

Survey Methodology to Identify Sites
of Historic, Cultural, and Religious
Significance to the Oglala Sioux Tribe

for the

Crow Butte Resources Inc.
In Situ Uranium Recovery Facility in
Dawes County, Nebraska

September 2021

Table of Contents

1. Introduction	1
2. Terms and Concepts	2
2.2 Traditional Cultural Property	2
2.3 Archaeological Sites	4
2.4 Historic Properties	4
2.5 Tribal Cultural Survey	5
2.6 Traditional Cultural Knowledge	5
2.7 National Register Eligibility	6
3. Background.....	7
4. Parameters and Objectives	8
4.1 Parameters.....	9
4.1.1 Proposed Action	9
4.1.2 Location and Setting	9
4.1.3 Area of Potential Effects	9
4.1.4 Duration of Field Investigation	10
4.1.5 Participants	10
4.2 Objectives.....	11
5. Tribal Cultural Survey Methods	11
5.1 Information To Be Collected	12
5.2 Data Acquisition	13
5.3 Protection of Sensitive Information.....	13
5.4 Field Investigation	14
5.4.1 Undisturbed Areas	15
5.4.2 Previously Recorded Sites.....	15
5.4.3 Disturbed Areas	18
5.4.4 Summary of Field Investigation Approaches	18
5.5 Oral History Interviews	19
6. Final Report	20
7. Implementation	21
8. References	22
Appendix A: Cultural Resource Survey Methodologies Reviewed	A-1
Appendix B: Crow Butte ISR Facility Developed Area and Pre Operational Land Use	B-1

1. Introduction

On May 26, 2016, the Atomic Safety and Licensing Board (Board) issued a partial initial decision (LBP-16-7) in the license renewal proceeding for the Crow Butte Resources, Inc. (CBR) in situ uranium recovery (ISR) facility in Dawes County, Nebraska. The decision concerned Contention 1, which asserted that the NRC staff violated the National Environmental Policy Act (NEPA) in its consideration of impacts on historic and cultural resources of significance to the Oglala Sioux Tribe (Tribe). In LBP-16-7, the Board concluded that the NRC staff, in its 2014 environmental assessment (EA) for the proposed license renewal, failed to meet its obligations under the National Historic Preservation Act (NHPA) and NEPA to identify historic properties that are significant to the Tribe and to take a “hard look” at potential impacts from renewing the license for the CBR ISR facility on sites of significance to the Tribe within the license area.

In November 2020, the NRC staff resumed efforts to address deficiencies identified in the Board’s 2016 partial initial decision and re-initiated its discussions with the Tribe. Specifically, these efforts focus on the identification of sites of historic, cultural, and religious significance to the Tribe that could be affected by the continued operation of the CBR ISR facility under the renewed license.¹

As part of its efforts to address the deficiencies identified by the Board, the NRC staff has developed this document, which presents a survey methodology to (1) identify any previously-identified 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. This effort includes identification of sites of significance in the CBR license area that fall within the scope of the NHPA (historic properties and traditional cultural properties [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.

This document was developed considering input received from (1) meetings with the Tribe in February and April 2021 (NRC 2021a, b), (2) the May 13 meeting with the Tribe and CBR, (3) the May 18 site visit (NRC 2021c), (4) the written input received from the Tribe on June 17, 2021 (OST 2021), (5) the July 8 meeting with the Tribe to discuss its written input (NRC 2021d),² and (6) meetings with the CBR and the Tribe on August 18 and 25, respectively (NRC 2021f, g), to discuss their review of the draft survey methodology (NRC 2021e). This methodology was informed by principles similar to those found in the survey methodology proposed by the NRC staff in the Powertech (Dewey-Burdock) proceeding (NRC 2019) but is adapted to account for the case-specific circumstances of the CBR license renewal.

¹ In this methodology, “site” refers to a specific, physical location.

