

## FACT SHEET

For proposed issuance of a permit for Underground Injection Control (Permit number NE0210740). This proposed 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. CBR has submitted an application for a Class III underground injection permit for a satellite facility, the North Trend Expansion Area (NTEA).
2. North Trend is located north of Crawford in Dawes County, Nebraska. The permit area covers an aerial extent of approximately 1,165 acres consisting of contiguous well patterns within the permit boundary. The production zone is the basal member of the Chadron Formation. The top of this unit of the Chadron Formation ranges from an approximate depth of 350 feet below ground surface at the northern and southern permit boundary to 700 feet below ground surface in the center of the permit boundary. Elevations range from approximately 3,750 feet to 3,630 feet above mean sea level. Excess water withdrawal (lixiviant bleed) will provide control of leachate movement. Monitoring wells will provide horizontal and vertical surveillance of groundwater quality thereby demonstrating confinement. The mining will consist of injection of a sodium carbonate/bicarbonate solution along with an oxidant (oxygen or peroxide) to the uranium-bearing formation through a pattern of injection wells. The uranium will be solubilized by the lixiviant and this solution will be pumped from the recovery wells to the satellite plant where the uranium is to be extracted by ion exchange. The lixiviant at the satellite facility will then be reconstituted with leaching agents and recycled to the well field for reinjection. Ion exchange will be used in the satellite facility, and the loaded resin from the ion exchange process will be transported to the main processing plant south of Crawford for extracting, drying and packaging of the uranium.
3. On the basis of preliminary staff review, the NDEQ has made a preliminary determination to issue the Class III permit for the NTEA.
4. The following is a brief explanation of the statutory and regulatory provisions on which the decision for permit issuance is based. Included are appropriate supporting references used during the application review process.
  - a. NTEA Class III Permit Application, submitted by CBR, received by NDEQ August 19, 2008.

- b. Letter from Jennifer Abrahamson (NDEQ) to Stan Belieu (Nebraska Oil and Gas Conservation Commission) dated August 21, 2008, forwarding a copy of the NTEA Class III Permit Application.
- c. Letter from Jennifer Abrahamson (NDEQ) to Marv Carlson (UNL-Conservation & Survey Division) dated August 21, 2008, forwarding a copy of the NTEA Class III Permit Application.
- d. Letter from Jennifer Abrahamson (NDEQ) to Pat Costello (U.S. EPA Region 7) dated August 21, 2008, forwarding a copy of the NTEA Class III Permit Application.
- e. Letter from Jennifer Abrahamson (NDEQ) to Steve Cohen (U.S. Nuclear Regulatory Commission) dated September 5, 2008, forwarding a copy of the NTEA Class III Permit application.
- f. Letter from Jim Stokey (CBR) to Michael Linder (NDEQ) received by NDEQ September 11, 2008, requesting withholding of cultural information pursuant to Nebraska Public Records Statute Section 84-712.02(13) and the National Historic Preservation Act, Section 304(16 U.S.C. 470w-3(a)).
- g. Letter from Ane McBride (NDEQ) to Jim Stokey (CBR) dated September 16, 2008, regarding the placement of some information from a cultural resources survey being placed into public files.
- h. Letter from Jim Stokey (CBR) to Michael Linder (NDEQ) received by NDEQ on September 18, 2008, providing three corrected maps.
- i. Letter from Jennifer Abrahamson (NDEQ) to Steve Collings (CBR) dated November 21, 2008, regarding the name of the entity and the owner's signature on the application.
- j. Letter from Jennifer Abrahamson (NDEQ) to Steve Collings (CBR) dated January 5, 2009, requesting additional information.
- k. Letter from Larry Teahon (CBR) to Jennifer Abrahamson (NDEQ) received by NDEQ on January 20, 2009, providing a revised application form.
- l. Letter from Jennifer Abrahamson (NDEQ) to Steve Collings (CBR) dated May 27, 2009, regarding expansion of the cultural resources survey.
- m. Letter from Steve Collings (CBR) to Jennifer Abrahamson (NDEQ) received by NDEQ on June 1, 2009, providing responses to NDEQ's first request for additional information.
- n. Letter from Jennifer Abrahamson (NDEQ) to Steve Collings (CBR) dated July 7, 2009, requesting additional information.
- o. Letter from Jennifer Abrahamson (NDEQ) to Michelle Koch (Nebraska Game & Parks Commission) dated July 28, 2009, requesting a review of potential threatened or endangered species within the proposed permit boundary.
- p. Letter from Steve Collings (CBR) to Jennifer Abrahamson (NDEQ) received by NDEQ on August 13, 2009, providing response to NDEQ's second request for additional information.
- q. Email from Lee Snowwhite (CBR) to Jennifer Abrahamson (NDEQ) dated August 17, 2009, providing a replacement page to the request for additional information response.
- r. Email from Michelle Koch (Nebraska Game & Parks Commission) to Jennifer Abrahamson (NDEQ) dated August 31, 2009, providing a review of potential threatened & endangered species near the NTEA site.
- s. Letter from Michelle Koch (Nebraska Game & Parks Commission) to Jennifer Abrahamson (NDEQ) received by NDEQ on September 2, 2009, providing a review of potential threatened & endangered species near the NTEA site.

