

February 18, 2010

Mr. Larry Teahon
Manager of Environmental
Health and Safety
Crow Butte Resources, Inc.
86 Crow Butte Road
P.O. Box 169
Crawford, NE 69339-0169

SUBJECT: REQUEST FOR ALTERNATE DECOMMISSIONING (GROUNDWATER RESTORATION) SCHEDULE, CROW BUTTE RESOURCES, INC., CRAWFORD, NEBRASKA, SOURCE MATERIALS LICENSE SUA-1534

Dear Mr. Teahon:

By letter dated July 24, 2009, Crow Butte Resources, Inc. (CBR) submitted a request for an alternate decommissioning (groundwater restoration) schedule for the Crow Butte facility to the U.S. Nuclear Regulatory Commission (NRC). Subsequently, NRC staff issued a letter on August 20, 2009 (ML092300140) which transmitted the Technical Evaluation Report (TER) that documented our review and approval of this request.

This TER is being reissued for the following reasons:

- An administrative error on the cover letter attributed the licensing action to “surety” changes, but should have read “administrative” changes; 10 CFR 51.22(c)(11) remains the correct citation.
- The TER incorrectly referenced 10 CFR 40.42(h)(2)(i) as the authority for the Commission approving a request for an alternate groundwater restoration schedule; the correct citation is 10 CFR 40.42(i).
- NRC staff is providing a supplemental analysis in the TER to address whether granting approval of this request is in the public interest.

The NRC staff’s supplemental review of the request for an alternate decommissioning (groundwater restoration) schedule confirms the prior conclusion that it is acceptable and in the public interest. Therefore, NRC staff is reaffirming its prior approval of the request, subject to its incorporation as noted below, into Source Material License SUA-1534. The enclosed TER documents the staff’s review of this request. This licensing action meets the categorical exclusion provision for administrative changes in 10 CFR Part 51.22(c)(11). Therefore, no further environmental review is required for this action.

The alternate decommissioning (groundwater restoration) schedule the staff has approved will be incorporated into Source Material License SUA-1534 as part of NRC staff’s response to CBR’s license renewal amendment request for this license. Future changes to this schedule will require an amendment to this license. If you have any questions, please contact Mr. Ronald Burrows, Project Manager, at 301-415-6443 or, by email at ronald.burrows@nrc.gov.

L. Teahon

2

In accordance with 10 CFR 2.390 of the NRC's Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders, a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's Agency-wide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

/RA/

Ronald A. Burrows, Project Manager
Uranium Recovery Licensing Branch
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Docket No.: 40-8943

License No.: SUA-1534

Enclosure:
Technical Evaluation Report

cc: Stephen Collings, CBR
Michael Linder, NDEQ

L. Teahon

2

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**TECHNICAL EVALUATION REPORT
REQUEST FOR ALTERNATE DECOMMISSIONING (GROUNDWATER RESTORATION)
SCHEDULE
CROW BUTTE RESOURCES, INC.
CRAWFORD, NEBRASKA**

DATE: December 2009

DOCKET NO.: 40-8943

LICENSEE NO.: SUA-1534

FACILITY LOCATION: Crawford, Nebraska

PROJECT MANAGER: Ron Burrows

TECHNICAL REVIEWERS: Tom Lancaster

INTRODUCTION

By letter dated July 24, 2009, Crow Butte Resources, Inc. (CBR) submitted a request for an alternate decommissioning (groundwater restoration) schedule for the Crow Butte facility to the U.S. Nuclear Regulatory Commission (NRC). In conformance with 10 CFR 40.42, CBR's request seeks NRC approval to extend the period of groundwater restoration beyond the regulatory requirement of 24 months for each of the mine units currently in restoration (i.e., Mine Units 2 to 5).

TECHNICAL REVIEW

NRC staff reviewed CBR's above-referenced submittal with considerations listed in 10 CFR 40.42(i); These considerations are as follows:

- (1) Whether it is technically feasible to complete decommissioning within the allotted 24-month period;
- (2) Whether sufficient waste disposal capacity is available to allow completion of decommissioning within the allotted 24-month period;
- (3) Whether a significant volume reduction in wastes requiring disposal will be achieved by allowing short-lived radionuclides to decay;
- (4) Whether a significant reduction in radiation exposure to workers can be achieved by allowing short-lived radionuclides to decay; and

Enclosure

(5) Other site-specific factors which the Commission may consider appropriate on a case-by-case basis, such as the regulatory requirements of other government agencies, lawsuits, groundwater treatment activities, monitored natural groundwater restoration, actions that could result in more environmental harm than deferred cleanup, and other factors beyond the control of the licensee.

