U.S. Nuclear Regulatory Commission

Draft for Public Review

Environmental Impacts on Historic and Cultural Resources from the Renewal of the License for the Crow Butte Project and Marsland Expansion Area in Dawes County, Nebraska

Docket Number: 40-8943

1 INTRODUCTION

1.1 License Renewal Application Submittal

On September 24, 2024, Crow Butte Resources, Inc. (CBR) submitted a license renewal application to the U.S. Nuclear Regulatory Commission (NRC) for the Crow Butte Project in situ uranium recovery (ISR) facility and Marsland Expansion Area (MEA) in Dawes County, Nebraska. The license is considered to be in timely renewal in accordance with Section 40.42 of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 40, "Domestic Licensing of Source Material," (10 CFR 40). On April 30, 2025, CBR submitted additional information about the license renewal application and a revised Combined Environmental and Technical Report (CBR 2025). Subsequently, CBR revised the application and Combined Environmental and Technical Report in September 2025 and again in March 2026 (CBR 2026a). CBR is requesting renewal of source and byproduct material license SUA-1534, in accordance with 10 CFR 40, for a 20-year term. The NRC accepted CBR's license renewal application for docketing and detailed technical review on July 31, 2025 (NRC 2025a).

The NRC staff is preparing an environmental assessment (EA) in accordance with NRC's regulations at 10 CFR 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," which implement the National Environmental Policy Act of 1969, as amended (NEPA). The EA will document the potential environmental impacts, including impacts to historic and cultural resources, that would result from NRC's approval of CBR's license renewal application.

This document documents NRC staff's evaluation of the potential impacts to historic and cultural resources from NRC's review of CBR's license renewal application.

1.2 Regulatory History

The Crow Butte Project began operations in 1986 as a research and development facility and was later expanded, with commercial operations beginning in 1991. The NRC last renewed CBR's license SUA-1534 in November 2014 with a 10-year license term. The license authorizes CBR to produce up to 907,185 kilograms (2 million pounds) per year of triuranium octoxide or yellowcake. As part of the last license renewal, in October 2014, the NRC prepared an EA in accordance with 10 CFR 51 (NRC 2014). In October 2022, the NRC prepared a supplement to the 2014 EA documenting sites of historic, cultural, or religious significance to the Oglala Sioux Tribe that were identified during a field survey of the Crow Butte Project conducted in November 2021 and the potential environmental impacts of the license renewal on those sites (NRC 2022b).

In May 2018, the NRC amended CBR's license to add the MEA. CBR intends to construct the MEA and conduct ISR operations there as an extension of the ISR operations at the existing Crow Butte Project. The MEA, however, has not been constructed. In support of the MEA license amendment, the NRC also prepared an EA in April 2018 (NRC 2018).

1.3 Proposed Action

The proposed action is the NRC staff's approval of CBR's request to renew CBR's source and byproduct material license SUA-1534 for the Crow Butte Project and MEA in Dawes County, Nebraska for an additional 20 years. If the NRC renews license SUA-1534, CBR will have met the NRC's requirements to be able to continue operations at the existing Crow Butte Project facility and to pursue construction and operation at the MEA.

1.4 Purpose and Need

The purpose and need for the proposed action is to renew license SUA-1534 for 20 years to authorize CBR to possess and use source material and byproduct material at the Crow Butte Project and MEA to produce yellowcake. Yellowcake, the uranium oxide product of the ISR process, is used in the production of fuel for commercially-operated nuclear power reactors. In regulating uranium milling and the ISR process, the NRC is meeting its obligations under the Atomic Energy Act of 1954, as amended, to allow and ensure the safe possession and use of radioactive materials. This definition of 'purpose and need' reflects the Commission's recognition that, unless there are negative findings in the NRC's safety review required by the Atomic Energy Act of 1954, as amended, or findings under NEPA that would lead NRC to reject the license renewal application, the NRC has no role in a company's business decision to construct and operate an ISR facility at a particular location.

1.5 National Historic Preservation Act Section 106 Consultation

Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), requires Federal agencies to consider the effects of their undertakings on historic properties and provide the Advisory Council on Historic Preservation an opportunity to comment on such undertakings. As defined in Title 36 of the *Code of Federal Regulations* (36 CFR) Part 800, "Protection of Historic Properties," historic properties are any prehistoric or historic district, site, building, structure, or object included in, or eligible for, inclusion in the National Register of Historic Places (NHRP). The NRC staff's review of CBR's request to renew license SUA-1534 for the Crow Butte Project and MEA constitutes an undertaking that has the potential to cause effects on historic properties in accordance with 36 CFR 800.3(a). The NRC staff is coordinating its review under Section 106 of the NHPA with its NEPA review. Potential impacts on historic and cultural resources are discussed in the next sections of this document.

