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OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS
DIVISION OF RULEMAKING, ENVIRONMENTAL AND FINANCIAL SUPPORT

DRAFT SUPPLEMENT TO THE ENVIRONMENTAL ASSESSMENT
FOR THE LICENSE RENEWAL OF U.S. NUCLEAR REGULATORY COMMISSION
LICENSE NUMBER SUA-1534 FOR THE CROW BUTTE RESOURCES, INC. IN-SITU
URANIUM RECOVERY FACILITY IN DAWES COUNTY, NEBRASKA

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Acronyms/Abbreviations

ADAMS	Agencywide Documents Access and Management System
ASLB	Atomic Safety and Licensing Board
APE	area of potential effect
CBR	Crow Butte Resources, Inc.
CEQ	Council on Environmental Quality
CFR	<i>Code of Federal Regulations</i>
EA	environmental assessment
ft	feet
FONSI	Finding of No Significant Impact
GIS	Geographic Information System
ISR	in-situ uranium recovery
km	kilometers
m	meters
mi	miles
NE	Nebraska
NEPA	National Environmental Policy Act of 1969, as amended
NE SHPO	Nebraska State Historic Preservation Office
NHPA	National Historic Preservation Act
NMSS	NRC Office of Nuclear Material Safety and Safeguards
NRC	U.S. Nuclear Regulatory Commission
NRHP	National Register of Historic Places
QSI	Quality Services Inc.
SC&A	Sanford Cohen & Associates
TCP	traditional cultural property

DRAFT SUPPLEMENT TO THE ENVIRONMENTAL ASSESSMENT FOR THE LICENSE
RENEWAL OF U.S. NUCLEAR REGULATORY COMMISSION LICENSE NUMBER SUA-1534
FOR THE CROW BUTTE RESOURCES, INC. IN SITU URANIUM RECOVERY FACILITY

1.0 INTRODUCTION

The staff of the U.S. Nuclear Regulatory Commission (NRC) has prepared this draft Supplement to the Environmental Assessment (EA) for the renewal of source materials license number SUA-1534 for the Crow Butte Resources, Inc. (CBR) in situ uranium recovery (ISR) facility in Crawford (Dawes County), Nebraska. This draft EA Supplement describes sites of historic, cultural, or religious significance to the Oglala Sioux Tribe (Tribe)¹ that were identified during a field survey of the CBR license area conducted in November 2021 and evaluates the potential environmental impacts of the license renewal on those sites.

1.1 Background

The CBR ISR facility is located approximately 6.0 kilometers (km) (4 miles [mi]) southeast of the City of Crawford, Nebraska in Dawes County. In 2007, CBR submitted an application to the NRC requesting a 10-year renewal of source materials license SUA-1534, which authorizes the operation of the CBR ISR facility (CBR 2007).

The NRC staff's safety evaluation for the license renewal was issued in August 2014 (NRC 2014a), followed by the EA and accompanying finding of no significant impact (FONSI) in October 2014 (NRC 2014b). The 2014 EA assessed the potential environmental impacts of the license renewal and of reasonable alternatives (no-action alternative) on the following environmental resources: land use; historic and cultural resources; visual and scenic resources; climatology, meteorology and air quality; geology and soils; water resources; ecological resources; socioeconomics; environmental justice; noise; transportation; public and occupational health and safety; and waste management. On November 5, 2014, the NRC issued the renewed license authorizing continued ISR operations for an additional 10 years.

On August 24-28, 2015, an NRC Atomic Safety and Licensing Board (ASLB or Board) held an evidentiary hearing on nine contentions, one of which related to historic and cultural resources.² In a partial initial decision (LBP-16-7) on the contention related to historic and cultural resources, the Board found that the NRC staff met its consultation obligations under the National Historic Preservation Act (NHPA) but did not meet its identification obligations under the NHPA. The Board also found that the 2014 EA was deficient under the National Environmental Policy Act (NEPA) "for failing to take a hard look at potential TCPs [traditional cultural properties] within the Crow Butte license area[.]" In October 2020, the Commission issued a decision (CLI-20-08) affirming the Board's decision.

¹ The Oglala Sioux Tribe has expressed its preference for the word "nation" or "peoples" instead of the word "Tribe" and has suggested that "Tribe" should only be used when it has been incorporated in a Native nation's name (i.e., "Oglala Sioux Tribe"). The NRC staff acknowledges these preferences, but for consistency with the history of this proceeding, continues to use the word "Tribe" when referring to the Oglala Sioux Tribe.

² The other contentions related to excursion indicators, impacts on surface water, impacts on groundwater, geological nomenclature, consumptive groundwater use, groundwater restoration mitigation measures, tornadoes and land application of wastewater, and earthquakes. All of these contentions were ultimately resolved in favor of the NRC staff and CBR.

In November 2020, the NRC staff resumed efforts to address the deficiencies identified in LBP-16-7. During the first half of 2021, the NRC staff held several meetings with representatives of the Oglala Sioux Tribe. These meetings culminated in the development of a methodology for conducting a tribal cultural survey to identify sites of historic, cultural, and religious significance to the Tribe within the CBR license area that could be affected by the continued operation of the CBR ISR facility under the renewed license. The tribal cultural survey was conducted in November-December 2021.

1.2 Purpose of this Supplement

This draft Supplement describes the NRC staff's actions to address the deficiencies identified by the Board in LBP-16-7. Specifically, this Supplement describes the methodology, implementation, and results of the 2021 tribal cultural survey to identify sites of significance to the Tribe (section 2), the NRC staff's evaluation of the identified sites according to the criteria for listing in the National Register of Historic Places (NRHP or National Register) (section 3), and the NRC staff's assessment of potential impacts of the license renewal on the identified sites under the NHPA (for sites eligible for the NRHP) or NEPA (for other sites of significance to the Tribe) (section 4). Organizations and persons consulted during the preparation of this Supplement are described in section 5, and the staff's conclusions are summarized in section 6.

1.3 Proposed Action

The proposed action is the same as that stated in the 2014 EA: the renewal of source materials license number SUA-1534 for the CBR ISR facility. The CBR ISR facility consists of a central processing facility, 11 mine units (wellfields), deep disposal wells, and evaporation ponds. At this time, all mine units at the site have been developed and no further wellfield development is anticipated during the license renewal period.

The size of the CBR ISR license area is 1,149 hectares (ha) (2,840 acres [ac]) (CBR 2021). The construction and operation of the CBR ISR facility has disturbed an area of 485 ha (1,199 ac), which is referred to in this Supplement as the "developed area." Licensed activities that could result in land disturbance during the license renewal period are anticipated to only occur within this developed area. Other activities that could result in land disturbance outside of the developed area, such as agricultural (grazing or farming) activities, are not within the scope of the proposed action.

Licensed activities, as described in chapter 2 of the 2014 EA, include in situ uranium recovery, waste management and disposal, aquifer restoration, and wellfield decommissioning. Once aquifer restoration for a particular wellfield has been completed and accepted, the licensee can then proceed with other wellfield decommissioning activities, which include removal of infrastructure/piping and surface reclamation (e.g., removal and disposal of surface structures, regrading, and reseeded).³

All mine units at the site have been developed and no further development is anticipated during the current license renewal period. In February 2018, CBR announced plans to cease

³ Final sitewide decommissioning for purposes of license termination requires submittal and approval of a decommissioning plan and would generally not begin until aquifer restoration has been completed for all (or nearly all) wellfields.

operations at the Crow Butte ISR facility, and on April 2, 2018, CBR provided information to the NRC about the steps being taken as a result of that decision (CBR 2018). None of the mine units at the site is currently in active production.

