

**CAMECO RESOURCES
CROW BUTTE OPERATION**



**86 Crow Butte Road
P.O. Box 169
Crawford, Nebraska 69339-0169**

**(308) 665-2215
(308) 665-2341 – FAX**

June 10, 2019

**USPS PRIORITY MAIL
SIGNATURE CONFIRMATION**

Marty Link, Water Quality Division Administrator
Nebraska Department of Environmental Quality
P.O. Box 98922
Lincoln, NE 68509-8922

Class I UIC Permit NE0211670
Deep Disposal Well #1 (DDW #1) Well Workover

Dear Ms. Link:

In accordance with Part II, F (1) of Class I UIC Permit NE0211670, Cameco Resources, Crow Butte Operation (CBO) is submitting for approval, a well workover procedure to be performed on DDW #1. On February 19, 2019, CBO reported a reportable annulus pressure loss in DDW #1. CBO believed this pressure loss to be the result of a leak in the injection string, and not an issue with the well casing. Replacement injection string was ordered, and NDEQ agreed to allow continued injection until the well could be repaired. On February 26, the pressure loss declined to a rate that was below the reportable threshold. At this time, NDEQ allowed CBO to continue injection until the normally scheduled annual fall off test and the biannual mechanical integrity test (MIT).

On May 8, DDW #1 failed the MIT. This was not unexpected, as the MIT tests both the integrity of the casing and the injection string and packer by pressuring up the annulus and monitoring for pressure loss. CBO was later able to pressure test the well casing, which passed the pressure test, isolating the annulus pressure loss issue to the injection string or the packer. These results also indicate that no injection fluids were released to the environment.

Following the original annulus pressure loss, CBO ordered materials to replace the injection string, so this tubing was onsite. CBO communicated to NDEQ via email its intention to replace the injection string and then MIT the well. However, installation of the injection string was unsuccessful because CBO was unable to get the packer lowered past the casing repair that was installed last year.

CBO decided that a different packer should be installed, and that the edges of the repair patch installed last year should be beveled to make installation of the injection string and packer easier. On June 5, the edges of the patch were beveled, and the well casing was successfully pressure tested at a pressure of 870 psig for one hour following this procedure.

CROW BUTTE RESOURCES, INC.



CBO plans to work the well over by installing the new injection tubing and a new packer with a slightly smaller diameter that will simplify installation. The packer CBO plans to install is actually the same model of packer that was installed in the well for its entire life, prior to the installation of a new style last year. The packer that was installed last year has an outside diameter of 5.57", while the inside diameter of the patch installed last year is 5.58". The packer that CBO is returning to has an outside diameter of 5.18". Additionally, this packer seals in place with both tension and compression force, which will prevent slippage of the packer in the event that the tubing string moves slightly due to temperature changes. Also, this style of packer has the benefit of using three "rubbers" as the sealing mechanism, increasing the sealing surface of the packer. Following successful installation of the new injection tubing and packer, the well will be MIT tested before initiating injection with NDEQ approval.

If you have any questions regarding this submittal, please feel free to contact me at (308) 665-2215, ext. 117.

Sincerely,
Cameco Resources
Crow Butte Operation

A handwritten signature in black ink, appearing to read "Walt Nelson". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Walt Nelson
SHEQ Coordinator

cc: Ron Burrows - NRC
CBO - File
ec: CR - Electronic File
Dave Miesbach - NDEQ Groundwater Unit Supervisor
Kory Winters - NDEQ Field Office
Amanda Jones - NDEQ Program Coordinator