

TRIP REPORT:

Site Visit for Marsland Expansion Area License Application

October 23–25, 2012

Prepared for the



U.S. Nuclear Regulatory Commission

by



under

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1.0 INTRODUCTION

SC&A participated in a site visit to the Crow Butte Resources (CBR) existing and proposed project areas in the vicinity of Crawford, Nebraska, took place October 23–25, 2012.

Mr. David Back, hydrogeologist, S. Cohen and Associates (SC&A); and Dr. Paul Nickens, archaeologist, SC&A, accompanied Ms. Jean Trefethen, U.S. Nuclear Regulatory Commission (NRC), Project Manager for the Environmental Assessment (EA) for the Marsland Expansion Area (MEA) project area, on the site visit. The team visited the following CBR project areas:

- CBR Central Processing Facility (CPF) and appurtenant well fields (also referred to as the “current license area”), located southeast of Crawford
- proposed North Trend Expansion Area (NTEA), located directly north of Crawford
- proposed Three Crow Expansion Area (TCEA), located southwest of Crawford and immediately south of Fort Robinson State Park
- proposed MEA, located south of the Pine Ridge about 11 miles south-southeast of the CPF

The NRC is currently preparing three EAs for the CBR project areas, including a license renewal application for the CPF and applications for the proposed NTEA and MEA project areas. An EA for the proposed TCEA will begin in the near future. Mr. Back (CPF and MEA) and Dr. Nickens (CPF, NTEA, and MEA) are providing technical support to the NRC to aid in preparations of the ongoing EAs. While the site visit focused primarily on the MEA project, the team reviewed each of the CBR project areas during the trip to gain a perspective of the project uranium recovery operations and proposed expansions, especially to aid in the evaluation of cumulative impacts from four overlapping projects related to the CBR project areas and the essentially concurrent environmental reviews associated with them. Additionally, the trip offered an initial opportunity for the SC&A technical analysts to interact with CBR personnel and physically examine the different CBR project areas for which they are supporting individual NRC EA efforts.

In addition to the objectives noted above, the trip also afforded the opportunity to meet with nearby Federal and State agency historic preservation personnel and other local experts. These visits were designed to conduct technical-level consultation for cultural resources and, more specifically, to gain potentially relevant information in support of analyses for the NRC EAs, especially for potential traditional cultural properties that may be of significance for affected American Indian Tribes. Table 1 summarizes the itinerary and contacts for the site visit.

Table 1 Summary of the Itinerary and Contacts for the Site Visit, October 23–25, 2012

DATE	ITINERARY	CONTACTS
<p>Tuesday, October 23, 2012 Nickens Back</p> <p>Nickens Back</p>	<p>AM: Travel from Rapid City, SD, to CBR CPF, Crawford, NE Field visit to NTEA</p> <p>PM: Field visits to TCEA and MEA</p>	<p>Cameco, Crow Butte Operations, personnel: John Schmuck, Senior Permitting Manager Larry Teahon, Manager—Safety, Health, Environment & Quality Walter Nelson, Environmental Leadership Coordinator</p>
<p>Wednesday, October 24, 2012 Nickens Back</p> <p>Nickens</p>	<p>AM: Field visit to CPF; meeting with CBR personnel</p> <p>PM: Visit to National Park Service, Agate Fossil Beds National Monument, Harrison, NE</p>	<p>Same as above</p> <p>James Hill, Superintendant Agate Fossil Beds National Monument</p>
<p>Thursday, October 25, 2012 Nickens</p>	<p>AM: Visit to Fort Robinson State Park and National Historic Landmark, Crawford, NE</p> <p>PM: Visit to USDA Forest Service, Nebraska National Forests and Grasslands, Chadron, NE</p> <p>Visit to Museum of the Fur Trade, Chadron, NE</p> <p>Return to Rapid City, SD</p>	<p>Terry Steinacher, Preservation Archaeologist, Nebraska State Historical Society and Fort Robinson Museum</p> <p>Kristina Hill, Archaeologist, Lisa Heiser, Recreation, Lands, Minerals, and Heritage, Nebraska National Forest and Grasslands Office, specifically for Pine Ridge Ranger District information</p> <p>Dr. James A. Hanson, Historian and expert on the Crow Butte</p>

2.0 RESULTS FROM THE SITE VISIT

The results of the site visit, by CBR project area or office visited, are discussed below. The approach to the visit for each of the three expansion areas was similar. CBR personnel accompanied the site visit team to each area for a driving tour to get a visual overview of each property. Limited stops were made, usually for taking photographs. The expansion area tours were useful for the technical analysts to achieve a visual overview of the terrain, vegetation, location of proposed project features, and, in the case of cultural resources, an idea of where recorded archaeological and historical sites were positioned on the landscape. At the existing CPF license area, SC&A's objectives related to cultural resources were to better understand how the archaeological and historical sites recorded in prelicensing field inventories during the 1980s are incorporated within the ongoing mining operations, especially for six of the original sites that were evaluated at the time as being potentially eligible for listing on the National Register of Historic Places (NRHP). In terms of water resources, SC&A sought to better understand potential impacts and mitigation measures that are currently in place.

