



April 22, 2015

HAND DELIVERED

Mr. Mark Rogaczewski, District 3 Supervisor  
Land Quality Division  
Wyoming Department of Environmental Quality  
2100 West 5<sup>th</sup> Street  
Sheridan, WY 82801

**CAMECO RESOURCES**  
Smith Ranch-Highland  
Operation  
Mail:  
P.O. Box 1210  
Glenrock, WY  
82637 USA

Tel: (307) 358-6541  
Fax: (307) 358-4533  
[www.cameco.com](http://www.cameco.com)

**Administrative Order on Consent (AOC), Docket No. 3211-00, TFN 3 2/290**  
**2014 Annual Report – Injection Well Casing Leak Investigation**  
**Cameco Resources, Smith Ranch-Highland Uranium Project, Permit 633, SUA-1548**

Dear Mr. Rogaczewski:

Power Resources, Inc., d/b/a Cameco Resources (Cameco) is herein submitting the 2014 Annual Report for the Injection Well Casing Leak Investigation. This report contains a summary of the investigative and mitigative activities associated with injection well casing leaks in the C, E, and F-Wellfields at the Smith Ranch-Highland Uranium Project.

Based on communications with the Land Quality Division (LQD), it is understood that Cameco is to cease submittal of the Quarterly Progress Reports, and house the data associated with these reports at the mine site. The LQD may inspect this information at any time. Going forward, Cameco is expected to submit for review Annual Reports associated with the Casing Leak Investigation, which will include quarterly data.

At the request of the Land Quality Division (LQD), Cameco is currently in the process of preparing a much more detailed presentation of the potential environmental impacts associated with injection well casing leaks in the wellfields covered under the AOC. This presentation will be provided to the LQD during the early portion of the 2<sup>nd</sup> Quarter of 2015.

Please contact me at 307-358-6541, ext. 476 or [Kenneth.Garoutte@cameco.com](mailto:Kenneth.Garoutte@cameco.com) if you have questions.

Respectfully,

A handwritten signature in black ink, appearing to read 'Ken Garoutte', written over a horizontal line.

Ken Garoutte  
Safety, Health, Environment, Quality (SHEQ) Manager

KG/mb

Attachments: 2014 Annual Report – Injection Well Casing Leak Investigation  
Tables 1 through 8  
Plates 1 through 5

cc: File SR 4.3.3.1  
Doug Mandeville, NRC, Certified Mail # 7012 3460 0000 8585 0494  
Document Control Desk, NRC, Certified Mail # 7012 3460 0000 8585 0500

ec: Cameco-Casper

xc: Cheyenne LQD Files

**POWER RESOURCES, INC. D/B/A/ CAMECO RESOURCES  
HIGHLAND URANIUM PROJECT  
INJECTION WELL CASING LEAK INVESTIGATION**

**ANNUAL PROGRESS REPORT – 1<sup>st</sup> thru 4<sup>th</sup> QUARTERS, 2014**

1. INTRODUCTION

In accordance with Item No. 2 of the Administrative Order on Consent (AOC), Docket No. 3211-00, Power Resources, Inc. d/b/a/ Cameco Resources (Cameco) is providing the status of injection well casing leak investigative and mitigative activities in the C, E and F-Wellfields for the annual report period of 2014.

1.1 List of Suspect and/or Failed Wells

The status of failed and/or suspect wells in the C, E and F-Wellfields are provided in Tables 1 through 3, respectively. During the annual report period, ten (10) new wells were added to the list and are denoted in Tables 1 through 3 with a “>” symbol. In the C-Wellfield (Table 1), seven (7) wells were added to the MIT well failure inventory. In the E-Wellfield (Table 2), no new wells were added to the MIT well failure inventory. In the F-Wellfield (Table 3), three (3) wells were added to the MIT well inventory. Below is a listing of failed wells during the report period for each wellfield.

1<sup>st</sup> Quarter:

- C-Wellfield:
  - CI-148
- F-Wellfield:
  - FI-0433

2<sup>nd</sup> Quarter:

- F-Wellfield:
  - FI-0056

3<sup>rd</sup> Quarter:

- C-Wellfield:
  - CI-203

4<sup>th</sup> Quarter:

- C-Wellfield:
  - CI-179A, CI-189A, CI-195, CI-198, CI-207
- F-Wellfield:
  - FI-0477

The status of the ten (10) wells added to list of suspect and/or failed wells during 2014 are as follows. In the C-Wellfield (Table 1), all failed wells with the exception of CI-179A were plugged and abandoned. Well CI-179A failed during the 4<sup>th</sup> Quarter of 2014, and will be plugged and abandoned during the 1<sup>st</sup> Quarter of 2015, if not adequately repaired. In the F-Wellfield (Table 3), all failed wells with the exception of FI-0477 were plugged and abandoned. Well FI-0477 also failed during the 4<sup>th</sup> Quarter of 2014, and

will be plugged and abandoned during the 1<sup>st</sup> Quarter of 2015, if not adequately repaired. All wells that are plugged and abandoned are done so in accordance with the requirements of Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD) Noncoal Rules and Regulations, Chapter 11, Section 8(c).