2.0 IDENTIFICATION OF SITES OF SIGNIFICANCE TO THE OGLALA SIOUX TRIBE

The affected environment for cultural resources was previously described in section 3.9 of the 2014 EA. Additional historical background and context is provided in a literature review prepared by the NRC staff's contractor, Jerry Spangler of SC&A, Inc. (Spangler 2022). This section summarizes previous efforts to identify tribal cultural resources within the CBR license area, then describes the development, implementation, and results of a 2021 tribal cultural survey undertaken to identify sites of historic, cultural, and religious significance to the Oglala Sioux Tribe.

2.1 Previous Identification Efforts

Cultural resources surveys within the license area were conducted in 1982 and 1987. The results of these surveys are summarized in section 3.9.6 of the 2014 EA and in section 2.5.2 of the 2022 literature review (Spangler 2022). In brief, these surveys documented seven Native American⁴ archaeological sites and two isolated finds (potential sites) within the license area. Three of the sites (25Dw114, 25Dw194, and 25Dw198) were initially recommended as being potentially eligible for listing in the NRHP under Criterion D, but 25Dw198 was later re-evaluated and found to be not eligible. The Tribe did not revisit the two potentially eligible sites during the 2021 tribal cultural survey.

An **archaeological site** is a location that contains tangible remains of past human activities. To qualify as an archaeological site in Nebraska, there must be two or more artifacts at a single location. A site with only one artifact is considered an isolated find.

Thirteen archaeological sites within 8 km (5 mi) of the license area were identified in past cultural resource surveys (Spangler 2022: table 1). These sites were either unevaluated for NRHP eligibility or they were determined to be not eligible for listing in the NRHP. Another eight archaeological sites had historic Native American components that might be attributed to the historic Lakota use of the area (Spangler 2022: table 3), including 25Dw114 and 25Dw194 within the license area, which had both historic and prehistoric components (Bozell and Pepperl 1987: table 2.4-3).

In addition, the 1987 cultural resources survey stated that “an historic Native American burial was exposed and removed on a high ridge immediately north of [site 25DW194] in the 1950s” (Bozell and Pepperl 1987:47). Efforts during the 1987 archaeological survey to identify the burial location or additional burial materials were unsuccessful (Bozell and Pepperl 1987:49). An Oglala elder suggested the burial could be that of a Northern Cheyenne warrior killed in 1879 when the Cheyenne attempted to escape from Fort Robinson (Lanno and Weston 2022:15). However, the lead author of the 1987 archaeological report indicated that he never saw the burial, but was only told about it (Rob Bozell to Jerry Spangler, personal communication June 9, 2021). The 1987 report states that “no evidence of burials was obtained” during the survey

⁴ The Tribe has expressed its disapproval of the term “Native American” and has suggested that just “Native” would be a more appropriate designation. Recognizing the Tribe’s preference, the NRC staff only uses “Native American” in this EA Supplement when summarizing or quoting other documents in which the term is used.

(Bozell and Pepperl 1987:47). In 2012, Paul Nickens, a contractor for the NRC staff at the time, contacted the individual who reported the burial to gather further information (SC&A 2012:21). Based on this follow-up investigation, Mr. Nickens concluded that it was “open to discussion” whether there was a human burial, whether it was removed, and whether it could be associated with the historic Native American period.

2.2 Survey Methodology

As part of its efforts to address the deficiencies identified by the Board, the NRC staff and its contractor developed a survey methodology (NRC 2021) based on input received from the Oglala Sioux Tribe. The purpose of the methodology was to (1) identify any previously unidentified sites of historic, cultural, and religious significance to the Tribe within the CBR license area, and (2) obtain sufficient information about the significance of any identified sites to allow the NRC staff to assess potential adverse effects or impacts of the license renewal on those resources.⁵ This effort included identification of sites of significance in the CBR license area that fall within the scope of the NHPA (historic properties and TCPs) as well as other sites within the CBR license area of traditional historic and cultural importance to the Tribe that are outside the scope of the NHPA but fall within the broader scope of NEPA.

National Register Bulletin 38, “Guidelines for Evaluating and Documenting Traditional Cultural Properties,” (Parker and King, 1998) defines a **traditional cultural property** (TCP) as a property that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (1) are rooted in that community’s history and (2) are important in maintaining the continuing cultural identity of the community. Bulletin 38 limits TCPs to resources with specific, physical locations (i.e., resources that have property referents).

The survey methodology was designed to cover the Area of Potential Effect (APE) of the proposed action, which is the 1,149-ha (2,840-ac) license area. The methodology consisted of three main elements: a field investigation, oral history interviews, and a final report summarizing the field observations and the Tribe’s perspectives on the significance of the sites. In brief, the methodology detailed the spatial scope of the survey, the timeframes for completing the survey, the participants, the information to be collected, and the types of data necessary for the NRC staff to complete its NHPA and NEPA evaluations. It also established a hierarchy of priorities that emphasized investigation of areas not previously disturbed (either by CBR’s licensed activities or by other activities such as agriculture) and previously recorded sites within the license area. The purpose of the oral history interviews was to gather information about the significance of the identified sites within the license area from knowledgeable tribal elders. (NRC 2021).

In the methodology, the NRC staff recognized that the Tribe has the unique expertise to identify sites that are significant to it and to ascribe significance to such sites. Therefore, the methodology provided that the Tribe could conduct the survey with its own participants or hire a contractor of its choosing to conduct the survey on the Tribe’s behalf. The Oglala Sioux Tribe contracted with Quality Services, Inc. (QSI) to conduct the field investigation and oral history interviews and complete the report for the identification efforts. The survey crew consisted of a tribal liaison, five tribal cultural resource specialists, and a cultural anthropologist, all but one of

⁵ In the methodology, the word “site” refers to a specific, physical location, i.e., one that has specific property referents. (NRC 2021:1).

whom are Lakota-speaking tribal members. The field investigation was conducted between November 2 and December 2, 2021, and oral history interviews of nine tribal elders took place between January 10 and February 4, 2022. The QSI field investigation covered 459 ha (1,133 ac) of the license area, all outside of the developed area, using the methodology described above.

2.3 Summary of Tribal Cultural Survey Results

In April 2022, after approval by the Tribal Council, the Tribe provided QSI’s report about the results of the survey to the NRC staff (Lanno and Westo1133n, 2022). The survey crew identified 28 locations with archaeological resources (artifacts or features), and 31 sites of historic, cultural, or religious significance to the Tribe, which the survey report refers to as TCPs.

2.3.1 Archaeological Resources

The survey crew identified a total of 28 locations with archaeological resources.⁶ Each of these locations is described below.

The survey crew identified 11 locations with a single artifact, either a waste flake, a single stone tool, or a fragment of ground stone, all found in secondary contexts and most commonly in cultivated fields and pastures. Nebraska State Historic Preservation Office (NE SHPO) guidance indicates that single artifacts in secondary context are not to be given site status but should be described as isolated finds (NE SHPO 2006:22). Isolated finds identified during the survey are summarized in table 2.1. The report recommended these 11 artifacts as not being eligible for NRHP listing. The staff’s evaluation of their eligibility is discussed in section 3.1.