² Some components of the Tribe’s proposal (OST 2021:3) were not incorporated into this survey methodology. These include a discussion of environmental setting, which is already included in the EA, and a review of previous research and State Historic Preservation Office files, to be prepared as a separate document from this survey methodology.

2. Terms and Concepts

To facilitate discussions and ensure consistency, the NRC staff and contractor have provided further clarity on the following bolded terms and concepts. Because the NRC staff has developed this methodology to comply with federal law (NHPA and NEPA), the definitions and discussion below are based on statutory definitions, federal guidance documents, and common archaeological terminology.³ For all other definitions of terms used in this methodology, the NRC staff defers to the Nebraska SHPO's glossary of terms (2006: Appendix 3).

2.1 Traditional Cultural Landscape

A **traditional cultural landscape** is “any place in which a relationship, past or present, exists between a spatial area, resource, and an associated group of indigenous people whose cultural practices, beliefs, or identity connects them to that place. A traditional cultural landscape is determined by and known to a culturally related group of indigenous people with relationships to that place” (Ball et al. 2015:5). For the purpose of this methodology, cultural landscapes provide a conceptual framework wherein archaeological sites, traditional cultural properties (TCPs), and other sites of significance to the Tribe can be discussed within a broader historical context.

In the Crow Butte area, the cultural landscape encompasses an area where events involving the Tribe took place, including the forced relocation of the Oglala Sioux Tribe to Northwestern Nebraska and subsequent events associated with Fort Robinson and the Red Cloud Agency, including the U.S. Government's efforts to force the Lakota to relinquish their treaty rights to the Black Hills.

While the term “traditional cultural landscape” is not found in federal law or regulations, the Advisory Council on Historic Preservation (ACHP), through its “Native American Traditional Cultural Landscapes Action Plan,” dated November 23, 2011 (ACHP 2011), has recognized the importance of traditional landscapes and the need to develop “tools to assist all participants in the recognition and consideration of Native American traditional cultural landscapes” (ACHP 2011:2; see also ACHP 2012 and ACHP 2016).

2.2 Traditional Cultural Property

A **traditional cultural property**⁴ is a property that is eligible for inclusion in the National Register of Historic Places (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.

³ The Oglala Sioux Tribe has indicated that these definitions do not necessarily comport with the Lakota worldview (NRC 2021g).

⁴ There is a clear trend in recent scholarly and government literature to refer to these as “traditional cultural places” rather than as “traditional cultural properties.” The latter is retained because it is the term used in federal guidance. Additionally, Michael Catches Enemy (2019), an enrolled member of the Tribe, has promoted using the term “traditional and naturally significant places,” which reflects “many forms of cultural resources, including but not limited to cultural landscapes, place names, oral tradition, and their cultural associations within the land and environment,” as a replacement for TCP (2019:79).

A TCP is a place on the landscape regardless of whether it is natural, made by humans, or modified by humans. To qualify as a TCP, the property must have tangible characteristics that occupy that place and can readily be seen and identified (Parker and King 1998).

The term is not defined in the NHPA or its implementing regulations. The above definition is found in National Register Bulletin 38, "Guidelines for Evaluating and Documenting Traditional Cultural Properties," which provides guidance to assist federal agencies, State Historic Preservation Officers (SHPO), Indian tribes, and other historic preservation practitioners in determining whether potential TCPs (properties thought to have cultural significance) are eligible for listing in the National Register during the NHPA Section 106 review process.

Bulletin 38 provides several examples of TCPs, including "a location associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world," and "a location where Native American religious practitioners have historically gone, and are known or thought to go today, to perform ceremonial activities in accordance with traditional rules of practice."

Native Americans have found this definition lacking on four different levels:

- (1) There must be tangible evidence of these activities to meet National Register eligibility requirements.
- (2) The language of the guidelines fails to recognize Native American world views that land and natural resources are also sacred.
- (3) The concept of religion and religious practices as a defining characteristic is foreign to Native American belief systems wherein the Earth and its resources are sacred within the course of daily ritual.
- (4) National Register eligibility of TCPs is eventually determined by non-tribal members, something Native Americans find paternalistic and offensive.