By letters dated September 17, 2025, the NRC staff initiated the Section 106 process with the Nebraska State Historic Preservation Office (SHPO), CBR (NRC 2025b), and Federally recognized Tribes (NRC 2025c). Table 1-1 lists the Tribes invited to consult in the NRC staff's Section 106 review. These letters provided an overview of the undertaking, established the area of potential effects (APE), discussed cultural resources investigations to date, and described the potential environmental impacts to historic and cultural sites found within the APE. Additional information can be found in Chapter 3 of this document. The NRC staff also sought input from the consulting parties on the identification and evaluation of historic properties, including those of traditional religious and cultural significance to Tribes, potential adverse effects, and mitigation measures in light of the regulatory history and information available about potential effects on historic and cultural resources.

Table 1-1. Federally Recognized Tribes Invited to Consult

Cheyenne River Sioux Tribe	Crow Creek Sioux Tribe
Flandreau Santee Sioux Tribe	Omaha Tribe of Nebraska
Oglala Sioux Tribe	Lower Sioux Indian Community
Rosebud Sioux Tribe	Turtle Mountain Band of Chippewa
Sisseton Wahpeton Oyate	Spirit Lake Tribe
Standing Rock Sioux Tribe	Fort Peck Assiniboine and Sioux Tribes
Lower Brule Sioux Tribe	Northern Arapaho Tribe
Yankton Sioux Tribe	Santee Sioux Tribe
Northern Cheyenne Tribe	Ponca Tribe
Eastern Shoshone Tribe	Pawnee Nation of Oklahoma
Crow Tribe	Cheyenne and Arapaho Tribes
Kiowa Tribe of Oklahoma	Winnebago Tribe of Nebraska
Apache Tribe of Oklahoma	Comanche Nation
Omaha Tribe of Nebraska	Otoe-Missouria Tribe of Indians
Three Affiliated Tribes (Mandan, Hidasta, and Arikara Nation)	

The NRC staff invited Tribes to a government-to-government virtual information meeting to be held in October 2025. On December 8 and 17, 2025, the NRC staff reached out to the Tribes to reschedule the planned government-to-government information meeting in light of the U.S. Government's lapse in appropriations. The NRC staff held this meeting on January 14, 2026 (NRC 2026a). Tribal representatives asked about the cultural resource surveys conducted at the Crow Butte Project and MEA and whether additional cultural resource surveys would be conducted given the undertaking is a license renewal. Tribal representatives also shared concerns regarding potential impacts to environmental resources like water, land, ecology, and air from uranium recovery activities at the Crow Butte Project site. During the meeting, the NRC staff also encouraged input from Tribes by mid-February 2026. By letter dated January 19, 2026, the Winnebago Tribe of Nebraska explained that it had no further interest in this project (WTN 2026). On January 21, 2026, the Pawnee Nation Office of Historic Preservation notified the NRC that the proposed action should not adversely affect the cultural landscape of the Pawnee Nation (PN 2026). On March 2, 2026, the NRC staff shared the draft meeting summary with Tribes for review and comment and asked for any additional input to be provided by March 16, 2026 (NRC 2026b). The NRC staff did not receive any additional input and finalized the meeting summary on March 19, 2026 (NRC 2026c).

In response to a question about avoidance buffers for sites eligible for listing in the National Register of Historic Places (NRHP) (NSHS 2026a), the NRC staff reached out to CBR to clarify the avoidance buffers for eligible sites and unevaluated sites within the APE for the Crow Butte Project and MEA. CBR provided additional information about avoidance buffers on April 7 and 15, 2026 (CBR 2026b and CBR 2026c). This information was transmitted to the SHPO on April 28, 2026 (NRC 2026d) and is discussed in Section 3.2 of this document. The NRC staff also conducted a Class I records search at the Nebraska State Historical Society.

