

STATE OF NEBRASKA

DEPARTMENT OF NATURAL RESOURCES

AMENDED ORDER GRANTING PERMIT TO TRANSFER GROUND WATER FOR INDUSTRIAL USE

The Director of the Department of Natural Resources (Department) approves Application I-2A, submitted by Crow Butte Resources, Inc., dba Cameco Resources (CBR), to amend existing industrial transfer permit I-2. The considerations for approval described in *Neb. Rev. Stat.* § 46-683(1) are specifically met as follows:

1. The Basal Chadron Sandstone, from which water is withdrawn for mining purposes, is a confined aquifer. Consequently, no hydrologic connection exists between surface water in the project area and the aquifer, and surface water users will not be affected by an increase in withdrawals from the aquifer.

Domestic and other wells have been constructed in the Chadron Formation sandstones, which overlie the Basal Chadron Sandstone, although the aquifer is not generally considered to be of drinking-water quality. To the extent that other users' wells may be constructed in the Basal Chadron Sandstone, water levels in these wells have been lowered as a result of the mining operations, but the reinjection of water into the aquifer following uranium extraction maintains a certain hydrologic equilibrium. The Department is unaware of any wells that have been unable to supply their users' water-quantity needs as a result of the mining operations.

Prior to the initiation of mining activities, the water quality in the Chadron aquifer was not considered suitable for human consumption. State and federal agencies included this consideration when granting to CBR an aquifer exemption to mine uranium from the aquifer. As part of its operational permits, CBR is required to restore water in the aquifer to baseline conditions, once commercial mining activities are completed. CBR's request under I-2A to increase the maximum permitted withdrawal rate and volume does not change CBR's requirement to restore water in the aquifer to baseline conditions following the completion of mining.

The original Department Order granting Permit I-2, dated August 7, 1991, included a provision, intended to ensure the protection of ground water users in the area, that CBR may consumptively use no more than 152 acre-feet/year of ground water. This provision should be incorporated as a specific condition of the current Order regarding permit amendment I-2A, so as to be similarly protective of ground water users in the area.

2. Because the Basal Chadron Sandstone unit is a confined aquifer, surface water supplies will not be affected by an increase in withdrawals in the project area. Ground water supplies will remain essentially constant, apart from the annual amount of consumptively used wastewater, because water withdrawn from the aquifer is subsequently reinjected and thus becomes available for use. Mining operations maintain a cone of depression around the project area, which has lowered the water table of the aquifer by approximately 40 to 60 feet.

This lowering is not known to have adversely affected any other users' wells in the area, and the reinjection of water into the aquifer ensures that the water table will likely not lower more than that required for mine operation. In addition, water demands in the area are primarily met from shallower aquifers, rather than from the Basal Chadron aquifer. If, in the future, the deeper bedrock aquifers become important domestic and agricultural water sources for the area, withdrawals from mining operations should not impede the further use of these bedrock aquifers for water supply. The additional withdrawals proposed under I-2A will not adversely affect ground water and surface water supplies in the project area.

3. The mining process specifically targets the waters of the Basal Chadron Sandstone, as the uranium-bearing formation in the project area. Consequently, no alternative source of water for the facility's use exists in the area.
4. The existence of the mine project in the Crawford area continues to provide, in aggregate, millions of dollars in tax revenue, wages, and commercial activity for this part of the State. These economic benefits will continue to accrue to the area for the duration of the project's existence.
5. Existing water uses in the project area include domestic, range livestock, and public water supply uses, most of which derive supply from sources not in direct hydrologic connection to the Basal Chadron Sandstone. For the reasons discussed above, none of these uses will be adversely affected by increased withdrawals under amendment I-2A. Thus, social and economic benefits from these other existing uses will continue to accrue to the population in the area.
6. No such waivers were filed. Notice of the application was published pursuant to the requirements of *Neb. Rev. Stat. § 46-680*, and no objections to the application were received during the notice period.
7. No interstate compacts or other agreements are affected by withdrawals in the project area. The compact between Wyoming and Nebraska pertaining to the waters of the Niobrara River does not include ground water extracted from confined aquifers in the area. In addition, the aquifer from which ground water is withdrawn for mining purposes is specifically exempted from the Upper Niobrara White NRD's ground water management rules and integrated management provisions.
8. CBR already holds the appropriate permits from federal authorities and from the Nebraska Department of Environmental Quality for its operations in the project area. The Department is not aware of other factors specifically affecting the granting of the permit.