While Bulletin 38 has been criticized by Indian tribes for its ethnocentrism, paternalism, scientific elitism, and one-size-fits-all approach to the identification and evaluation of traditional and naturally significant places (Catches Enemy 2019:112), the Bulletin encourages consideration of the "intangible cultural values that may make a property historic, and to do so in an evenhanded way that reflects solid research and not ethnocentric bias" (Parker and King 1998:3).

Thomas King, the co-author of Bulletin 38, readily acknowledged the shortcomings of the definitions and how federal agencies have narrowly construed interpretations of what is and is not a TCP. King argued that the term was intended to include all Native American spiritual places that "people associate with their cultural values and beliefs...regardless of what objective qualities of significance the places may have" (2003:4).

LeBeau (2009:9) emphasized that the Lakota are the most qualified to locate, identify, interpret, evaluate, and document Lakota TCPs, and "Since they are responsible for making a place culturally significant, they are also the ones who are best capable of communicating cross-culturally the actual significance of their TCPs." In the absence of federal guidance, SHPOs have usually deferred to the Tribes on what is a TCP and whether it is significant.

2.3 Archaeological Sites

An **archaeological site** is a location that contains tangible remains of past human activities (see Bureau of Land Management Manual 8110). They include locations with artifacts (e.g., lithic detritus, projectile points, potsherds), constructed features (e.g., tipi rings, rock alignments, hearths), or some combination of artifacts and constructed features. Standards as to what constitutes an archaeological site are typically established at a state level by the SHPO, although some federal agencies have implemented their own standards for lands that they manage (BLM 2004, 2020).

The term is applied to both prehistoric and historic sites. In western Nebraska, prehistoric sites are those attributed to indigenous peoples prior to the arrival of Euro-American trappers, traders, explorers, soldiers, and colonists. Although the term “pre-contact” is commonly applied, prehistoric sites are routinely organized by Plains archaeologists into phases, periods, and complexes based on the presence of distinctive and temporally sensitive artifacts (e.g., projectile points, ceramics) and constructed features (e.g., habitations, storage features) (Frison 1991; Schlesier 1994; see also Nebraska SHPO 2006: Appendix 2).

Historic sites are commonly defined as sites that are at least 50 years old (NPS 1997a:41). The Historic period, sometimes referred to as the post-contact period, generally extends to the time of contact between indigenous and Euro-American peoples. In western Nebraska, the Historic period begins at about AD 1800 and historic sites include both Native American and Euro-American locations. These historic sites are also recognizable by the presence of distinctive and temporally sensitive artifacts (e.g., glass beads and metal tools) and constructed features (e.g., homesteads and windmills). The documentation of historic sites is commonly supported by written records of the activities that occurred there (Nebraska SHPO 2006).

In Nebraska, archaeological sites without diagnostic artifacts (artifacts that are temporally or culturally distinct) but with other artifacts, such as stone flakes from tool manufacturing, are typically labeled “unknown Native American” during the course of archaeological surveys, an acknowledgment that the tangible remains might be attributed to any of the nine different Tribes who occupied western Nebraska (Nebraska SHPO 2006: Appendix 1).

TCPs may contain one or more archaeological sites that contribute to the National Register eligibility of the TCP. But not all archaeological sites can be shown to be associated with the cultural practices or beliefs of a living community, and therefore not all archaeological sites would be potential TCPs.

Guidance from the Nebraska SHPO (2006) allows considerable professional discretion as to what is or is not an archaeological site. A location with a single artifact is typically not assigned a site number, and locations with multiple artifacts might not warrant a site number if it appears that they have dislocated from an unknown context elsewhere (these are referred to as secondary deposits). But artifacts observed in settings where there is potential for intact subsurface cultural deposits are typically assigned site numbers even if there are only a few artifacts visible on the ground surface. In some cases, site numbers have been assigned to locations in the Crow Butte area with a single artifact (Späth 2006, 2007).