- t. Emails between Jennifer Abrahamson (NDEQ) and Lee Snowwhite (CBR) dated September 18, 2009 through September 21, 2009, regarding a reduction in the proposed NTEA permit area.
- u. Emails between Jennifer Abrahamson (NDEQ) and Michelle Koch (Nebraska Game & Parks Commission) dated October 21, 2009 through November 16, 2009, regarding threatened and endangered species.
- v. Letter from Tom Young (CBR), to Jennifer Abrahamson (NDEQ) received by NDEQ on January 12, 2010, providing a revision to the Class III application regarding the proposed permit boundary
- w. Email from Jennifer Abrahamson (NDEQ) to Ron Burrows (U.S. Nuclear Regulatory Commission) and Stan Belieu (Nebraska Oil & Gas Conservation Commission) dated January 20, 2010, regarding revision reducing permit area.
- x. Letter from Jennifer Abrahamson (NDEQ) to Stan Belieu (Nebraska Oil & Gas Conservation Commission) dated January 20, 2010, forwarding a copy of the revised application.
- y. Letter from Jennifer Abrahamson (NDEQ) to Ron Burrows (U.S. Nuclear Regulatory Commission) dated January 20, 2010, forwarding a copy of the revised application.
- z. Letter from Jennifer Abrahamson (NDEQ) to Jim Stokey (CBR) dated February 24, 2010, requesting additional information and providing two copies of a draft permit for review.
- aa. Email from Jennifer Abrahamson (NDEQ) to Larry Teahon (CBR), dated April 22, 2010, providing a correction to the request for additional information.
- bb. Letter from Larry Teahon (CBR) to Jennifer Abrahamson (NDEQ) received by NDEQ on May 10, 2010, providing responses to request for additional information.
- cc. Letter from Tom Young (CBR) to Jennifer Abrahamson (NDEQ) received by NDEQ on June 28, 2010, providing correction to response.
- dd. Email from Jenny Coughlin (NDEQ) to Jim Stokey (CBR), Lee Snowwhite (CBR), and Larry Teahon (CBR), dated March 9, 2011, providing a draft permit for review.
- ee. Emails between Jenny Coughlin (NDEQ), Jim Stokey (CBR), Lee Snowwhite (CBR), and Larry Teahon (CBR), dated March 23, 2011, providing a draft permit for review.
- ff. Aquifer Exemption issued to CBR by NDEQ on April 7, 2011.
- gg. Emails between Jenny Coughlin (NDEQ) and Josh Leftwich (CBR) dated April 18, 2011, providing a draft permit for review.

5. Written Comments

A copy of this fact sheet and all documentation pertaining to the proposed permit decision 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. A copy of the Fact Sheet and the Public Notice will be available on the NDEQ webpage: <http://www.deq.state.ne.us>.

The public may comment upon or object to the proposed permit, in writing, prior to June 23, 2011. All substantive comments and/or objections shall be considered prior to making the final decision regarding this aquifer exemption. A public hearing regarding this permit has been scheduled to be held in Crawford, Nebraska beginning at 7:00 pm,

June 22, 2011 in the auditorium at the Crawford Public High School and continuing as necessary. The public hearing will be conducted in accordance with Chapter 5, Title 115 – Rules of Practice and Procedure.

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