2 PROPOSED ACTION AND ALTERNATIVES

2.1 Description of the Proposed Action

The operating Crow Butte Project consists of 11 wellfields, a central processing facility (CPF), an office building, evaporation ponds, parking, access roads, and a research and development facility. The Crow Butte Project license area is approximately 1,149 hectares (ha) (2,840 acres

[ac]) of which approximately 485 ha (1,199 ac) have been affected by licensed activities. The entire license area, except for one 16 ha (40 ac) parcel owned by the State of Nebraska, is privately-owned land. The Crow Butte Project is located approximately 6.4 kilometers (km) (4 miles [mi]) southeast of the city of Crawford, Nebraska, in portions of Sections 11, 12, 13, and 24 of Township 31 North, Range 52 West and Sections 18, 19, 20, 29, and 30 of Township 31 North, Range 51 West, Dawes County, Nebraska. Figure 2-1 shows the location and license boundary of the Crow Butte Project.

CBR ceased commercial production at the Crow Butte Project in 2018. Groundwater restoration in Mine Unit 1 has been completed and approved by the NRC and Nebraska Department of Environment and Energy (now the Nebraska Department of Water, Energy, and Environment or NDWEE), with NRC issuing the final approval on February 12, 2003 (CBR 2026a). CBR continues to sample Mine Units 2-5 on a quarterly basis for stability. Mine Units 7 and 8 are currently undergoing ion exchange and reverse osmosis treatment. Mine Units 9, 10 and 11 are in standby where CBR maintains a bleed until it decides whether to restart commercial production or start restoration (CBR 2026a). At the Crow Butte Project, CBR uses evaporation ponds and deep well injection to dispose of treated wastewater (CBR 2026a).

CBR intends to construct the MEA and conduct ISR operations as an extension of the ISR operations at the existing Crow Butte Project facility. At the MEA, CBR plans to extract uranium-bearing water from 11 wellfields, process the uranium from the water (pregnant lixiviant) onto ion exchange resin at a satellite facility located within the MEA, and transport the loaded resin by truck to the existing Crow Butte CPF for further processing and production into yellowcake. The MEA is located 18 km (11 mi) south-southeast of the existing Crow Butte CPF and 24 km (15 mi) south-southeast of Crawford, Nebraska, within Sections 26, 35, 36 of Township 30 North, Range 51 West, Sections 1, 2, 11, 12, 13 of Township 29 North, Range 51 West and Sections 7, 18, 19, 20, 29, 20 of Township 29 North, Range 50 West. The MEA area encompasses approximately 1,871 ha (4,622 ac). The entire MEA license area is privately owned except for the southwest quarter of Section 36, which is State Trust Land. CBR intends to dispose of treated wastewater via deep well injection without supporting ponds or surge tanks. Figure 2-1 shows the location and license boundary of the MEA.

During operations at both the Crow Butte Project and MEA, the radioactive airborne effluent would be radon-222 gas, which would be contained in the pregnant lixiviant that is produced the wellfields and transferred to the CPF and satellite plant. CBR explains that most of the radon is released in the ion exchange columns and process tanks, which are covered and vented to a manifold and exhausted to the atmosphere outside the building via stacks (CBR 2026a).

Solid byproduct material that does not meet the NRC criteria for unrestricted release must be disposed of at a licensed disposal site in accordance with the 10 CFR 40, Appendix A, Criterion 2. CBR packages and stores this material until it can be shipped to a licensed 11e.(2) byproduct material waste disposal site. CBR disposes of non-contaminated solid waste in a sanitary landfill permitted by NDWEE (CBR 2026a).