2.4 Historic Properties

A historic property is defined in Title 36 of the *Code of Federal Regulations* (36 CFR) 800.16 as any “prehistoric or historic district, site, building, structure, or object included in, or eligible for

inclusion in, the National Register maintained by the Secretary of the Interior.” The term also includes “properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.”

Archaeological sites, whether prehistoric or historic, can qualify as historic properties if they meet the eligibility criteria for listing in the National Register. The assignment of a Nebraska site number to an archaeological site is not a reflection of the site’s importance, and not all archaeological sites would be eligible for listing in the National Register. As noted in Section 2.3, TCPs may contain one or more archaeological sites that contribute to the National Register eligibility of the TCP.

2.5 Tribal Cultural Survey

This document uses the term **tribal cultural survey** to refer to a process used by tribes to identify their own sites of historic, religious, and cultural significance, which may or may not be archaeological sites. Although the term “TCP survey” has also been used in previous NRC documents, the NRC staff is using the term tribal cultural survey in this document to refer to a survey that encompasses TCPs but also covers sites of significance to tribes that are not eligible for listing in the National Register.

Relevant to tribal cultural surveys is the concept of **intangible value**. ACHP guidance defines “value” as a site’s worth and importance to a particular group and its experience, regardless of whether the site possesses National Register significance (ACHP 2009).⁵ A site of significance to a tribe is a site that has value or importance to the tribe, but that value or importance might be based on intangible practices or beliefs that are not known, measurable, or observable to non-tribal individuals. In such cases, the significance (in a general sense) or value of a site to a tribe is intangible (based on intangible attributes). Intangible value may include, for example, historical significance based on ancestral ties to a certain location; cultural significance based on use of locations for plant-gathering, prayer, and ceremonies; and religious significance based on the relationship tribal members have to the natural landscape. Only tribal members steeped in cultural traditions and practices are capable of describing the intangible value of a site.

Related to intangible value is the term “traditional cultural significance,” which reflects the importance of a place based on the historic, cultural, and religious significance assigned by Indian tribes themselves. The measure of traditional cultural significance results from the ability to name and describe the significant cultural activity that was or would be performed at that location (LeBeau 2009:106).

2.6 Traditional Cultural Knowledge

Traditional cultural knowledge is the “cumulative body of knowledge, practice, and belief evolving by adaptive processes and handed down through generations by cultural transmission” (U.S. Department of Agriculture 2011). More simply put, it is the “knowledge base acquired by indigenous and local peoples over hundreds of years through direct experience and contact with the environment” (Anderson 2015:1). The Lakota view the land itself as the repository of traditional knowledge, and natural features in the landscape and certain physical characteristics they possess (scattered stone formations, natural depressions, flowering plants, tree species,

⁵ National Register significance is discussed in Section 2.7. There are more general references to significance (e.g., references to “sites of significance” and in this discussion of “intangible value”) throughout this document. In that more general sense, significance means “importance.”

and their growth forms) can communicate *wóslolyápi* (knowledge) of *wicócajeyatepi* (traditions) (LeBeau 2009:89).

2.7 National Register Eligibility

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

The quality of significance in American history, architecture, archeology, 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 National Register eligibility is present in properties that (1) possess integrity, and (2) meet one of the four conditions (A)-(D) listed above. More generally, for a property to be eligible for the National Register, it must be associated with an important historic context and it must retain historic integrity of the features necessary to convey its significance (NPS 1997a). While the assessment of integrity can be subjective, as discussed in National Register Bulletin 15, "How to Apply the National Register Criteria for Evaluation," a property retains **integrity** if it possesses a combination (several, and usually most) of seven aspects: location, design, setting, materials, workmanship, feeling, and association. In considering integrity for TCPs, Bulletin 38 asks two questions: (1) "does the property have an integral relationship to traditional cultural practices or beliefs" and (2) "is the condition of the property such that the relevant relationships survive?" (Parker and King 1998:11).

