

FACT SHEET

For a renewal of the Underground Injection Control Permit Number NE0210457 to be re-issued under a new permit (NE0211670) to inject wastewater into the subsurface. The re-issuance of this permit does not involve discharges to the land surface or surface waters of the State of Nebraska.

Issuing Office: Nebraska Department of Environmental Quality (NDEQ)
Suite 400, The Atrium
1200 N Street, P.O. Box 98922
Lincoln, Nebraska 68509-8922

Applicant: Crow Butte Resources, Inc. (CBR)
P.O. Box 169
Crawford, Nebraska 69339-0169

1. CBR operates a commercial in-situ uranium mine (SIC number 1094). The specific operations involve extracting uranium using the in-situ mining process at the Crow Butte Uranium Facility owned by CBR.
2. The Crow Butte Uranium Facility is located near Crawford in Dawes County, Nebraska. CBR currently utilizes complete retention, lined evaporation ponds and two Underground Injection Control Class 1 non-hazardous injection wells for discharges of process wastewater. There is no discharge to surface waters of the State of Nebraska. Land application of treated wastewater may be conducted under a separate permit within the authority of the National Pollution Discharge Elimination System (NPDES) program.
3. The following is a table containing the composition of the injection stream, as reported by the applicant. The average values are calculated from monthly reports from September 2011 through August 2013.

| Parameter | Units | Average | Range | Permit Limit |
|--|------------|---------|------------|--------------|
| Injection Pressure | psig | 11.5 | -10.9-82.0 | 650 |
| Alkalinity | mg/l | 1749 | 1400-2300 | 4,100 |
| Arsenic | mg/l | <0.1 | <0.1 | 5 |
| Barium | mg/l | <0.1 | <0.1 | 100 |
| Cadmium | mg/l | <0.1 | <0.1 | 1 |
| Chloride | mg/l | 2692 | 567-8243 | 40,000 |
| Chromium | mg/l | <0.5 | <0.5 | 5 |
| Lead | mg/l | <0.5 | <0.5 | 5 |
| Mercury | mg/l | <0.0001 | <0.0001 | 0.2 |
| pH | Std. Units | 8.18 | 7.83-8.51 | 5.0 – 9.5 |
| Radium 226 | pCi/l | 947 | 469-1520 | 5,000 |
| Selenium | mg/l | <0.1 | <0.1 | 1 |
| Silver | mg/l | <0.5 | <0.5 | 5 |
| Sodium | mg/l | 2785 | 1334-6506 | 40,000 |
| Sulfate | mg/l | 1393 | 933-1930 | 10,000 |
| Uranium (U ₃ O ₈) | mg/l | 4.7 | 2-9 | 25 |
| Vanadium | mg/l | 6.5 | 1-8.9 | 50 |

The proposed permit re-issuance includes injection limitations and specific monitoring requirements for the parameters listed above, and other parameters associated with the injection procedure and in-situ mining process, including the restoration process.

4. The proposed increase of the effluent parameter will not adversely affect the formation or injection fluids, nor will it compromise the non-hazardous status of the well.
5. The following is a brief explanation of the statutory and regulatory provisions on which permit requirements and operational limitations are based. Included are appropriate supporting references used during the permit formulation process.
 - a. Re-application for Class I injection well, received January 13, 2014.
 - b. Letter from Dave Miesbach (NDEQ) requesting additional information on Re-application for Class I injection well, dated March 21, 2014.
 - c. Letter from Larry Teahon (CBR) containing revisions to requested tables, dated March 28, 2014. Letter sent by email with hard copy to follow.
6. The following is an explanation of the calculations and derivations of the specific Operational Parameters and Limitations set forth in the draft permit, and the reasons why they are applicable to the injection proposal:
 - a. Reason for the Permit

The draft permit has been prepared in accordance with specific regulations contained within Nebraska Title 122 – Rules and Regulations for Underground Injection and Mineral Production Wells. The applicant has requested that this permit be renewed, dated January 13, 2014.
 - b. Water Quality Considerations

The proposed injection activity will, by definition, emplace process wastewater into subsurface aquifers, which are not considered to be Underground Sources of Drinking Water (USDW) under State and Federal regulations. Drinking Water Quality effluent limitations, therefore, do not apply to the proposed discharge.
 - c. Draft Permit Effluent Limitations and Considerations

The draft permit establishes Operational Parameters and Limitations for process wastewater discharged to the injection well system. The injection well will receive wastewater from the extraction/elution process, the Reverse Osmosis process, well development wastewater, and re-processed evaporation pond water. Treatment processes include uranium removal by Ion Exchange, pH adjustment, filtering, neutralization through addition of reductant, and reverse osmosis. The draft permit utilizes effluent parameters and limitations to characterize the waste discharged to the injection well. All limitations are based on the knowledge of the treatment process, and the injection history of the well.
 - d. Draft Permit Injection Pressure, Injection Volume, Injection Rate, and Minimum Allowable Operating Annulus Pressure

The draft permit requires continuous recording devices or gauges to be utilized to measure injection pressure, volume and rates, as well as the

Minimum Allowable Operating Annulus Pressure of the injection well system. These operational limitations are based on the knowledge of the construction well, and the past history of the operation and maintenance of the injection system.

7. Variances

The applicant has not requested any variance or alternatives to any required standards or operational parameters.

8. Written Comments

A copy of this fact sheet and all documentation pertaining to the permit re-issuance will be available for review and copying at the Department's office, Suite 400, The Atrium, 1200 N Street, Lincoln, Nebraska 68509-8922 and the Nebraska Department of Environmental Quality, 430 East Second Street, in Chadron between 8:00 am and 5:00 pm weekdays. This information is also available on the Department's website (deq.ne.gov) under public notice.

The public may comment upon or object to the proposed permit re-issuance, in writing, prior to May 15, 2014. All substantive comments and/or objections shall be considered prior to making the final decision regarding this permit re-issuance. Any interested person may request a public hearing, if no hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised at the hearing.

All comments and requests for information should be sent to Nancy Harris, Nebraska Department of Environmental Quality, P.O. Box 98922, Lincoln, Nebraska 68509-8922, (402) 471-4290.

Individuals requiring special accommodations or alternate formats of materials should notify the Department by calling (402) 471-2186. TDD users should call (800) 833-7352 and ask the relay operator to call the Department at (402) 471-2186.