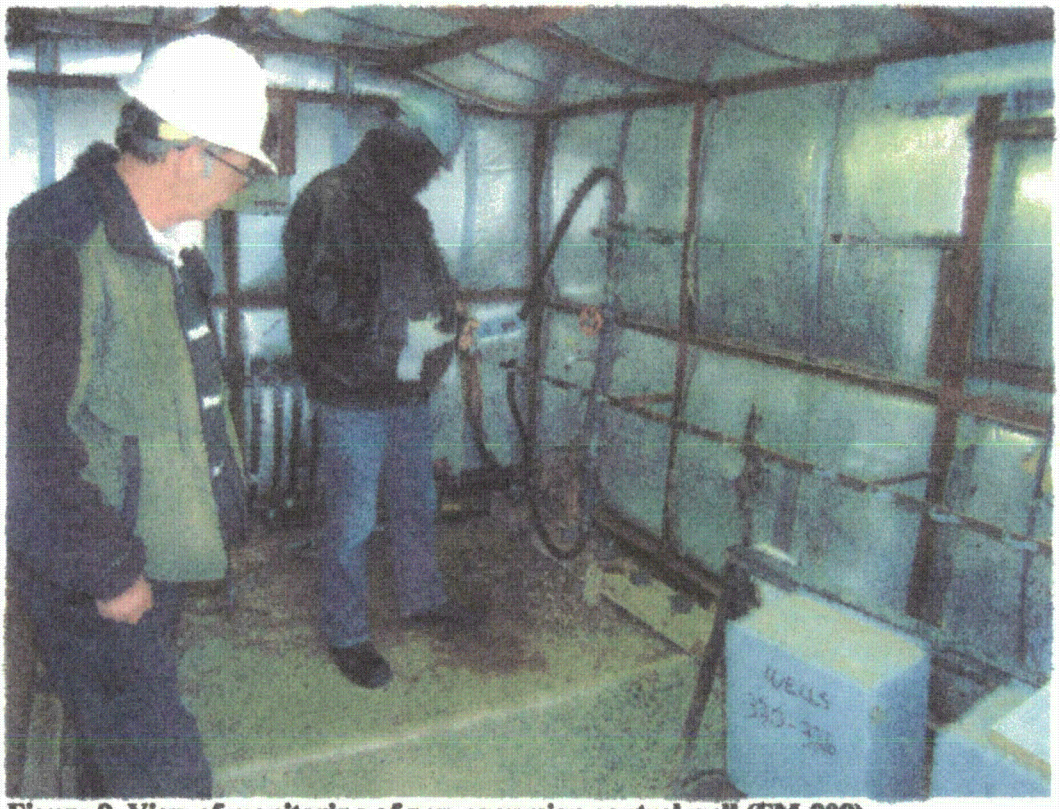

Figure 9 View of monitoring of new excursion control well (FM-009).

Figure 10 Replaced pipe with HDPE in Bellhole 41.