Table 2.1 Isolated Finds Documented During Tribal Survey

Site No.	Description	Impacts	Survey Report’s NHPA Eligibility Recommendation
IW11	Granite mano or hammerstone	Agriculture	Not Eligible
KL53	Utilized chert flake	Agriculture	Not Eligible
LW26	Quartzite secondary flake	Agriculture	Not Eligible
LW27	Ground stone fragment	Agriculture	Not Eligible
LW28	Exhausted chert core	Agriculture	Not Eligible
LW29	Chert tertiary flake	Agriculture	Not Eligible
LW30	Chalcedony tested cobble	Agriculture	Not Eligible
LW31	Chert primary flake	Agriculture	Not Eligible
RW09	Secondary chert flake	Agriculture	Not Eligible
RW10	Ground stone tool	Agriculture	Not Eligible
RW21	Quartzite scraper	Erosion	Not Eligible

The survey crew identified 11 other locations that meet the NE SHPO definition of an archaeological site, in that they have two or more spatially related artifacts indicative of former

⁶ According to tribal elder Angie Taylor’s grandmother, a camp of Oglala warrior Crazy Horse was located within the license area (Lanno and Weston 2022:12). No archaeological evidence of this camp was identified.

human behavior (NE SHPO 2006:22). These include lithic scatters, charcoal staining, a concentration of fire-altered rock, and bone fragments. All of these artifacts were found in secondary contexts, either disturbed by erosion, rodents, and/or agricultural activities. In addition, two previously recorded lithic scatters, 25Dw196 and 25Dw197, were re-documented and their site boundaries expanded.

These 13 sites are summarized in table 2.2. The report recommended these 13 sites as not being eligible for NRHP listing. The NRC staff's evaluation of their eligibility is discussed in section 3.1.

Table 2.2 Archaeological Sites Recommended as Being Not Eligible for NRHP Listing

Site No.	Description	Impacts	Survey Report's Recommendations	
			NHPA Eligibility	Site Integrity
25Dw196	7 chert secondary and tertiary stage flakes	Rodents, Agriculture	Not Eligible	None
25Dw197	13 chert secondary and tertiary stage flakes	Rodents, Agriculture	Not Eligible	None
IW10	1 chert core, one chert flake	Agriculture	Not Eligible	None
IW12	24 lithic artifacts, including a biface, two cores, and flakes of chert porcelanite, flint, and quartzite	Agriculture	Not Eligible	None
IW17	1 chert flake and 1 burned bone	Agriculture	Not Eligible	None
KL10	13 flakes of chert, quartzite, and chalcedony	Construction, Agriculture	Not Eligible	None
KL44	1 ground stone fragment and mineralized bone	Erosion	Not Eligible	None
KL49	Concentration of fire altered stones	Agriculture	Not Eligible	None
KL51	1 chert biface and 1 obsidian flake	Road, Agriculture	Not Eligible	None
LW03	Charcoal staining 1.7m long by 5.8cm thick	Gravel Mining	Not Eligible	None
LW06	1 tertiary flake and 1 secondary flake	Rodents	Not Eligible	None
LW17	1 chert uniface, 1 unknown tool, and 8 flakes of chert and chalcedony	Erosion	Not Eligible	None
RW03	1 chert flake and 4 bone fragments	Agriculture	Not Eligible	None

Finally, the survey crew identified two archaeological locations that were recommended as being eligible for NRHP listing and two others that were recommended to be considered unevaluated.⁷ These resources are described below.

Site KL46 is an expansive scatter of 27 lithic flakes in all stages of reduction and small mineralized bones located along a ridge line between two waterways. But most of the artifacts were identified in rodent burrows, suggesting the artifacts had been displaced from intact subsurface contexts and that subsurface testing would be necessary to establish NHPA

⁷ As discussed in section 3.1, the NE SHPO treats unevaluated sites as eligible pending further analysis.

eligibility. The report indicated that this site is located outside the developed area and “will not be disturbed by surface reclamation activity” (Lanno and Weston 2022:54).⁸

RW02 is an isolated Pelican Lake Corner-notched point attributed to the Late Archaic period. The report recommended this isolated find as being eligible under Criterion C in that the Pelican Lake point embodies characteristics of type, period, and method of construction. The point was also identified in a rodent burrow, suggesting it had been displaced from subsurface contexts and that site testing could demonstrate its eligibility under Criterion D. The report indicated that this site is located outside the developed area and “is far enough from any potential disturbance by surface reclamation activity” that there will be no effect (Lanno and Weston 2022:80).

IW02 was identified as an alignment of four sandstone cobbles in a north-south alignment 3.34 meters (m) (11 feet [ft]) long. The alignment has a clear view of both Crow Butte and Lovers Leap, and “given the location it might have religious or ceremonial purposes” (Lanno and Weston 2022:36). No artifacts were observed. The site was recommended as being eligible for listing in the NRHP under Criterion D. The report indicated that this site is located outside the developed area and “will not be disturbed by surface reclamation activity” (Lanno and Weston 2022:36).

RW11 was identified as a stone circle 2.4 by 1.28 m (4 ft) defined by 10 sandstone cobbles embedded in prairie sod. The stone circle (or alignment) has a clear view of Crow Butte and Lovers Leap and probably represents a ritual practice most often associated with vision quests, sweat lodges, and other individual rituals, or as a short-term camp for a small group (Lanno and Weston 2022:90). The site was recommended as being eligible under Criterion D. The report indicated that this site is located outside the developed area and “far enough from potential reclamation activity” that there will be no effect (Lanno and Weston 2022:90).

Table 2.3 Archaeological Sites Recommended as Eligible or Potentially Eligible for NRHP Listing

Site No.	Site Description	Cultural Affiliation	Impacts	Survey Report's NHPA Eligibility Recommendation
IW02	Stone alignment of four sandstone cobbles 3.34m long	Not Specified	Agriculture	Eligible (Criterion D)
KL46	27 lithic artifacts, including a core and chalcedony, quartzite, and igneous flakes; mineralized bone	Not Specified	Rodents	Unevaluated
RW02	1 Pelican Lake Corner-notched point	Late Archaic	Rodents	Unevaluated
RW11	Stone circle 2.4m by 1.28m	Not Specified	Grazing, Fence	Eligible (Criterion D)

2.3.2 Plant Species

The survey crew identified 21 plant species as being culturally significant (see table 2.4). Twelve species were identified in 78 specific locations within the license area, seven additional species

⁸ The survey report provides an assessment of whether “reclamation” would affect identified resources. This EA Supplement assesses the potential impacts from all licensed activities authorized under the license renewal, including reclamation.

were labeled as being common throughout the license area, and two species were identified as “occasional.”

A summary of the identified plants and their traditional uses and significance is provided in table 2.4. Some information on about the significance of these plants, provided by survey crew members and in the oral history interviews, is reflected in the table. For example, an Oglala medicine man identified echinacea, sage, mullein, and red cedar as significant plants (although red cedar was not identified in the Tribal survey). And an Oglala elder identified cottonwood for treating snow blindness and echinacea as being connected to beings important in Lakota religious views.