To investigate cultural resource topics at each of the non-CBR offices, SC&A provided each interviewee with a copy of the project map showing the current CPF project area and the three proposed expansion areas, along with a brief overview of the CBR project and the NRC EAs. In each case, Ms. Trefethen (NRC) accompanied the SC&A cultural resources analyst (Dr. Nickens). At each office visited, Dr. Nickens made specific information requests (summarized below) and directed general questions at each Federal, State, or local specialist concerning his or her knowledge of potential prehistoric, historic, or tribal resources that might exist within the CBR project areas, or within a reasonable proximity. Finally, based on the specific office discussion and information request, Dr. Nickens asked each specialist for any additional relevant information, such as cultural resource overview reports or tribal studies for the region, including the CBR project areas.

2.1 Crow Butte Resources Central Processing Facility (Current License Area)

Led by Mr. Walter Nelson (CBR), the CPF site tour began the morning of October 23, 2012. **Figure 1** shows the control room of the main facility at the CPF. As shown in **Figure 2**, computers within the control room remotely monitor the flow rates for each of the wells. There are approximately 5,000 wells in the CBR well field, with about 1,000 active at any given time. If the flow rates ever vary from predetermined ranges, an alarm will sound and the operator has the rate verified in the field before corrective actions are taken. Volumes for the process storage tanks are monitored (**Figures 3 and 4**), as well as the pressures, and volumes are also monitored on the deep groundwater disposal wells (**Figure 5**). All of the power is controlled at the power supply panel (**Figure 6**).



Figure 1. Control room at CBR. (Photo: DB, October 23, 2012)



Figure 2. Monitoring of flow rates within injection and pumping wells. (Photo: DB, October 23, 2012)

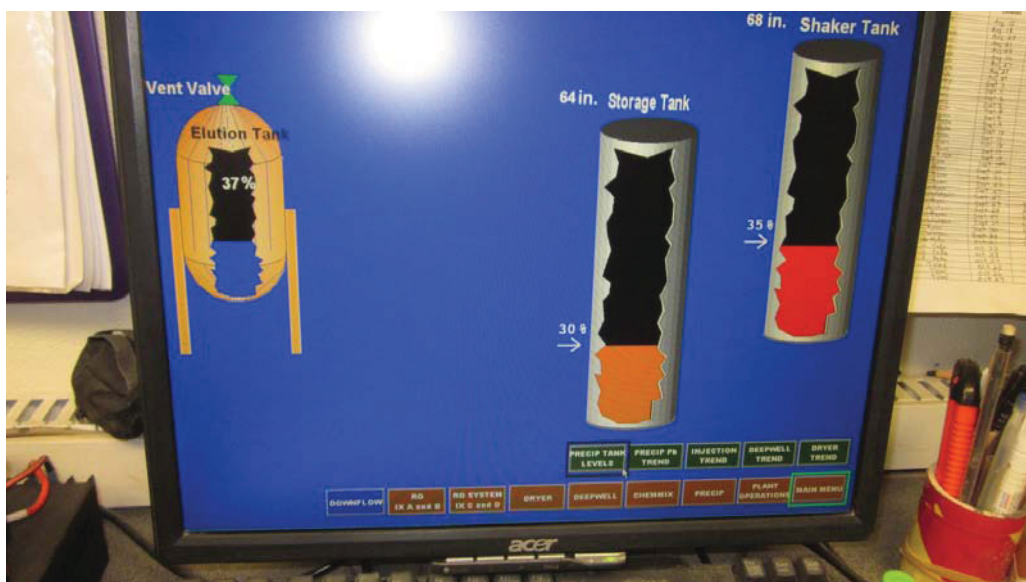


Figure 3. Monitoring of fluid levels and pressures in storage tanks. (Photo: DB, October 23, 2012)