The terms and conditions of permit amendment I-2A are as follows:

1. Existing permit I-2 authorizes Crow Butte Resources, Inc. to withdraw and transfer up to 5,871 acre-feet per year, at a maximum withdrawal rate of 3,640 gallons per minute, from wells located in portions of Sections 11, 12, and 13, Township 31 North, Range 52 West of the 6th P.M.; and portions of Sections 20, 29, and 30, Township 31 North, Range 51 West of the 6th P.M., all in Dawes County, Nebraska, as described in the Department's March 17, 2010, Order amending

Permit I-2. Permit amendment I-2A authorizes CBR to withdraw and transfer additional ground water from industrial water wells located on lands currently subject to Permit I-2. Withdrawal and transfer of ground water under permit amendment I-2A shall not exceed 11,000 gallons per minute maximum.

2. The total amount of ground water that may be transferred in a one-year period shall not exceed 17,743 acre-feet.
3. Ground water may be withdrawn and transferred from wells located on the following tracts of land REMAINING under Permit I-2, as more fully described in the Department's March, 17, 2010, Order:

Township 31 North, Range 52 West, Dawes County

Section 11: S $\frac{1}{2}$ NE $\frac{1}{4}$, N $\frac{1}{2}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SE $\frac{1}{4}$
Section 12: S $\frac{1}{2}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$, S $\frac{1}{2}$ SE $\frac{1}{4}$
Section 13: NW $\frac{1}{4}$ NW $\frac{1}{4}$

Township 31 North, Range 51 West, Dawes County

Section 20: SW $\frac{1}{4}$
Section 29: SW $\frac{1}{4}$
Section 30: portions of NE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$, NE $\frac{1}{4}$ NW $\frac{1}{4}$ not otherwise excluded by March 17, 2010, Order

4. The water shall be used for extraction of uranium at a facility located in Section 19, Township 31 North, Range 51 West of the 6th P.M., Dawes County, Nebraska, as described in Application I-2A.
5. Approval of this permit is based on the information included and representation made in Application I-2A by CBR. That information and those representations are considered terms of this approval, to which CBR must adhere.
6. CBR shall not consume a volume of water greater than 152 acre-feet per year, in accordance with the terms and conditions of existing Permit I-2.
7. All wells for withdrawal and reinjection shall be metered, and, by January 31 of each year, CBR shall file a completed "Industrial Ground Water Well Report" in the office of the Department, on a form provided by the Department, indicating the total volume of water withdrawn and total volume of water reinjected.
8. Crow Butte Resources, Inc. must comply with all state and federal laws and the regulations of the Department and the Upper Niobrara White Natural Resources District, including, but not limited to, the following:
 - A. Any new or replacement water wells must be registered as required by *Neb. Rev. Stat. § 46-602(1)*.
 - B. CBR shall notify the Department of any changes in the place of use or nature of use, as provided in *Neb. Rev. Stat. § 46-683.01*.

9. All other terms and conditions of Permit I-2 remain the same unless specifically amended by this Order; the June 28, 1993, Order; the October 3, 1994, Order; the October 5, 1994, Corrective Order; the March 25, 2008, Order; or the March 17, 2010, Order.
10. This permit amendment shall be valid for three years after the Order date and as long thereafter as the water for which the permit is granted is placed to beneficial use. If CBR has not used water for beneficial purposes and in accordance with the terms of this permit for more than three years, the permit may be revoked or modified by the Director pursuant to *Neb. Rev. Stat. § 46-684(1)*.

THIS PERMIT MAY BE REVOKED OR MODIFIED BY THE DEPARTMENT FOR FAILURE TO COMPLY WITH THE TERMS AND CONDITIONS OF THE PERMIT.

DEPARTMENT OF NATURAL RESOURCES

October 30, 2014


Brian P. Dunnigan, P.E., Director

A copy of this Amended Order granting permit amendment I-2A was mailed on October 30, 2014, to the Department's field office in Bridgeport, Nebraska, and to the following:

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