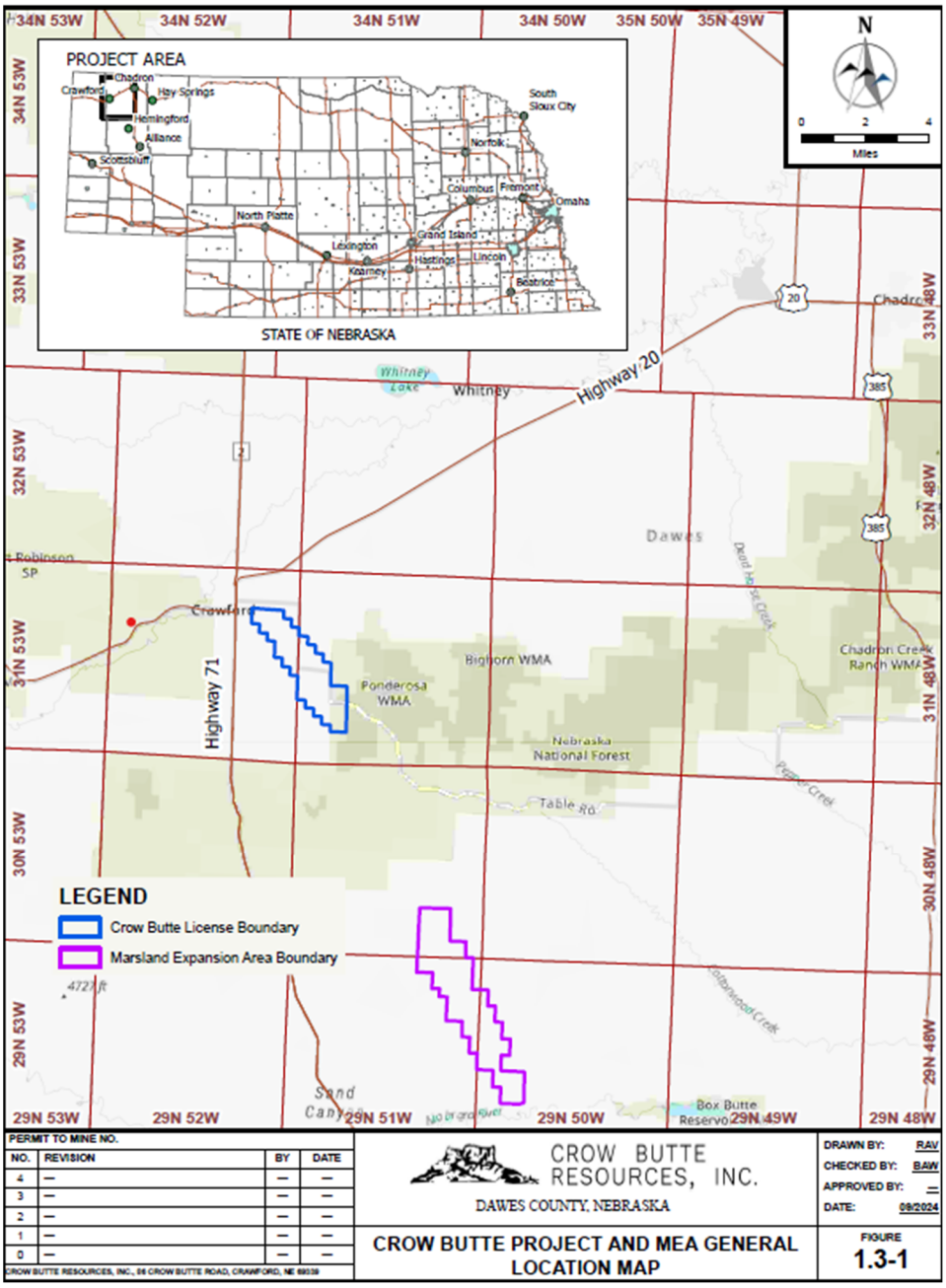

Figure 2-1. Location of Crow Butte Project and Marsland Expansion Area (modified from CBR 2026a)

CBR will carry out groundwater restoration activities at the MEA concurrent with operations. The process is similar to the process used at the Crow Butte Project. The purpose of aquifer restoration is to return groundwater quality within the production zone of wellfields to the preoperational water quality conditions or to standards consistent with NRC requirements at 10

CFR 40, Appendix A, Criterion 5B(5).[1] CBR would transfer groundwater between mine unites commencing restoration and a mine unit commencing production or another source of water. Water would be pumped from the wellfield with no injection, which results in an influx of baseline quality water from the wellfield perimeter (groundwater sweep). The water from production wells would be pumped to the satellite plan where CBR will use a combination of ion exchange, reverse osmosis, filtration, and other treatment methods. Water is recirculated from the production wells and reinjecting the solution, which homogenizes the quality of the aquifer (CBR 2026a). Following aquifer restoration, CBR would begin groundwater stabilization monitoring activities.

After groundwater restoration is complete, CBR will plug all injection and recovery wells and the site will be decommissioned. Decommissioning will include plant disassembly and disposal, pond reclamation and land reclamation of all disturbed areas (CBR 2026a). Land reclamation is described in Section 2.3.2 of NRC's 2014 EA, incorporated here by reference. CBR plans to return disturbed lands to the pre-extraction condition using soils, vegetation, wildlife and radiological baseline data as guidelines. Disturbed lands would blend with adjacent undisturbed lands to reestablish original slope and topography and present natural appearance. CBR will consider soil erosion by water and wind and sedimentation during land reclamation. After placement of topsoil and contouring for final reclamation, an area will normally be seeded with a native seed mixture per NDWEE.

Additional details about construction and operations activities at the Crow Butte Project and MEA are found in CBR's license renewal application (CBR 2026a).