The eligibility criteria focus on addressing sites with physical remains, such as historic architecture and archaeological sites. But TCPs are often sites of traditional cultural significance where there is little or no remaining physical evidence associated with the activities that occurred there. Bulletin 38 clarifies that a property's significance may be rooted in beliefs and practices, and therefore a site can be eligible as a TCP if (1) it was the location of a significant event or activity regardless of whether there is any evidence of its occurrence, (2) it is a culturally significant natural landscape where significant traditional events, activities, or cultural observances have taken place, or (3) it is a natural object associated with a significant tradition or use (Parker and King 1998:9).

3. Background

This methodology seeks to identify information about sites of historic, cultural, and religious importance to the Tribe within the context of two federal statutes. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties. NEPA requires federal agencies to consider the environmental impacts of actions under their jurisdiction by taking a “hard look” at environmental consequences of their proposed action and disclosing the assessment and findings before taking final action.

Section 106 of the NHPA and its implementing regulations focus on properties, including TCPs, that are listed or eligible for listing in the National Register under one or more existing eligibility criteria in 36 CFR 60.4, “Criteria for Evaluation,” and retain integrity. NEPA requires federal agencies to consider potential impacts to sites of historic, cultural, and religious significance to tribes, whether or not the sites are eligible for listing in the National Register. These sites can include those that have no remaining site integrity or are otherwise not eligible for listing in the National Register. Therefore, this methodology allows for the Tribe’s self-determination of a site’s significance regardless of its National Register eligibility.

To satisfy the NRC’s obligations under NEPA and NHPA, the NRC staff plans to supplement the EA for the CBR ISR license renewal with information about sites within the CBR license area of significance to the Tribe that could be impacted by the continued operation of the CBR ISR facility under the renewed license. The NRC staff and the Tribe have both proposed to conduct a pedestrian field survey and oral history interviews with the Tribe to gather this information. This effort includes identification of sites within the CBR license area that fall within the scope of the NHPA (historic properties or TCPs) as well as other sites within the CBR license area of historic, religious, and cultural significance to the Tribe that are outside the scope of the NHPA but fall within the broader scope of NEPA.

Tribal cultural surveys have emerged as a mechanism, although a nonstandardized one, to recognize and understand traditional tribal perspectives and values as they relate to specific locations that may be affected by state and federal undertakings. Established methodologies for tribal cultural surveys are extremely rare, and those that do exist are typically relevant to only one specific group and are applicable to only one specific area or project.

Further, there are fundamental differences in how Indian tribes and non-tribal individuals view the world around them. To Indian tribes, “everything is sacred” and all sites are part of a larger whole without defined boundaries (Nabokov 2006; Ollendorf and Anderson 2004), whereas non-tribal individuals delimit the designation of sacred sites to specific locations identified on a particular landscape, usually identified by physical remains associated with sacred activities (Branam et al. 2010; Steinauer 2011), such as a church, a shrine, or a cemetery.

These fundamentally different world views make it difficult to square National Register standards and criteria with tribal perspectives that do not fit comfortably into those standards and criteria (Catches Enemy 2019). Considering the differing views, this survey methodology seeks to allow the Tribe to identify their sites of historic, cultural, and religious significance within the context of the all-encompassing sacredness of everything (*wak̄an*), while making their observations applicable and understandable to non-tribal, federal decisionmakers within the context of NHPA Section 106 and the NEPA “hard look” requirements.

The significance of a site to a specific group or groups is typically assigned by those individual groups. The implementation of a survey to identify sites of historic, cultural, and religious

significance to tribes, therefore, is a means to identify traditionally significant sites using the tribes' own traditional knowledge and expertise. As noted in Section 2.1, the CBR license area is a landscape of historical significance to the Oglala Sioux Tribe, and the project area is named for a prominent geologic formation about a half mile to the east that is historically and culturally significant to the Tribe.