Any additional wells in the C, E, and F-Wellfields that fail MIT in the future will be added to the tabulated lists in Tables 1 through 3, and either be 1) repaired and re-tested for mechanical integrity, or 2) plugged and abandoned in accordance with the requirements of Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD) Noncoal Rules and Regulations, Chapter 11, Section 8(c).

## 1.2 Maps Showing Locations of Monitor Wells Relative to Failed/Suspect Wells and Newly Failed Wells Added to the MIT Failure Database During 2013

In accordance with Cameco's proposed revisions to the AOC dated February 21, 2002 and LQD's approval dated March 11, 2002, revised maps for MIT cumulative well failures in the C, E and F-Wellfields are submitted annually along with the Annual Report, unless no well failures occurred during the reporting period. Plate 1 included with this submittal shows the location of the C, E, and F-Wellfields. Plates 2 through 4 are maps showing the locations of all failed/suspect wells in the C, E, and F Wellfields, and when applicable and verifiable, the intervals at which the MIT failure occurred. Additionally, the included Plates also display the shallow monitoring wells and the sand interval in which the wells are completed. Plates 2-4 show all well failures for each wellfield, including the ten (10) additional well failures that occurred during the 2014 Report Period. Plate 5 displays only the 2014 well failures that occurred in the C, E, and F-Wellfields.

## 2. MINE UNIT INVESTIGATIVE AND MITIGATIVE ACTIVITIES

### 2.1 Recent Activities

#### *Recent Shallow Monitoring Well Installation:*

During the 2014 Annual Report period, Cameco did not install any additional shallow monitoring wells related to the CLI.

#### *Recent Shallow Monitoring Well Sampling:*

The list on Table 4 represents all the shallow groundwater monitoring well in the C, E and F-Wellfields. A total of 142 shallow monitoring wells that are screened in various sand horizons are available for sampling, if water is present. The screened intervals for the shallow monitoring wells are based upon the density of nearby MIT well failures and the presence of sand at the isolated MIT failure interval, for those wells that have been isolated.

During the 2014 Annual Report period, a total of 133 samples were obtained from a total of 52 monitoring wells. During the 1<sup>st</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> Quarters, an approved shortened list of parameters were analyzed. During the 2<sup>nd</sup> Quarter an extended list of parameters were analyzed for monitoring well water samples. The water quality results obtained from laboratory analysis are tabulated in Tables 5 through 8.

At the end of 2014, a total of 126 of the 142 monitoring wells have been sampled at a minimum of ten (10) times, with the exception of background monitoring wells which have had at least seven (7) samples obtained from each well. All monitoring wells that have been sampled at least 10 times are considered to be adequately characterized at this time, and no further sampling will occur until further action is deemed necessary. In addition, the background water quality monitoring wells are also considered to be adequately characterized, and no further sampling will occur at this time. All wells will remain in place and maintained so that future sampling may take place, if needed. During the 1<sup>st</sup> Quarter of 2015, a total of 16 monitoring wells will be sampled for water quality analysis, as these wells have less than a total of 10 sample results.

## 2.2 Planned Activities

### *Planned Groundwater Quality Sampling*

In continued consultation with the LQD, Cameco will continue to perform water sampling from shallow monitoring wells that require further characterization during the 1<sup>st</sup> Quarter of 2015. As water from sampled monitoring wells is obtained for analysis and adequately characterized to the point that at least 10 water quality samples are obtained from each well, monitoring wells will be discontinued from sampling. In consultation with the LQD, an Annual Report for 2015 will be submitted for review. All information obtained on a Quarterly basis will be housed at the Smith Ranch-Highland facility, and will always be available for LQD review.

### *Geologic and Hydrologic Characterization*

Cameco personnel are currently in the process of preparing a presentation related to the CLI for the LQD, which will occur during the beginning of the 2<sup>nd</sup> Quarter of 2015. This presentation will demonstrate the current status of the CLI findings to date, and will focus on the degree and magnitude of any impacts. It is hoped that a pathway to closure of the AOC or to Corrective Action will be determined following the status update presentation given to the LQD during the 2<sup>nd</sup> Quarter of 2015.