Table 2.4 Culturally Significant Plants Identified in the CBR License Area

Lakota Plant Name	Common Name	Latin Name	Traditional Uses	Identified Localities	Species Distribution
Icah'pi hu	Purple Cone Flower	Echinacea purpurea	Anti-bacterial and local anesthetic, treatment for colds and flu	18	Eastern and Central United States
Peji hota	Sage	Artemisia sp.	Stomach ailments, ceremonial purposes, and smudging	19	Worldwide
Ta'oniya pejuta	Mullein	Verbascum thapsus	Diabetes treatment; as a poultice for muscle and blood ailments; respiratory issues	13	Worldwide
Canpa hu	Chokecherry	Prunus virginiana	Berries a food source; shoots used as arrow shafts; bark for stomach ailments	3	North America
Khanta	Wild Plum	Prunus americanus	Fruits a food source; pits for tanning and in ceremonial rattles	7	North America
Nawizi hu cikala	Wild Licorice	Glycyrrhiza lepidota	Adrenal, thyroid, and stomach issues; liver and kidney cleanser	5	North America
Cansasa	Red Osier Dogwood/ Red Willow	Cornus sericea	Smoking material in ceremonies; also arrow shafts, organ cleansers, and to treat digestive issues	1	North America
Timpsila	Breadroot Scurfpea	Psoralea esculenta	Primary vegetal food source	4	Central North American Prairies
Wahpe Wastemina	Wild Bergamot	Monarda fistulosa	Stomach and muscle ailments, anti-coagulants, female perfume, and to mask human scent	3	North America
Tokala ta pejuta huwinyala	Yellow Coneflower	Ratibida pinnata	Digestive and kidney issues	2	Central and Eastern North America
Tat'e cannuga	Gayfeather	Liatris punctata	Treatment for kidney stones	2	Central North American Prairies
Cankpe owaste	Burhead	Echinodorus rostratus	Treatment for liver ailments	1	North America
Psetin'can	Ash	Fraxinus pennsylvanica	Wood for bows and pipes; inner bark was eaten	Common	Central and Eastern North America
Unzinzintka	Wild Rose	Rosa arkansana	Kidney and bladder ailments; portions are a food source	Occasional	Central North America
Pe'can	Elm	Ulmus americana	Anti-bacterial	Common	Central and Eastern North America

Wihuta'hu	Cattail	<i>Typha latifolia</i>	Roots a food source; seed heads as insulation; other medicinal uses	Common	Worldwide
Psaozu	Bullrush	<i>Scirpus</i> sp.	Stalks woven into mats; roots brewed into teas to treat cancer, edema, and blood issues	Occasional	Worldwide (except Africa)
Wanyecawwula	Horsetail	<i>Equisetum arvense</i>	Kidney, bladder, and urinary ailments	Common	North America
Unkcelablaska	Prickly Pear	<i>Opuntia polyacantha</i>	A food source, in dating rituals, and to clear murky water	Common	North America
Wasican	Ponderosa Pine	<i>Pinus ponderosa</i>	Needles used as an antibiotic	Common	Western United States and Nebraska
Canyahu	Cottonwood	<i>Populus deltoides</i>	Food for horses, a poultice for snow blindness, and in Sun Dance ceremonies	Common	Central United States

2.3.3 Fossils

The survey crew identified two fossil locations as being significant. Both locations are on private lands. The report did not address the NRHP eligibility of these two sites.

CB21 is an exposed outcrop of the Chadron Formation on the northwestern periphery of the license area containing tortoise shell fragments, likely *Styemys nebrascensis*, and a left mandible of a fossilized rabbit, probably *Palaeolagus temnodon*. Other fossilized bone fragments were found but were too small to be identified.

CB22 is an outcrop of the Gering Formation, a late Oligocene deposition representing an aggrading braided stream channel. It is located in the bluffs on the southern periphery of the license area. Embedded in this deposit was the right mandible of a *Diceratherium*, or prehistoric rhinoceros. Possible fossilized footprints of a large ungulate were present at the base of the outcrop and traces of fossilized insect burrows were evident in the outcrop. Other fossil material consisted mainly of unidentifiable bone fragments.

2.3.4 Waterways

The survey report identified three small creeks in the license area as TCPs because they represent the types of waterways that were important in providing food, medicine, and raw materials. These creeks are, from west to east, White Clay Creek, English Creek, and Native Creek.⁹ The report states that “waterways within the project area impact most of the other tribal interests in the area, whether they be historic camping areas or contemporary locations of culturally significant plants.” (Lanno and Weston 2022:128).

The identified waterways are mostly on private lands, except for the farthest upstream portion of Native Creek within the license area, which is on Nebraska State lands. Within the license area, Native Creek, which trends south-to-north toward the White River, is narrow enough in some places that it can be stepped across. English Creek, which has intermittent water (it was dry in November 2021), also trends south-to-north through the center of the license area. And a small portion of White Clay Creek, also a small perennial waterway, cuts through the northwest corner

⁹ 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.” Although the official name was used in the 2014 EA, the NRC staff refers to this waterway as Native Creek in the EA Supplement.

of the project area. Archaeological remains were frequently located on the terraces above these waterways.

According to the elders who were interviewed, the Lakota would frequent creeks and rivers where medicinal plants grow in quantity. Elders also indicated that spring water was always used in the preparation of medicinal plants, which would have made the small creeks such as those found in the license area viable water sources for this purpose. Additionally, camp sites were typically situated on the hills above spring water, close enough for easy access but far enough to avoid dampness and chill along the waterway itself.

One elder recalled her grandmother saying that horses were corralled at the bottom of the Native Creek and that Crazy Horse was camped just east of the creek (Lanno and Weston 2022:12). The survey report states that White Clay Creek was an important camping area during the period of the Red Cloud Agency (Lanno and Weston 2022:128-129). But the exact locations of such camps are not known, and no tangible artifacts or other materials indicating the presence of such camps were identified during the survey.

2.3.5 Bison Remains

The survey crew identified two locations in the license area containing the skeletal remains of bison. One was found eroding out of a creek bank and the other was located in a fallow farm field where it was exposed by agricultural disturbances. As discussed by tribal elders, all bison are considered sacred “because the bison was the lynchpin of the Lakota way of life,” and Lakota social structure is patterned after bison social structure (Lanno and Weston 2022:126). The survey did not establish whether these locations represent kill and butchering sites or the animals died of natural causes.

2.3.6 Vision Quest Sites

Three sites were identified as *hanbleciya*, or vision quest, sites. As described in the survey report:

Hanbleciya is one of the seven sacred ceremonies of the Lakota. They are private ceremonies that generally would take place on a ridge or hilltop away from the camp or people. An individual would garner the help from a Lakota medicine man who would help the individual with the setting of the altar.

All three sites are located on relatively level areas near the tops of buttes, with clear views of Crow Butte and Lovers Leap. (Lanno and Weston 2022:127). Sites CB16 and CB17 are located on the periphery of the developed area, and site CB18 is well outside the developed area. All three vision quest sites are on private property.

3.0 NHPA ELIGIBILITY EVALUATIONS

Section 106 of the NHPA requires that Federal agencies take into account the effect of an undertaking on historic properties, which are defined in Title 36 of the *Code of Federal Regulations* (36 CFR) 800.16 as any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP. The staff evaluated all of the identified resources for eligibility for listing as historic properties in the NRHP, taking into consideration the recommendations provided in the report.

The criteria for evaluating eligibility for inclusion in the NRHP (36 CFR 60.4) are defined as follows:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

- (A) that are associated with events that have made a significant contribution to broad patterns of U.S. history, or
- (B) that are associated with the lives of significant persons in our Nation's past, or
- (C) that embody distinctive characteristics of type, period, or method of construction, or represents the work of a master, or represents high artistic values, or that represent significant and distinguishable entity whose individual components may lack individual distinction, or
- (D) that have yielded or may be likely to yield information important in history or prehistory.

Thus, "significance" for purposes of NRHP eligibility is present in properties that (1) possess integrity, and (2) meet one of the four conditions (A)-(D) listed above. In addition, certain properties, such as those that have achieved significance within the past 50 years, are ordinarily not eligible for listing in the NRHP. (36 CFR 60.4).

The survey report identified a number of resources as TCPs. Bulletin 38 defines a TCP as a property "that is eligible for inclusion in the [NRHP] because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history and (b) are important in maintaining the continuing cultural identity of the community." (Parker and King 1998:1).