Previous efforts to identify sites of historic, cultural, and religious significance to tribes in the Crow Butte area were performed by representatives of the Crow Nation and Santee Sioux Nation at the nearby Three Crow and Marsland expansion areas (Nickens et al. 2018; Santee Sioux Nation 2013). The closest area subject to a TCP survey conducted from a Lakota perspective is at Agate Fossil Beds National Monument about 40 miles to the west (LeBeau 2002).

Although they are rare, and although only a few have been subjected to rigorous peer review, established methodologies and approaches for tribal cultural surveys have elements that can be valuable in developing a survey methodology. In developing this methodology, the NRC contractor reviewed and considered several possible methodologies, which are summarized in Appendix A.

The most applicable methodology was developed by Dr. Sebastian LeBeau (2009), a member of the Cheyenne River Sioux Tribe. The LeBeau methodology was developed by a Lakota, in consultation with Lakota Tribal elders and spiritual leaders, specifically for Lakota TCPs. Further, the LeBeau methodology has been accepted and implemented by at least two other federal agencies (National Park Service and U.S. Army Corps of Engineers).

The NRC staff's methodology also draws from other methodologies, as appropriate, such as the format and organizational elements found in the Ball methodology (Ball et. al. 2015). The Ball methodology offers detailed processual context accepted and implemented by other federal agencies and emphasizes the role of tribal authorities and experts in the planning and implementation phase.

This methodology was developed with the goal of reconciling traditional tribal perspectives and values with existing federal protocols and guidance, with an emphasis on tribal self-determination and participation, while appropriately balancing the goals and interests of all parties involved in this effort: the NRC staff, the Tribe, and CBR.

Principles fundamental to this methodology include the following:

- TCPs and other sites of traditional significance to tribes often are not identified as such during the course of archaeological, historical, and architectural surveys.
- Members of the Tribe with traditional knowledge are the best authorities to identify, describe, and interpret sites of significance to the Tribe.
- Taxonomies used in this tribal cultural survey should accurately reflect Lakota views on site/feature nomenclature, purpose, and physical characteristics.

4. Parameters and Objectives

As discussed below, the tribal cultural survey will be conducted within the context of specific goals, objectives, and logistical limitations related to health, safety, and security at an

operational ISR facility. The survey will consist of a field investigation to identify sites within the CBR license area of significance to the Tribe, supplemented by oral history interviews.

4.1 Parameters

The parameters for the methodology are briefly reviewed below.

4.1.1 Proposed Action

The CBR ISR facility consists of a central processing facility (CPF), 11 mine units (wellfields), deep disposal wells, and evaporation ponds. The proposed action is the renewal of the CBR license for continued operation of the CBR ISR facility for an additional 10 years. 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 developed area associated with the CBR ISR facility construction and operation is 485 ha (1,199 ac) as shown in the map in Appendix B. Licensed activities that could result in land disturbance during the license renewal period would be anticipated to occur in this area. Other activities that could occur in areas that have not been disturbed by the construction and operation of the CBR ISR facility, such as agricultural (grazing or farming) activities, are not within the scope of the proposed action.

4.1.2 Location and Setting

The CBR ISR license area is located 4 kilometers (km) (2.5 miles [mi]) east and 4.8 km (3 mi) south of the town of Crawford in Dawes County, Nebraska. The White River flows from roughly west to east about 2 miles north of the license area, and three southern tributaries—Squaw Creek, English Creek, and White Clay Creek—are located within and adjacent to the license area. Crow Butte, Little Crow Butte, and the Pine Ridge Escarpment are the prominent topographic features in the area. The National Historic Landmarks Fort Robinson and the Red Cloud Agency are located just west of the town of Crawford.

The entire license area, with the exception of one 16 ha (40 ac) parcel owned by the State of Nebraska, is privately-owned land (CBR 2021).