2.2 Alternatives to the Proposed Action

As an alternative to the proposed action, the NRC staff will evaluate the no-action alternative. Under this alternative, the NRC would not renew CBR's license SUA-1534. At the Crow Butte Project, decommissioning of the CBR facility would commence upon NRC approval of the final decommissioning plan in accordance with 10 CFR 40.42. NRC approval of a final decommissioning plan would constitute a Federal action under NEPA and would be subject to a site-specific environmental review. Potential environmental impacts on historic and cultural resources associated with decommissioning the Crow Butte Project facility would be similar to those described in Section 4.8.1 of NRC's 2014 EA, incorporated here by reference, for decommissioning following the proposed action (NRC 2014).

For the MEA, the no-action alternative means that CBR would not be able to pursue construction and operation of the MEA CBR has carried out preconstruction activities (those included in the definition of "construction" in 10 CFR 40.4) at the MEA site like the drilling and installation of monitoring-well clusters for characterization and the drilling of holes for ore body exploration, wellfield delineation, and geologic data collection. The drill holes associated with the MEA preconstruction activities would be properly plugged and abandoned and the wells would be properly decommissioned under the no-action alternative.

[1] Criterion 5(B)(5) in Appendix A of 10 CFR 40 requires that the concentration of a hazardous constituent at the point of compliance does not exceed (a) the Commission approved background concentration of that constituent in the groundwater, (b) the respective value given in the table in Criterion 5C if the constituent is listed in the table and if the background level of the constituent is below the value listed, or (c) an alternate concentration limit established by the Commission in accordance with Criterion 5B(6).

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

3.1 Affected Environment

As described in Section 2.2.2 of the CBR license renewal application, most of the land cover at the Crow Butte Project is herbaceous (66 percent) and is used for hay production, followed by emergent herbaceous wetland (4.5 percent) and cultivated crops (3.5 percent). Most of the land use at the MEA is for agricultural purposes. Most of the land cover is also herbaceous (83 percent), followed by cultivated crops (5.3 percent) and evergreen forests (3.3 percent) (CBR 2026a).

There are no recreational facilities within the Crow Butte Project or the MEA. As described in NRC's 2014 EA, Fort Robinson State Park, the largest state park in Nebraska, is located within 3.6 km (2.25 [mi]) of the Crow Butte Project. The portions of the park west of Crawford include portions of the Red Cloud Agency Historical Site, the White River Trail, and several scenic landforms in a rugged area of buttes and ponderosa pine forest (NRC 2014).

3.1.1 Cultural and Historic Context

The cultural and historic background for the area of western Nebraska where the Crow Butte Project and the MEA are located can be found in Section 3.4.8 of NRC's 2009 generic environmental impact statement (GEIS) for ISRs, NUREG-1910, "Generic Environmental Impact Statement for Uranium Milling Facilities—Final Report," or ISR GEIS (NRC 2009), the NRC's 2014 EA Section 3.9.3 (NRC 2014), and NRC's 2018 EA Section 3.6.2 (NRC 2018), all incorporated here by reference. In June 2022, the NRC staff prepared a literature review report in support of the evaluation of impacts on sites of significance to the Oglala Sioux Tribe that were identified during a field survey of the Crow Butte Project conducted in November 2021 (NRC 2022a). This literature review report summarizes published and unpublished documents, records, files, registers, and other sources that encompass prehistoric, historic, and ethnological/sociological information, as well as places of traditional cultural or religious importance to Native Americans. Chapter 2 of the 2022 literature review report describes the prehistoric period, Chapter 3 describes the protohistoric period, and Chapter 4 describes the historic period, all incorporated here by reference.

3.1.2 Identification of Historic and Cultural Resources

Cultural resources investigations have been conducted within the APE at both the Crow Butte Project and the MEA. As documented in NRC's 2014 EA, the APE for the Crow Butte Project consists of the entire 1,149 ha (2,840 ac) license area (NRC 2014). Likewise, the NRC staff defined the APE for the MEA during the 2018 license amendment review as the entire MEA license area, which comprises approximately 1,870 ha (4,622 ac) (NRC 2018). The letters initiating the Section 106 consultation for CBR's license renewal application include maps showing the APEs. These maps are incorporated here by reference (NRC 2025d).