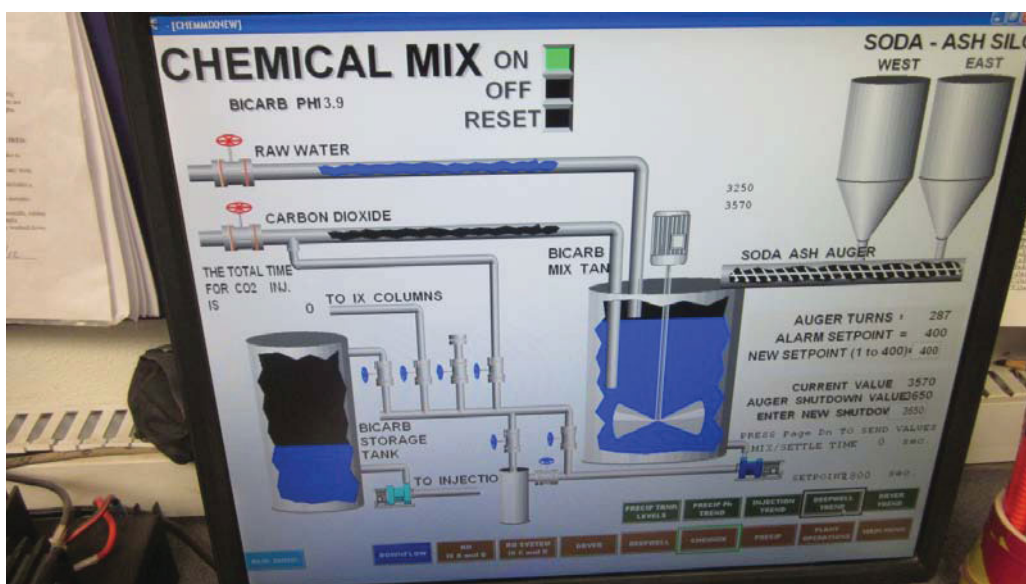


Figure 4. Monitoring of fluid levels and pressures in mixing tanks. (Photo: DB, October 23, 2012)

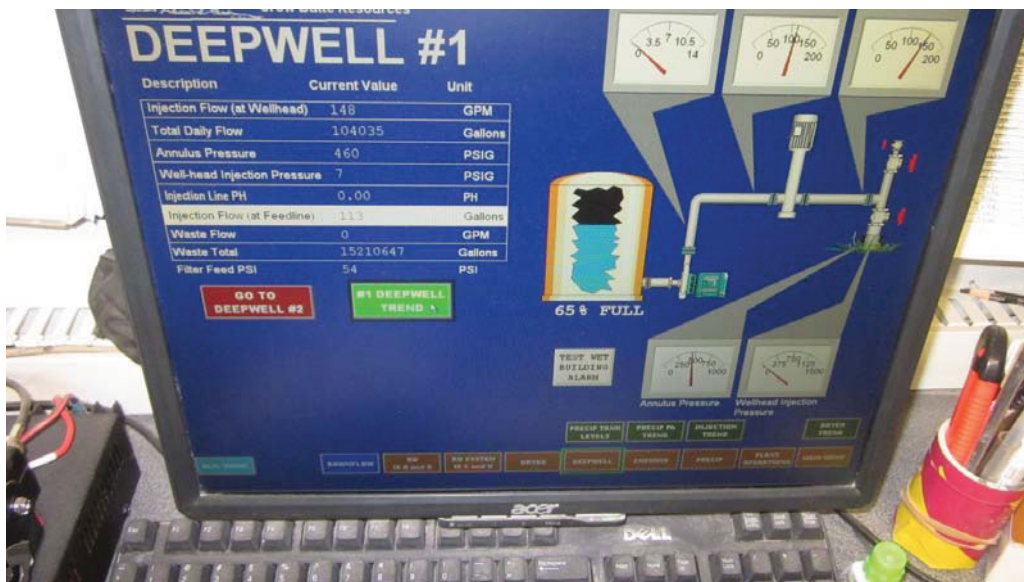


Figure 5. Monitoring of pressure and flow rates in deep groundwater disposal wells. (Photo: DB, October 23, 2012)