4.1.3 Area of Potential Effects

The NHPA's implementing regulations define the area of potential effects (APE) as "...the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist" and state that the APE "is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking" (36 CFR 800.16(d)). For clarity, many SHPOs have applied the informal terms "areas of direct effect" to describe those areas to be actually disturbed by the project, and "areas of indirect effect" to describe adjacent areas where the impacts would be limited to atmospheric, auditory, and visual effects that could diminish the integrity of "location, design, setting, materials, workmanship, feeling, and association." (36 CFR 800.5(a)(1)). Federal regulations make no distinction between direct and indirect effects.

There is no federal requirement that the entire APE be investigated or that all cultural resources within the APE be identified. Instead, 36 CFR 800.4(b) imposes a "reasonable and good faith" regulatory standard that is commensurate with the magnitude and nature of the undertaking, the

degree of federal involvement, and the likely nature and location of historic properties within the APE, among other factors (see also ACHP n.d.).

In its 2014 EA, the NRC staff identified the entire 1,149 ha (2,840 ac) CBR license area as the APE.⁶ For purposes of this methodology, the license area is the APE (for NHPA evaluation) and also the area being assessed for potential impacts under NEPA. Previous Class III archaeological investigations in the 1980s were conducted in the areas of expected direct disturbance with recommendations to avoid or minimize visual impacts to other eligible resources in the general area. These systematic identification efforts, conducted in 1982 and 1987, covered a combined total of 546 ha (1,350 ac) (Bozell and Pepperl 1987:1).

4.1.4 Duration of Field Investigation

The Tribe's input (OST 2021) stated that 18 days would be required to survey an area of 1,335 ha (3,300 ac). Because the license area is only 1,149 ha (2,840 ac) (14 percent smaller), reducing the expected survey duration by 14 percent yields 15.5 days. Additionally, common cultural resource bidding practices in the private sector are based on an assumption that one person can survey 40 acres per day (working an 8-hour day). The U.S. Natural Resources Conservation Service also uses this coverage rate for cultural resources surveys in New Mexico (NRCS, n.d.). At that rate, a five-person crew would require 14 days to complete a survey of the license area. Based on the above calculations, the NRC staff is proposing that up to 15 work days be provided for the field investigation, to take place within the period of early- to mid-October 2021 through the end of November 2021.⁷

The actual length of time needed to complete the survey could be substantially less because potentially several hundred acres within the license area would be off limits to a pedestrian survey for safety and security reasons. These areas include the central processing plant building, the restoration plant building, the bone yard fenced storage area, the Research and Development pond area, the commercial evaporation ponds, all well houses and deep disposal houses, the Brott maintenance buildings and equipment storage area, the Mayfield House and equipment storage area, the Stetson homestead and outbuildings, and any wellfield areas that may be undergoing maintenance or repairs at the time of the survey (CBR 2021). Additionally, the duration of the survey considers the proposed prioritization of areas to be surveyed based on ground disturbances from CBR ISR and agricultural activities (see Section 5.4.3). For example, there is a low likelihood of finding new, recognizable sites in the extensively disturbed 1,199-acre developed area.

4.1.5 Participants

Participants will include (1) the Tribe (or the Tribe's contractor, if applicable) and/or the Tribe's cultural resource specialists or representatives and spiritual advisors, (2) NRC staff and contractor, and (3) CBR staff as determined by safety and security considerations. During the

⁶ The EA incorrectly stated that the size of the license area was 1,335 ha (3,300 ac). CBR verified, based on land records, that the correct size of the license area is 1,149 ha (2,840 ac), as specified in CBR's Underground Injection Control permit (CBR 2021).

⁷ By 15 "work days," the NRC staff means 15 eight-hour days, not including weekends. The goal is to complete the field investigation in a continuous block of time, to the extent possible; however, time lost due to bad weather or other circumstances outside of the parties' control will not count against the 15 days allotted for field investigation.

field investigation, NRC and CBR staff will offer support as requested by the Tribe, but CBR staff will not participate or directly observe the site identification process to accommodate Tribal concerns that “visiting TCPs is a time for *Oglála Lakóta* anyway, not a time to have spectators, whether they or someone else consider them to be professionals or not” (Catches Enemy 2019:161).