Crow Butte Project

A discussion of the cultural research and investigations conducted at the Crow Butte Project can be found in Section 2.5 of the NRC's 2022 literature review report, incorporated here by reference (NRC 2022a). In 1982, the University of Nebraska and, in 1987, the Nebraska State Historical Society conducted field investigations at the Crow Butte Project. These efforts recorded 18 prehistoric and historic period archaeological sites (25DW111 – 25DW117, 25DW191 – 25DW199, 25DW00-2, and 25DW0026) and 3 isolated finds (FN-1, FN-2, and FN-

3). Fifteen of these sites were evaluated as not eligible for listing in the NRHP. Five sites, including two Native American (25DW114 and 25DW194) and three historic period locales (25DW00-25, 25DW192, and 25DW112) were evaluated as being "potentially eligible" for the NRHP and requiring further field assessment for a full eligibility evaluation (i.e., unevaluated sites).[2] Unevaluated sites are treated as eligible sites until an NRHP eligibility determination is completed. Table 3-13 of NRC's 2014 EA (NRC 2014) and Table 2 of NRC's 2022 literature review report, incorporated here by reference, describe these findings (NRC 2022a).

For Native Americans, the Crow Butte Project area and the surrounding area are of significance because these include lands involved in the 1851 and 1868 Fort Laramie Treaties. Section 3.9.8 of NRC's 2014 EA, incorporated here by reference, also described places of significance to Tribes including Crow Butte, vision quests sites (a long ridge adjacent to Crow Butte), medicinal herbs, and cultural landscape in light of the Fort Robinson and Red Cloud Agency period (1873 – 1877) and the Great Sioux War (1876 –1877) (NRC 2014).

In November 2021, Quality Services, Inc. (QSI) conducted a tribal cultural resource survey at the Crow Butte Project to identify and evaluate sites of significance to the Oglala Sioux Tribe (QSI 2022). Table 2.1 of the NRC's 2022 EA supplement, incorporated here by reference, describes the isolated finds documented during the tribal survey (IW11, KL53, LW26 – 31, RW09, RW10, and RW21) (NRC 2022b). Table 2.2 and Table 2.3 of NRC's 2022 EA supplement, also incorporated here by reference, describe the archaeological sites found not eligible (25DW196, 25DW197, IW10, IW12, IW17, KL10, KL44, KL49, KL51, LW03, LW06, LW17, and RW03) and eligible (IW02, KL46, RW02, and RW11) for listing in the NRHP, respectively (NRC 2022b).

A summary of the sites at the Crow Butte Project found eligible for listing in the NRHP and unevaluated sites is included in Table 3-1 of this document.

Table 3-1. Summary of Unevaluated Sites or Sites Eligible for Listing in the NRHP at the Crow Butte Project

Site Number	Year Recorded	Site Type/Age	NRHP Eligibility
25DW112/00-17	1982	Wulf/Daniels Farmstead; historic period	Potentially eligible (Unevaluated)
25DW114	1982	Prehistoric lithic tools, flaking debris, trade goods, and nonhuman bone; Paleo-Indian, Middle Archaic, Late Archaic, Late Prehistoric, and Historic components	Potentially eligible (Unevaluated)
25DW192	1987	Stetson/Roby Farmstead; historic Period	Potentially eligible (Unevaluated)
25DW194	1987	Surface/buried lithic tools, nonhuman bone, human remains; Plains Equestrian Period and unknown Native American	Potentially eligible (Unevaluated)
25DW00-25	1987	Stetson Place; occupied historic period farmstead	Potentially eligible (Unevaluated)
IW02	2021	Stone alignment of four sandstone cobbles	Eligible

[2] While six sites were initially evaluated as "potentially eligible," later testing of site 25DW198 (a Native American site) found that subsurface deposition had been severely impacted by agriculture and it was re-evaluated as not eligible for listing (NRC 2022a).

KL46	2021	27 lithic artifacts, including a core and chalcedony, quartzite, and igneous flakes; mineralized bone	Unevaluated
RW02	2021	1 Pelican Lake Corner-notched point; Late Archaic	Unevaluated
RW11	2021	Stone circle	Eligible
Source: NRC 2014, NRC 2022b			

During the tribal cultural resource survey, the crew identified 21 plant species of significance (e.g., sage, mullein, purple cone flower, wild bergamot). Table 2-4 of NRC's 2022 EA supplement, incorporated here by reference, provides a summary of the identified plants and their traditional uses and significance (NRC 2022b). Three waterways were identified as traditional cultural places because they represent the types of waterways that were important in providing food, medicine, and raw materials. These creeks are White Clay Creek, English Creek, and Native Creek.[3] The survey crew also identified two fossils of significance (CB21 and CB22), which were found not eligible for listing in the NRHP, and two locations of skeletal bison remains (Bisons are considered sacred to Lakota culture) also found not eligible for NRHP listing. Three vision quest sites were identified (CB16, CB17, and CB18) on relatively level areas near the top of buttes, with clear views of Crow Butte and Lovers Leap (NRC 2022b).