Bulletin 38 contains a step-by-step process for determining the eligibility of identified TCPs: (1) ensure that the entity is a property, (2) assess the property's integrity, and (3) evaluate the property against the NRHP criteria and criteria considerations in 36 CFR 60.4. For TCPs, integrity includes *integrity of relationship* (i.e., is the property regarded as important in the retention or transmittal of a belief or to the performance of a practice), and *integrity of condition* (i.e., does the property retain characteristics of location, setting, design, or materials such that traditional cultural significance is retained?) (Parker and King 1998:11-12).

The staff's eligibility evaluations are discussed in the following sections.

3.1 Archaeological Resources

As described in section 2.3.1, the survey report identified four sites as being potentially eligible for NRHP listing. Specifically, two of the sites were recommended as eligible for the NRHP and two others were recommended as "unevaluated" in that additional testing might demonstrate subsurface cultural deposits that could make the sites eligible under Criterion D (table 2.3). No subsurface testing was conducted during the field investigation. Standard NE SHPO policy directs that potentially eligible and unevaluated sites are considered "eligible" pending further determination of their eligibility status (email from Deputy State Historic Preservation Officer John Swigart to Jerry Spangler, June 6, 2022).

The report indicated that KL46, a large lithic and bone scatter, could be eligible under Criterion D in that subsurface testing might yield further archaeological information. However, because no subsurface tests were conducted, the report recommended site KL46 as “unevaluated” for purposes of NRHP eligibility. The NRC staff concurs with this assessment in that most artifacts were found in badger and mole burrows, and artifacts in such contexts are assumed to have been displaced from subsurface contexts. Cultural deposits in subsurface contexts have a greater potential to be undisturbed, and therefore have a greater potential to contribute information important to our Nation’s past (Criterion D).

RW02, a single broken projectile point, was identified in a rodent burrow, suggesting it was displaced from subsurface contexts. The report recommended that it be considered eligible under Criterion C in that it embodies the distinctive characteristics of the Late Archaic Pelican Lake Complex. The report also stated that, due to its proximity to other lithic sites, this site could yield additional information with further testing, making it eligible under Criterion D. Ultimately, the report recommended the site as being “unevaluated” for purposes of NRHP eligibility. Although this single artifact does not meet the NE SHPO definition of an archaeological site, the NRC staff concurs with the report’s recommendation that the proximity of the artifact to other lithic sites suggests a potential for the artifact to be part of a much larger complex of habitational activities in the immediate area and that testing could identify subsurface cultural deposits that might contribute information important to our Nation’s past (Criterion D).

The report recommended IW02, a stone alignment, as being eligible for listing in the NRHP under Criterion D because of its potential to yield additional archaeological data. This alignment is deeply embedded in undisturbed prairie sod and appears to have considerable antiquity, although the absence of Native artifacts in direct association with the feature makes it questionable that the alignment is of human manufacture. The NRC staff concurs with the report’s recommendation in that testing could demonstrate that the feature is indeed cultural in origin and that it has the potential to contribute information important to our Nation’s past (Criterion D).

Finally, the report recommended RW11, a stone circle, as eligible for listing in the NRHP under Criterion D because of its potential to yield additional archaeological data. This stone circle (or alignment) is at the edge of a pasture and at the edge of an escarpment trending down slope to a permanent waterway. Both the pasture and the escarpment are devoid of similar stones, making the stone circle noticeably out of place and likely the result of human activities. The absence of Native artifacts, however, makes it questionable that the feature is the result of Native practices (it might also have been the result of farmers clearing the pasture in preparation for seeding). Testing could demonstrate that the feature is indeed Native in origin and the NRC staff concurs with the report’s recommendation that it has the potential to contribute information important to our Nation’s past (Criterion D).

In summary, the staff agrees that these four sites are potentially eligible for listing in the NRHP. Therefore, they are analyzed for potential effects under NHPA in section 4.2.

The survey report determined that none of the remaining 24 sites (described above in section 2.3.1) met any criteria for eligibility. In addition, most of the sites were disturbed by rodents and/or agricultural activities. The NRC staff concurs with the report’s assessment that these archaeological sites are found in highly disturbed contexts (secondary deposits representing displacement due to erosion and agriculture) and they do not possess elements of integrity (location, design, setting, workmanship, materials, feeling, and association) necessary for listing in the NRHP. Therefore, the staff agrees with the report’s recommendation and

concludes that these 24 sites are not eligible for listing in the NRHP. Because these 24 sites are not eligible, they will be analyzed for potential impacts under NEPA in section 4.3.1.

3.2 Plant Species

As discussed in section 2.3.2, the report identified 21 plant species within the license area as TCPs. The identification of plant *species* (emphasis added) as TCPs is inconsistent with the NHPA and its implementing regulations (36 CFR 800), as well as Federal guidance in Bulletin 38. TCPs are limited to tangible properties (Parker and King 1998:11), and a plant species is not tangible. Furthermore, a plant species is not eligible for NRHP listing because a species does not retain site integrity (plant locations change over time and in response to changing climates and human manipulation), and most plant species have lifespans of fewer than 50 years (current locations may have no relevance to historical plant locations).

However, plant resources might qualify as TCPs if they are associated with a specific place of significance, tradition, or use. Bulletin 38 cites the example of the Pomo Indians of the Russian River Valley in California, who collected high quality sedge roots from specific locations to construct their world-famous basketry. Not all sedge fields are Pomo TCPs; rather, only the ones specific to maintaining the Pomo basketry tradition are considered TCPs (Parker and King 1998:14).

This example is relevant to the specific instances of the 21 plant species identified as TCPs within the CBR license area. The survey report did not indicate that the Lakota used these specific plants in these specific locations in the past, or that these plant locations have been or continue to be utilized in the present by a living community. The report also did not indicate that these specific plants, in these specific locations, are necessary for the Tribe to maintain its cultural identity; or that these specific plants within the license area possess individual qualities that distinguish them from the same plants that are ubiquitous throughout the Central Plains.

In short, because the plants identified during the survey are indistinguishable from identical plants that are widespread across much of North America, they lack integrity of relationship. Their cultural significance lies not in a specific location where the species is found today, but in the cultural values assigned to those plant species by Lakota traditionalists.

For the reasons discussed above, the NRC staff concludes that the 21 plant species identified during the survey are not eligible for NRHP listing. Therefore, potential impacts to these plant species are analyzed under NEPA in section 4.3.2.

3.3 Fossil Resources

As discussed in section 2.3.3, the survey report identified two locations within the license area containing fossils. The report states, "Fossils are considered relatives by the Oglala Sioux Tribe (Oglala Sioux Tribal Ordinance No.10-13), therefore all of the paleontological sites in this tribal cultural survey are also TCPs." (Lanno and Weston 2022:130).¹⁰

¹⁰ Oglala Sioux Tribal Ordinance No. 10-13 states, "The Oglala Lakota people consider what are commonly referred to as fossils and artifacts as relatives" (OST 2010: § 49.1.101). This ordinance pertains to the regulation of preservation and collection of paleontological and other resources within the boundaries of the Pine Ridge Indian Reservation.

Bulletin 38 states that TCPs can include locations “associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world” (Parker and King 1998:1). The survey report did not address the NRHP eligibility or explain the significance of these specific fossils, which are 34 million years old, to traditional cultural and religious practices and beliefs that maintain the Tribe’s cultural identity. Also, based on the information in the report, the two fossil sites appear to retain minimal integrity with only small, fossilized bone fragments, fossilized insect burrows, and possible fossilized ungulate footprints.

In summary, because the two fossil sites do not maintain integrity of relationship or integrity of condition, the NRC staff determines that they are not eligible for listing in the NRHP. Therefore, potential impacts on these fossil resources are analyzed under NEPA in section 4.3.3.

3.4 Waterways

Waterways may meet NRHP criteria in some circumstances. They are geographic locations that can be spatially defined, and they often have significance to Native groups.

