

**CAMECO RESOURCES
CROW BUTTE OPERATION**



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

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

October 23, 2017

**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, Crow Butte submitted for approval, a well workover procedure to be performed on the DDW #1. The workover was approved by the department by letters dated September 27, 2017.

On September 17, 2017 at 6:00 p.m. the well was operating at an annulus pressure of 474 psi and a seal pot reading of 23.5". On September 18, 2017 at 1:00 p.m. the annulus pressure had decreased to 319 psi and the seal pot had declined to 14.5". As a result of these decreases the well was shut in and the NDEQ and NRC notified.

Crow Butte replaced the uncoated injection tubing with coated injection tubing during the week of September 25, 2017. The work was supervised by Petrotek (consultant) and completed by Key Energy Services (vendor).

Following the replacement of the injection tubing CBO did an acid treatment on the well through the following procedure:

Treatment Procedure

1. Conducted a safety meeting and JSA Review; rigged up QES on the well and pressure tested the lines.
2. Treated the well with approximately 3,000 gallons of 15% hydrochloric acid with additives.



3. The stimulation fluids were pumped into the well using vendor equipment.
4. The acid contained 4 gal/1,000 gallons corrosion inhibitor, 10 gal/1,000 gallons Fe control and 2 gal/1,000 gallons non emulsifier.
5. The acid treatment was followed by approximately 1,000 gallons of flush water fortified with clay stabilizer for clay control and biocide.
6. Upon completion of the acid treatment and subsequent flush, the well was shut-in for approximately 2 hours to allow the acid to work at the well/formation interface.
7. After the shut-in, normal injection flow was re-established in order to push the acid and any solubilized material away from the wellbore face before it had an opportunity to re-precipitate. The injection pressure transducer was isolated from the acid to eliminate the potential for any instrument damage. This caused continuous monitoring to be off-line for a short period while the acid was being added. This procedure was similar to that which was used to successfully treat the well in 2014.

The treatment was supervised by Petrotek (consultant) and was completed on September 29, 2017 using QES (vendor). The treatment was conducted after successful MIT following the workover operations.

Enclosed is the technical report detailing the workover that was performed on this well. If you have any questions regarding this submittal, please feel free to contact me at (308) 665-2215, ext. 114.

Sincerely,
Cameco Resources
Crow Butte Operation

Larry Teahon
SHEQ Manager

Enclosure

cc: Ron Burrows – NRC w/o Enclosure
CBO - File
ec: CR – Electronic File
Kory Winters – NDEQ Field Office
Amanda Jones – NDEQ Program Coordinator