Marsland Expansion Area

Cultural resource investigations conducted in 2011 and 2012 at the MEA identified 15 historic period sites (25DW242, 25DW243, 25DW35 – 25DW370) and six historic isolated finds (2368-1004 – 2368-1007, 2368-1013, 2368-1019, 2368-1023). Table 3-11 of NRC's 2018 EA, incorporated here by reference, summarizes these findings (NRC 2018). None of the historic period sites or isolated finds were found eligible for listing in the NRHP.

In November and December 2012, two Tribes conducted field investigations at the MEA resulting in the identification of 12 potential places of religious or cultural significance to Tribes (NRC 2013a). As summarized in Table 3-2 of this document, none of the Tribal sites were found eligible for listing in the NRHP (NRC 2013b).

Table 3-2. Summary of Tribal Sites at the Marsland Expansion Area

Site Number	Year Recorded	Site Type/Age	NRHP Eligibility
Tribal Site 1*	2013	Stone circles/Camp sites #1-6	Not eligible
Tribal Site 2	2013	Direction/Cairn Site	Not eligible
Tribal Site 3	1987	Stetson/Roby Farmstead; historic Period	Not eligible
Tribal Site 4	1987	Stone figure/Lone Tipi sites	Not eligible
Tribal Site 5	1987	Hearth site	Not eligible
Tribal Site 6	2021	Gravesite	Not eligible
Tribal Site 7	2021	Cultural/Buffalo Site	Not eligible
* Tribal Site 1 consists of three sites which are co-located near each other. Source: NRC 2013b.			

[3] Because the official name of one of the three creeks (Sq**w Creek) is considered derogatory to Native peoples, it was referred to during the survey as "Native Creek." The QSI survey report and the EA supplement also use "Native Creek."

In the 2018 EA for the MEA license amendment, the NRC staff also considered culturally important medicinal herbs to Tribes (e.g., sweet clover, white sage, prairie wild rose). Table 4-4 of the 2018 EA, incorporated here by reference, summarizes the plant species at the MEA that have been identified as being used by the Oglala Sioux Tribe in contemporary times (NRC 2018).

3.2 Environmental Impacts

3.2.1 Crow Butte Project

As discussed in Section 4.8 of NRC's 2014 EA, incorporated here by reference, CBR designated potentially eligible (unevaluated) sites 25DW112/00-17, 25DW114, 25DW192, 25DW194, and 25DW00-25 for avoidance during construction activities, both at the time and for the future (NRC 2014).CBR confirmed that these sites have been avoided (CBR 2026c). Of these sites, only 25DW192 is located within a wellfield, within approximately 30 feet of wells. Potential land disturbance could occur during reclamation and decommissioning. Site 25DW192, however, is protected by a fenced perimeter (NRC 2014 and CBR 2026b). Aquifer restoration activities occur within the developed wellfields and would result in little or no potential impacts to known cultural resource sites (NRC 2014). Land disturbance is expected during wellfield and facility decommissioning; however, potentially eligible (unevaluated) sites would continue to be avoided during these activities (NRC 2014).

The 2022 QSI tribal survey report concluded that eligible and unevaluated sites IW02, KL46, RW02, and RW11 would not be affected by licensed activities because these sites are located outside the developed area (QSI 2022). Therefore, in NRC's 2022 EA supplement, the NRC staff concluded that these sites would not be affected because they are in areas that would not be subject to future ground disturbing activities (NRC 2022b). Further, CBR confirmed that a 100-foot buffer for these four sites would be appropriate (CBR 2026b).

Because CBR is not proposing any changes to the licensed activities that would occur during the proposed license renewal term, the NRC staff incorporates here by reference the impact findings and conclusions documented in the NRC's 2014 EA and NRC's 2022 EA supplement for unevaluated sites and sites eligible for listing in the NRHP as previously summarized in this section. Therefore, the NRC staff finds that potential impacts from land disturbing activities on unevaluated sites and sites eligible for listing on the NRHP during the proposed license renewal review would not be adverse and therefore would not be significant.