However, the NRHP “discourages the nomination of natural features without sound documentation of their historical or cultural significance.” (Parker & King 1998:11). Bulletin 38 gives an example of two groups living along the shores of a lake. Both groups use lake water to perform rituals marking the acceptance of individuals into the group. For one group, any body of water would suffice, and because the lake is available, it is used. For the other group, water from this particular lake is essential to the ritual. In this scenario, the lake is integral to the beliefs and practices of the second group, but not the first.

The three creeks identified during the survey provide habitat for culturally significant plant species. The Lakota preferred spring water and also required it for the preparation of many medicines (Lanno and Weston 2022: 128-29). However, the survey report does not indicate that these three creeks were unique to a particular belief or practice that occurred only along these particular creeks. Tribal elders indicated that small, spring-fed creeks such as those found in the license area *would have been* important resources to the Lakota, but they did not identify these *specific* creeks as important. As in the example cited above, these resources were used because they happened to be available. The opportunistic use of these three creeks at an unknown point in the past does not establish the necessary integrity of relationship for NHPA eligibility purposes.

In addition, the three waterways are not relevant to the survival of tribal cultural practices given that the Tribe has not had access to these waterways within the license area since the original licensing of the CBR ISR facility (and likely since Euroamerican settlement of the area in the 1880s). Cultural and religious practices involving water and waterways continue to be performed at other locations.

For the reasons discussed above, the NRC staff concludes that the three creeks identified during the survey are not eligible for NRHP listing. Therefore, potential impacts to these creeks are analyzed under NEPA in section 4.3.4.

3.5 Bison Remains

Both TCP sites that the report identified as bison (*Bison bison*) remains are tangible and can be spatially defined. The report stated that bison are culturally significant because, in the Lakota

world view, “the bison was the lynchpin of the Lakota way of life.” (Lanno and Weston 2022: 126). Tribal elders also stated that the buffalo nation demonstrated a compassionate and sacred way of life and that the *tiospaye* social organization of the buffalo was the origin of Lakota social structure (Lanno and Weston 2022:13-14). The report did not offer perspectives on the eligibility of these two locations for listing in the NRHP.

Because the bison skeletons identified during the survey are indistinguishable from other bison remains that may be present throughout the area, they lack integrity of relationship. Their cultural significance lies not in a specific location where the remains are found today, but in the cultural values assigned to bison by the Lakota.

Additionally, the suspected bison remains identified in the field were not subjected to laboratory analysis to verify species, age, or association with human activities (e.g., butchering marks). In the case of CB19, the animal remains found in a fallow field are completely disarticulated, probably due to farming activities. At CB12, the animal remains were exposed in a creek cutbank. Although mostly disarticulated, the vertebrae are still intact. In light of the fact that cattle ranching has occurred in this area for more than a century, and in the absence of laboratory analysis to establish species identification, the possibility remains that the animal bones are the decomposing remains of domestic cattle discarded by local ranchers.

In the absence of definitive evidence that these specific animal remains are associated with cultural practices or beliefs of a living community, and because there is no integrity of condition (due to disarticulation of the remains) or integrity of relationship, the NRC staff concludes that the two bison skeletons identified during the survey are not eligible for NRHP listing. Therefore, potential impacts to these resources are analyzed under NEPA in section 4.3.5.

3.6 Vision Quest Sites

The three sites identified in the survey report as vision quest sites are tangible locations that can be spatially defined and are associated with a recognized traditional cultural practice of the Tribe. Vision quests, or *hanbleciya* ceremonies, constitute one of seven sacred ceremonies of the Lakota and are important to maintaining the cultural identity of the Tribe. Therefore, sites where these ceremonies occurred have religious and cultural significance to the Tribe. Vision quest ceremonies generally take place “on a ridge or hilltop away from the camp or people” and sites for such ceremonies can be recognized by “relatively level areas near the tops of buttes with a clear viewshed” (Lanno and Weston 2022:127). In other words, the ceremonies can be conducted at any location with elevated terrain and adequate viewshed.

The report did not address the eligibility for NRHP listing of the three sites. The report did not provide information suggesting that these specific sites or these specific buttes are important in maintaining the continued cultural identity of the Tribe, or that these buttes were unique to a specific ceremony that occurred exclusively at these three locations. The three sites identified during the survey are not individually distinctive, nor are they distinct from other buttes or ridgetops in the area. As discussed above for waterways and plants, opportunistic use is not sufficient to establish integrity of relationship.

The three sites are located on elevated landforms that are outside the developed area, and as such they retain integrity of location, setting, feeling, and association. But there is no evidence that these locations (which are on private land) are being used today for vision quest ceremonies. Such use was likely discontinued upon Euroamerican settlement of the area in the 1880s. The three sites, therefore, are not relevant to the survival of relevant relationships given

that vision quest ceremonies of cultural and religious significance to the Tribe continue to be performed at other locations deemed appropriate by the Tribe.

For the reasons discussed above, the NRC staff concludes that the three vision quest sites identified by the Tribe are not eligible for NRHP listing. Therefore, potential impacts to these sites are analyzed under NEPA in section 4.3.6.

4.0 EVALUATION OF IMPACTS UNDER NHPA AND NEPA

Under the NHPA, the NRC staff evaluates whether historic properties that are eligible for listing in the NRHP will be affected by a Federal undertaking (in this case, the renewal of CBR's license). An "effect" under Section 106, as defined in 36 CFR 800.16(i), means an alteration of the characteristics of an historic property qualifying it for inclusion in or eligibility for listing in the NRHP. If the staff determines that there will be no effects on historic properties, the staff will propose a finding of no historic properties affected. If the staff does identify effects on historic properties within the APE, it will apply the criteria in 36 CFR 800.5(a)(1) to determine whether effects would be adverse.

Under NEPA, the NRC staff must take a "hard look" at potential impacts on historic and cultural resources. In this EA Supplement, cultural resources identified in the 2021 tribal cultural survey (see section 2) that are not eligible for listing in the NRHP are analyzed under NEPA to determine whether impacts of the proposed action (i.e., the renewal of CBR's license) will be significant. The assessment of significance of impacts under NEPA requires consideration of context and intensity. Impacts are analyzed in several contexts such as society as a whole, the affected region, the affected interests, and the locality. Intensity refers to the severity of effect, which includes factors such as the magnitude, geographic extent, duration, and frequency of the effect (CEQ/ACHP 2013).

4.1 Indirect Impacts Common to All Resources

This section discusses certain indirect impacts that are common to all sites, regardless of NRHP eligibility. These include visual, atmospheric, and auditory impacts.

There is currently no additional construction planned for the CBR ISR facility, and the site is not engaged in active ISR operations. Wellfield decommissioning cannot occur until groundwater restoration activities have been completed in a wellfield, and CBR does not expect to perform reclamation activities in any wellfield during the current license renewal period (CBR 2022).

During wellfield and site decommissioning, there would be occasional visual impacts because of the presence of heavy equipment and decommissioning activities; occasional noise from heavy equipment; and occasional brief periods of blowing dust prior to revegetation. Ultimately, the objective of wellfield and site decommissioning is to restore the license area to its original pre-development condition. The NRC staff finds that the four newly identified archaeological sites that are recommended as being eligible for listing in the NRHP are located far enough away from the developed area that they would not be affected by these impacts. In addition, for the newly identified cultural resources that are not eligible for listing, the staff finds that these indirect visual, auditory, and atmospheric impacts would not be significant because they would be temporary in duration and effect.