In addition, following NRC guidance in NUREG-1757, Section 5.1, staff is evaluating if this request is in the public interest.

Using information provided in CBR's submittal, NRC staff tabulated a historical summary of groundwater restoration at Mine Units 2 to 5 into the table below. NRC staff notes that CBR has continued to pursue increased efficiencies of the groundwater restoration at Mine Units 2 to 5. During the period from August 9, 2007, to April 1, 2009, CBR implemented recirculation at Mine Units 2 to 5 to maintain a hydrologic bleed, while making changes to the restoration system to increase the flow through Ion Exchange (IX) from 750 gallons per minute (gpm) to 1500 gpm and Reverse Osmosis (RO) treatment from 100 gpm to 600 gpm. Further efforts to improve efficiency of groundwater restoration were made with groundwater restoration modeling and sequencing of the mine units by a consultant hired by CBR. On December 17, 2008, CBR started a bioremediation field study using six wells in mine unit 4. At the end of one year of the study, CBR intends to review the study for the effectiveness of bioremediation to enhance restoration efforts.

Historical Summary of Groundwater Restoration at Mine Units 2 to 5				
Mine Unit	Initiation of Groundwater Restoration		Period of Groundwater Recirculation during IX/RO Flow Upgrade	Current Phase of Groundwater Restoration
	Treatment	Initiation Date		
2	IX and RO *	January 2, 1996	August 9, 2007 to April 1, 2009	IX and RO
3	IX	July 22, 1999	August 9, 2007 to April 1, 2009	IX
4	IX	October 31, 2003	August 9, 2007 to April 1, 2009	IX **
5	IX	August 6, 2007	August 9, 2007 to April 1, 2009	IX

* IX – Ion Exchange, RO – Reverse Osmosis
 ** On December 17, 2008, a bioremediation field study was started on six production wells in Well house 9. At the end of a period of one year, the study will be reviewed for the effectiveness of the bioremediation to help restore mine units.

CBR states that the capacity of deep well disposal and the restoration circuit, as well as the need to maintain a hydrologic balance between the production and restoration mine units, make the restoration of each mine unit in a 24-month period technically infeasible. NRC notes that the Crow Butte facility permit from the State of Nebraska (Permit Number NE122611) requires that “no more than five mine units in the mining stage at any given time, no more than five mine units in restoration at any given time, and no more than three mine units constructed in advance of the active mining.”

CBR provided an alternate schedule (i.e., in a table) for the completion of various phases of future groundwater restoration for each of the mine units currently in restoration (i.e., Mine Units 2 to 5). According to this schedule, CBR expects to complete groundwater restoration of Mine Units 2 to 5 by July 1, 2012, July 1, 2013, January 1, 2015, and July 1, 2016, respectively. CBR based its alternate schedule on IX and RO circuits' flow capacity, wastewater volume, and mine unit pore volume.

Changes to the restoration circuit have been made to handle increased flow through the IX and RO treatment circuits. Extending the groundwater restoration period will not have any construction impact. The staff also finds that restoration activities are within the parameters previously analyzed by the NRC and thus extending the groundwater restoration period will not significantly increase the potential for or consequences from radiological accidents. For this reason, the staff also finds that extending the groundwater restoration period will not significantly increase the individual or cumulative occupational radiation exposure in the area.

In evaluating whether this request is in the public interest, NRC staff notes that one alternative is to cease restoration activities. Alternatively, allowing the licensee to extend the groundwater restoration period will reduce the overall health risk to the public by bringing the mine units closer to conditions that existed prior to the start of uranium recovery operations in those mine units. Because of this, the staff finds that allowing the licensee to extend the groundwater restoration period will not result in any significant change in the types, or significant increase in the amounts, of any effluents that may be released offsite. Staff also considered the alternative of requiring the licensee to increase restoration capacity and concluded, based on groundwater monitoring and other site data, that this alternative would not significantly reduce the overall health risk to the public. Therefore, NRC staff concludes that approving this request is in the public interest.

CONCLUSION

In accordance with 10 CFR 40.42(i), NRC staff reviewed CBR's request for an alternate schedule to complete decommissioning (groundwater restoration) at the Crow Butte facility and determined that it is acceptable and in the public interest and, therefore, approves CBR's request.