Sites 25DW196 and 25DW197 were determined not eligible for listing in the NRHP but were identified as significant to Tribes (QSI 2022). These sites could be impacted by future land disturbances during the license renewal review period. In the 2022 tribal survey report, QSI determined that sites 25DW196 and 25DW197 have been disturbed by burrowing mammal activity and natural erosion (QSI 2022). Because of the high level of soil disturbance, QSI found that the integrity of the artifacts' location is no longer present and the potential to yield archaeological information is limited. CBR also confirmed that the area where 25DW196 is located is outside of the monitoring well ring, has been farmed, and is being hayed (CBR 2026c). The area where site 25DW197 is located continues to be a wheatfield being maintained by the landowner (CBR 2026c). Therefore, the NRC staff finds that potential impacts to these two sites would not be significant. Sites 25DW116 and 25DW198[4] were determined not eligible for listing in the NRHP but were identified as significant to Tribes. These two sites are located

[4] Site 25DW198 has been severely impacted by agriculture (NRC 2022b).

within wellfields and CBR has installed wells and pipelines in these areas, which will be removed during reclamation (CBR 2026c). Because these two sites do not have the potential to yield archaeological information and retain little integrity, the NRC staff finds that potential impacts would not be significant.

During the proposed license renewal period, CBR plans to continue aquifer restoration activities while maintaining some wellfields in standby until it decides whether to restart commercial production or start restoration of those wellfields. During wellfield and site decommissioning, there would be occasional visual and auditory impacts because of the use of heavy equipment and other decommissioning activities and occasional brief periods of blowing dust prior to revegetation (NRC 2022b). However, these impacts are not anticipated to be adverse and, therefore, not significant.

Although most of the plants described in the NRC's 2014 EA and 2022 EA supplement occur at the Crow Butte Project, these plants are known to be found over a wide range in the Central Plains (NRC 2014 and NRC 2022b). Regarding the fossils of tribal significance identified during the 2021 tribal survey (sites CB21 and CB22), the 2022 QSI survey report recommended a 50-foot buffer (QSI 2022). However, as discussed in NRC's 2022 EA supplement, there is a 40-foot distance to the nearest point that could be affected by reclamation activities. These reclamation activities are not anticipated to be significant and would be of short duration. Therefore, the NRC staff concluded that no additional buffer would be necessary (NRC 2022b). Potential impacts to groundwater and surface water during the proposed license renewal period are not anticipated to be significant as discussed in the NRC's 2014 EA (NRC 2014). The bison skeletal remains of significance to Tribes are located outside the developed area and, thus, not anticipated to be impacted by licensed activities during the proposed license renewal period. Site CB18 (vision quest site) is located outside the developed area and is therefore not anticipated to be impacted by the licensed activities that would occur during the proposed license renewal period (NRC 2022b). Sites CBR16 and CB17 (vision quest sites) are adjacent to each other along a ridgetop near the developed area. CBR, however, confirmed that no disturbance of the ridgetops is anticipated (CBR 2026c).

3.2.2 Marsland Expansion Area

As discussed in NRC's 2018 EA for the MEA license amendment, while historic and cultural resources were identified during field investigations, no sites were found eligible for listing in the NRHP (NRC 2018). The twelve tribal sites identified during the 2013 tribal survey were also found not eligible for listing in the NRHP; however, the 2013 tribal survey report recommended that CBR observe a buffer zone with a radius of either 100 or 200 feet (30 or 61 meters) during project construction and operation activities and the use of Tribal monitors if there are future project impacts in the immediate vicinity of the identified places (NRC 2013a). CBR has confirmed that a 100-foot avoidance buffer would be appropriate for Tribal Sites 1, 2, 3, 6, and 7 (CBR 2026a). Tribal sites 4 and 5 are located within wellfields and, therefore, CBR has identified a 25-foot buffer for avoidance (CBR 2026c).

As described in Section 3.1.2 of this document, plant species of significance to Tribes could also occur within the MEA. However, as previously discussed in this section, these plants are known to be found over a wide range in the Central Plains (NRC 2014 and NRC 2022b).

3.2.3 Overall Potential Impacts

The NRC staff finds that impacts from licensed activities at the Crow Butte Project and MEA during the proposed license renewal period on unevaluated sites, sites eligible for listing in the NRHP, and tribal sites found not eligible for listing in the NRHP but of significance to Tribes will not be significant. Further, condition 9.8 of license SUA-1534 stipulates that (1) CBR must undertake additional cultural resources surveys should any previously unsurveyed land be used for future developmental activity and (2) CBR must cease work and immediately notify the NRC should a discovery of previously unknown cultural artifacts take place during project disturbance activity.

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