4.2 Impacts on Sites Potentially Eligible for NRHP Listing

The survey report identified four archaeological sites that are potentially eligible for listing in the NRHP: site KL46, an expansive scatter of 27 lithic flakes and mineralized bone; RW02, an isolated Pelican Lake Corner-notched point attributed to the Late Archaic period; IW02, an alignment of four sandstone cobbles; and RW11, a stone circle (2.4 by 1.28 m [8 by 4ft]). The report concluded that these four sites would not be affected by licensed activities because they are located outside the developed area (Lanno and Weston 2022:36, 54, 80, 90). Because none of the identified archaeological sites is located in areas that would be subjected to future ground disturbances by the licensee, the NRC staff agrees with this assessment. Therefore, the staff concludes that there will be no historic properties affected by the license renewal.

4.3 Impacts on Non-Eligible Resources Under NEPA

In the following sections, the staff analyzes potential impacts under NEPA on newly identified sites that were not eligible for listing in the NRHP. These sites include 24 archaeological resources (sites or isolated finds), as well as plant species, fossils, waterways, bison remains, and vision quest sites that the Tribe identified as culturally significant. The analysis below addresses whether there will be significant impacts on these resources from the renewal of CBR's license.

4.3.1 Archaeological Resources

The survey report identified 24 archaeological sites and isolated finds that it recommended as being not eligible for listing in the NRHP. Furthermore, the report concluded that there would be no effects on those resources from licensed activities. All of these sites are located outside the developed area, and therefore will not be affected by licensed activities. The NRC staff agrees with the report's assessment and concludes that these resources would not be directly affected by licensed activities. Therefore, the staff determines that there will be no significant impacts on these 24 archaeological resources.

4.3.2 Plant Species

The gathering of certain plants for medicinal, dietary, utilitarian, and ceremonial purposes is a recognized traditional cultural practice of the Tribe. As evidenced by oral histories of tribal elders, this practice is deeply rooted in the Tribe's past and it continues to the present, and the gathering and use of plants has religious significance within the Lakota world view (see oral history summaries in Lanno and Weston 2022:11-16).

The survey report did not suggest that there would be any potential impacts on the plant species or individual plant locations identified during the survey. Most of the plant locations identified during the survey are outside the developed area, and the remainder are on the periphery. These would not be significantly affected by licensed activities, including reclamation activities during wellfield decommissioning. Furthermore, because most of these locations are on private lands, they have not been accessible to the Tribe for traditional gathering and would continue to not be accessible in the future. Any plants within the 16 ha (40 ac) of State-owned land within the license area are along Native Creek upstream of the wellfields and well outside the developed area. Finally, these plants are ubiquitous on the Central Plains (and beyond) and are not unique to the CBR license area. Therefore, any impacts on the particular instances of identified plant species would not affect the Tribe's ability to gather and use these same plant

species found elsewhere for their cultural practices. For these reasons, the NRC staff concludes that there will be no significant impact on these culturally significant plants.

4.3.3 Fossil Sites

The survey report identified fossils as significant cultural resources inasmuch as fossilized animals are considered relatives of the Tribe. CB22, located on the southern periphery of the license area, is sufficiently outside the developed area that the staff concludes that there will be no significant impacts on this site from licensed activities, including reclamation.

CB21 is located outside of but adjacent to the developed area, approximately 29 m (95 ft) from the nearest monitoring well and about 12 m (40 ft) from the nearest access road. The site is on the opposite side of a livestock fence from the road and the nearest monitoring well. Both the monitoring well and the access road will be reclaimed during decommissioning. CBR does not anticipate doing any reclamation outside the developed area and plans to only use soil from within the developed area for backfilling and regrading during reclamation (CBR 2022). The reclamation activities near CB21 would involve plugging the monitoring well and restoring the access road to its natural state. Given the distance from CB21 to the nearest site where reclamation would occur (approximately 12 m [40 ft]), the livestock fence between that area and CB21, and the apparent minimal amount earthwork activities needed to restore the area, the staff concludes that there would be no significant impacts on this site from licensed activities, including reclamation.

The report recommended that “[d]ue to the cultural significance of fossils . . . and the proximity to the well ring, a 50-foot buffer is recommended during reclamation activities.” (Lanno and Weston 2022:132). However, given the 40-foot distance to the nearest point that will be affected by reclamation, the minimal earthwork activities that appear to be required, and the short duration of such activities, the staff concludes that there is no need for an additional buffer.

4.3.4 Waterways

As discussed in section 2.3.4, the survey report identified three creeks that pass through the site as being culturally significant. All three waterways are located within a historically significant cultural landscape (the period of the Red Cloud Agency), and all three are directly associated with archaeological localities indicative of thousands of years of camping along the stream terraces. Lakota use of this area began in the early 1800s and continued through the 1870s with the establishment of the Red Cloud Agency and Camp Robinson on the White River near modern-day Crawford. Major historical events included negotiations between the U.S. Government and Native peoples for the purchase of the Black Hills, which brought thousands of Lakota, Northern Cheyenne, and Arapaho to the White River valley. The historical record has multiple references to White Clay Creek where these negotiations were conducted, although these events occurred far north of the license area.

The following discussion of impacts was included in the survey report:

Mining in the area has impacted access to the waterways within the project area, with English and Native Creeks running through active mine units, thus disrupting access to both the creeks themselves, the history around them, and the plants growing in their waters and floodplains. Oglala Lakota community members expressed at multiple times throughout the project, concerns over possible

contamination of these creeks by mining activities (Lanno and Weston 2022: 128).

The impacts of the license renewal, including decommissioning activities, on surface water quality were addressed in the 2014 EA and resolved in the 2015 license renewal hearing. Therefore, impacts on surface water quality are outside the scope of this analysis.¹¹ Impacts on plants, including plants growing along the creeks, are addressed in section 4.3.2. With regard to potential impacts on cultural uses of water from the creeks, the report does not specify that these particular creeks are relevant to the survival of the Tribe's traditional beliefs and practices. Only the far upstream portion of Native Creek (upstream of the developed area) is on State-owned land. Otherwise, the creeks within the license area are on private land and have not been accessible to the Tribe at least since the original licensing of the facility, and likely not since Euroamerican settlement of the area in the 1880s.

For these reasons, the staff concludes that there will be no significant impacts from the license renewal on these three creeks.

4.3.5 Bison Remains

The survey report identified two locations where suspected bison remains were found. Both sites are culturally significant resources because of the importance of bison (*Tatanka*) within the Lakota world view, social structure, and way of life (Lanno and Weston 2022:126).

Both sites are on private lands and outside of the developed area: one is partially buried within the banks of a creek, and one is in a fallow agricultural field. The report did not indicate that there would be any potential impacts on these sites.

Because they are both located outside of the developed area, neither site would be impacted by licensed activities. For these reasons, the staff concludes that there will be no significant impacts from the license renewal on these two locations containing bison remains.

4.3.6 Vision Quest Sites (*Hanbleciya*)

The report identified three vision quest sites (*hanbleciya*) on and around high bluffs on the southern periphery of the license area with views of Crow Butte and Lovers Leap.¹² All three sites can be considered to be culturally significant resources because they are related to the Tribe's religious values and their cultural traditions. These ceremonies are deeply rooted in the Lakota's history, and they continue to the present day as a traditional part of Lakota social structure.

¹¹ In section 4.6.1 of the 2014 EA, the staff concluded that potential impacts to surface water from plant operations and decommissioning would be small, where "small" was defined as "environmental effects that are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource." (NRC 2014b: 69-73).

¹² The survey report identified three vision quest sites: CB16, CB17, CB18 (Lanno and Weston 2022:127). Based on the Geographic Information System (GIS) shape files provided by QSI, it appears that sites CB16 and CB17 in the report are combined into one shape file labeled CB16, and site CB18 in the report is in a shape file labeled CB17. In this EA Supplement the staff refers to three sites as denoted in the report.