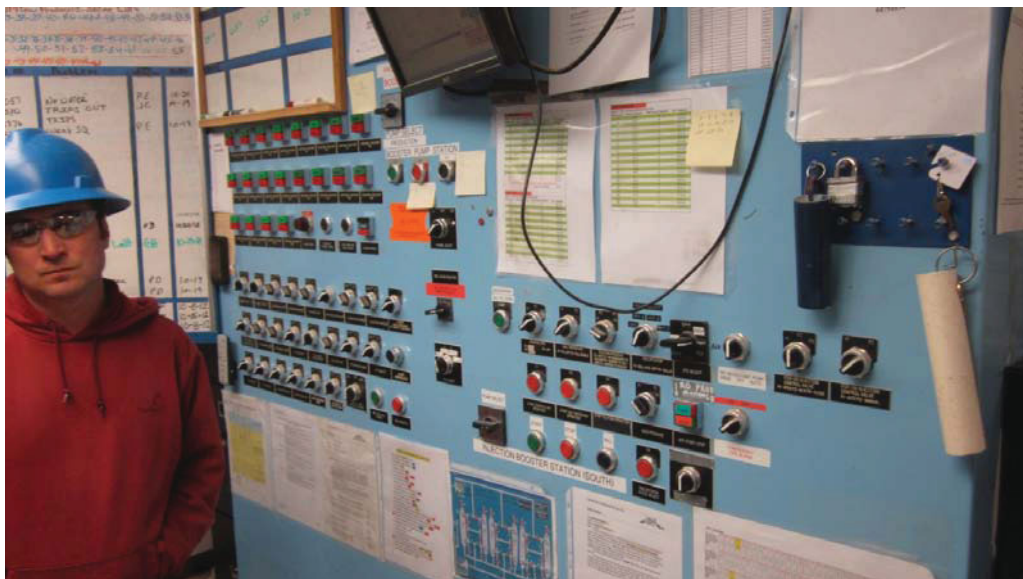


Figure 6. Power control panel in control room. (Photo: DB, October 23, 2012)

2.2 North Trend Expansion Area (Environmental Assessment in Progress)

The site team drove through the NTEA on the morning of October 23, 2012. CBR personnel noted that the general area had been extensively disturbed in the historic period by widespread farming activities and other features (e.g., county and local roads, railroad and transmission line rights-of-way, canal and irrigation features, and planting of tree rows). John Schmuck (CBR) agreed to provide additional information on disturbed versus undisturbed acreages for the NTEA and the other project areas. **Figure 7** shows the disturbed nature of the land surface within the NTEA.



Figure 7. NTEA. Top: View to the west-southwest from a road just west of archaeological site 25DW298. Saddle Rock Butte (at left) and Lover's Leap Butte (at right), both part of the Red Cloud Buttes geological feature are visible in the distance. Both of these buttes have been noted by tribal representatives as having some level of historic importance; both are visible from but located well outside the NTEA project area boundary. Bottom: View to the southwest from the road, taken just northeast of archaeological isolated find 25DW299 (Photos: PRN, October 23, 2012)

The White River is situated between the CBR and NTEA (**Figures 8 and 9**). This perennial stream is the most prominent surface water feature within the general vicinity of both mines.



Figure 8. The White River from the roadway; photograph taken approximately 2 miles east of Crawford. (Photo: DB, October 23, 2012)



Figure 9. The White River; photograph taken approximately 2 miles east of Crawford. (Photo: DB, October 23, 2012)

2.3 Three Crow Expansion Area (Environmental Assessment Pending)

The team toured the TCEA on the afternoon of October 23, 2012, by driving the east-west 4 Mile Road that extends from the southwest corner of the project area easterly to the eastern boundary. Stops included two along 4 Mile Road for photographs and another on the high ground in the eastern part of Section 30, T. 31 N, R. 52 W, where the proposed satellite facility will be constructed. Fort Robinson, a designated National Historic Landmark (NHL) located within Fort Robinson State Park, is readily visible from the western part of the project area,

running about 3/4 mile from the western boundary (**Figure 10**). Depending on actual positioning of the satellite facility building, it too may be visible from the NHL.



Figure 10. TCEA. Fort Robinson, an NHL, is visible in the upper center of the view, with the Red Cloud Bluffs in the background. The photograph was taken from 4 Mile Road at the southwest corner of the proposed TCEA (delineated by the fence lines), looking north-northeast. The portion of the TCEA in the foreground is within the project's Maximum Disturbed Area and would be within an eventual well field. (Photo: PRN, October 24, 2012)

2.4 Marsland Expansion Area (Environmental Assessment in Progress)

The team visited the MEA on the afternoon of October 23, 2012, driving county roads along the southern boundary and then another two extending northerly to the northern boundary of the project area. **Figure 11** depicts the area from near the center of the project area where the satellite facility building will be sited, as well as further north within a proposed well field zone.