One of these locations, CB18, is well outside the developed area (about 558 m [1,830 ft] from the nearest monitoring well). Based on the distance of this site from the nearest point where reclamation activities would occur, the staff concludes there will be no significant impacts on CB18.

The other two sites, CB16 and CB17, are adjacent to each other along a ridgetop on the periphery of the developed area. In the Geographic Information System (GIS) shape file these two sites were combined into one site encompassing the entire ridgetop plus about 15 m (50 ft) in all directions. The closest monitoring well is about 8 m (25 ft) from the site boundary depicted in the GIS shape file, at the bottom of a steep slope that descends from the top of the ridge (CBR 2022). CBR has indicated that the earthwork associated with reclamation could extend to near the site boundary but would occur at the bottom of the slope with no potential to affect the ridgetop. Reclamation activities would involve plugging the monitoring well and restoring the access road to its natural state. Given the topography, the actual distance from the ridgetop itself (approximately 23 m [75 ft]), and the apparent minimal amount of earthwork and short period of time needed to restore the area, the staff concludes that there would be no significant impacts on these sites from licensed activities, including reclamation.

The report recommended “a 50-foot buffer around the ridgetop be implemented during the reclamation process to avoid disturbing any *hanbleciya* sites” (Lanno and Weston 2022:127). However, as noted above the sites appear to have been defined to include 15 m (50 ft) on all sides of the actual ridgetops. Therefore, there is no need for any additional buffer.

4.4 Cumulative Impacts

The 2014 EA (section 4.13.8) discussed cumulative impacts on historic and cultural resources considering the impacts of the renewal of CBR’s license in conjunction with the impacts of the development of the Marsland Expansion Area, North Trend Expansion Area, and Three Crow Expansion Area. The identification of additional sites of significance to the Tribe during the 2021 tribal cultural survey does not alter the basis for the staff’s conclusion in the 2014 EA that cumulative impacts on historic and cultural resources would not be significant.

4.5 The Oglala Sioux Tribe’s Recommended General Mitigation Measures

The survey report stated that the Tribe’s role as caretaker of its traditional territory has been disrupted by the operation of the CBR facility and restricted access to the area and it recommended “mitigative measures . . . to ensure the regeneration of, and access to traditional cultural properties, spiritual sites, and historical knowledge in the future.” (Lanno and Weston 2022:138). The “primary” measure proposed in the survey report is tribal participation and consultation, with compensation, in the reclamation process (e.g., selection of plant species for reseeding) and in future surface water and groundwater quality monitoring. The report also recommended that after the reclamation process is complete, tribal members be granted physical access to the reclaimed area to conduct traditional activities.

As stated in section 1.2, the purpose of this EA Supplement is to describe the NRC staff’s actions to address the deficiencies identified by the Board in LBP-16-7: (1) the staff’s failure to meet its identification obligations under the NHPA, and (2) the staff’s failure to take a “hard look at potential TCPs within the Crow Butte license area,” as required under NEPA. The analysis in the EA Supplement is therefore limited to these topics.

Under Section 106 of the NHPA, Federal agencies must identify historic properties (properties that are eligible for listing in the NRHP) that could be affected by a Federal undertaking; assess the effects of the undertaking; and seek ways to avoid, minimize, or mitigate any adverse effects. In this case, the Federal undertaking is the renewal of CBR's license. In this EA Supplement, the NRC staff has described the development and implementation of a tribal cultural resources survey to identify sites of significance to the Oglala Sioux Tribe within the CBR license area. The survey identified four new archaeological sites that are recommended as being eligible or potentially eligible for listing in the NRHP. As discussed in section 4.1 above, the survey report concluded, and the NRC staff agreed, that these historic properties will not be affected by CBR's licensed activities under the renewed license. Because there are no effects on these properties (and thus, no adverse effects), there is no need to consider ways to avoid, minimize, or mitigate adverse effects.

Under NEPA, Federal agencies must take a "hard look" at potential impacts of a proposed action on environmental resources, including historic and cultural resources. In this case, the proposed action is the renewal of CBR's license. The tribal cultural resources survey identified 24 archaeological resources (sites and isolated finds), as well as plant species, fossils, waterways, bison remains, and vision quest sites that the report identified as TCPs. As discussed in section 3, the staff concluded that these resources, while culturally significant to the Oglala Sioux Tribe, were not eligible for listing in the NRHP. Therefore, the staff evaluated the potential impacts of the proposed action on these resources under NEPA. As discussed in section 4.3 above, the NRC staff concluded that there would be no significant impacts to these resources from the renewal of CBR's license. Because there are no significant impacts expected, there is no need to consider potential mitigation measures to reach a FONSI.

The staff acknowledges the historic and cultural significance of the Crow Butte region to the Tribe. However, based on the staff's findings that the renewal of CBR's license would result in no effects on historic properties and no significant impacts on other cultural resources, consideration of the general mitigation measures recommended by the Tribe is not necessary for the staff to meet its obligations under the NHPA and NEPA.

4.6 Summary

The tribal cultural survey identified 24 archaeological sites or isolated finds that were recommended as not being eligible for listing, and four archaeological sites or isolated finds that were recommended as being eligible or unevaluated (and thus potentially eligible). The staff evaluated these sites for eligibility and concurs with the recommendations in the survey report. In addition, the tribal cultural survey identified as TCPs various other resources that are significant to the Tribe, including plant species, fossils, waterways, bison remains, and vision quest sites. The staff evaluated these resources for eligibility and concluded that none were eligible for listing in the NRHP.

For NRHP-eligible sites, the staff evaluated potential effects and concluded that no historic properties would be affected. For non-eligible sites and resources, the staff evaluated potential impacts under NEPA and concluded that there would be no significant impacts on any of the resources.

5.0 PERSONS AND AGENCIES CONSULTED

Starting in November 2020, the NRC staff began discussions with the Oglala Sioux Tribe, including the Tribal Historic Preservation Office and Director of the Tribe's Natural Resources

Regulatory Agency. Over the course of the next 18 months, the NRC and representatives of the Oglala Sioux Tribe held multiple conference calls and visited the CBR facility to assist the staff in developing the survey methodology described in section 2.2 of this Supplement. After the methodology was agreed upon, the staff, CBR, and the Tribe held additional meetings to address survey logistics, culminating in execution of the tribal cultural survey beginning in November 2021.

From June 2021 through November 2021, the NRC staff's contractor had multiple communications with the NE SHPO and the State Archaeologist to discuss NE policies and NRHP guidance, and to request copies of cultural reports not already available to the NRC.

Finally, the staff made two requests to CBR for clarifying information related to the development of the methodology and the staff's analysis of impacts (CBR 2021 and CBR 2022).

6.0 CONCLUSION

As discussed in section 1.2, the NRC staff has prepared this draft Supplement to the 2014 EA in order to address certain deficiencies in the staff's original analysis of cultural resources identified by the Board in LBP-16-7. This draft EA Supplement describes sites of historic, cultural, or religious significance to the Oglala Sioux Tribe that were identified in a 2021 tribal cultural survey of the CBR license area and evaluates potential impacts on those resources. Based on the 2014 EA and this EA Supplement, the NRC has preliminarily concluded that the proposed action (renewal of the CBR license) will have no significant environmental impacts on identified sites of significance to the Oglala Sioux Tribe or on any other cultural resources. Therefore, pursuant to 10 CFR 51.31, preparation of an environmental impact statement is not required for the proposed action, and pursuant to 10 CFR 51.32, a FONSI is appropriate.

7.0 PREPARERS

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