4.2 Objectives

The tribal cultural survey is based on a process that recognizes Tribal sovereignty and self-determination, with participation from the Tribe (cf. Ball et al. 2015, Smith 2012). The purpose of this effort is to identify sites of significance to the Tribe and obtain information from the Tribe on the historical, cultural, and/or religious significance of those sites to the Tribe. Once such sites are identified, they will then be evaluated within either the NHPA or NEPA context.

For identified sites that meet the definition of a TCP or are otherwise potentially eligible for listing on the National Register, the NRC staff will seek information from the Tribe supporting NHPA eligibility and recommendations related to potential adverse effects and mitigation, as appropriate.

Under NEPA, the staff must take a “hard look” at potential impacts to sites of historical and cultural significance, including those that are significant to the Tribe. Sites within the license area that do not meet NHPA eligibility standards will be evaluated within the broader NEPA framework. Such sites include those that are not eligible for listing on the National Register because there is no remaining site integrity or because there are no tangible remains of activities that occurred there. For each such site, the NRC staff will seek sufficient information from the Tribe describing the site (location, extent, appearance, characterization) and the historical, cultural, and/or spiritual value of the site to the Tribe. This information will allow the NRC staff to evaluate potential environmental impacts on such sites from the renewal of the CBR license.

The methods proposed for the tribal cultural survey are responsive to the following principles:

- Tribal self-determination of needs and priorities
- articulation of the ways to proceed
- consistent collaboration with the Tribe before, during, and following the tribal cultural survey
- Tribal self-determination as to what information will be publicly available

As explained above, the expertise of the Tribe is essential in the development and implementation of a meaningful and comprehensive tribal cultural survey. The NRC staff recognizes that the Tribe has the unique expertise to identify sites that are significant to it and to ascribe significance to such sites.

5. Tribal Cultural Survey Methods

Based on the discussions between the NRC staff and the Tribe, and the input received from the Tribe in June (OST 2021), July (NRC 2021d), and August 2021 (NRC 2021g), both the staff and

the Tribe agree that the survey will include a field investigation component and an oral history component. The discussion that follows builds upon that input. The proposed methods described here are consistent with the definitions and objectives articulated above.

5.1 Information To Be Collected

It is important to establish the types of information to be collected as part of the methodology before commencement of the survey. The NRC will not dictate the exact information to be collected, but the information gathered must be of a nature that it informs the NRC staff of the sites' locations, physical characteristics, and the nature of the sites' significance to the Tribe. This information must be framed in a manner that is understandable to non-tribal individuals. The information gathered will assist NRC decisionmaking, and at a minimum it must include the following:

- the exact location and extent of all identified sites (TCPs and other sites of traditional significance) using geospatial data to facilitate the NRC staff's assessment of potential impacts
- descriptions of all identified sites (or reevaluation of previously-identified sites) and summaries of the reasons they are significant sufficient to allow non-tribal members to make relevant NHPA and NEPA decisions

The NRC staff has an interest in ensuring that sufficient objective and consistent information about the sites is gathered to allow for informed decisionmaking in carrying out the agency's obligations under the NHPA and NEPA. Therefore, the survey will use a modified version of LeBeau's cross-cultural format and definitions therein (2009:104-110). In brief, LeBeau's format was designed to collect data on Lakota TCPs in a manner understandable to individuals who are not Lakota. For all identified sites of significance to the Tribe, information provided will be based on the following:

Site Type: The Lakota (Tribal) name of the cultural activity that occurred or could occur at the site.

Activity: The type of cultural activity that occurred at the site, such as a place of prayer, a place to make offerings, or a place to gather natural resources. This would include, to the extent the Tribe deems appropriate, tribal cultural knowledge offered by the Tribe's spiritual advisors and tribal elders to convey the tribal traditional cultural values and perspectives.

Location: Describes the location where the site is found within the license area and the spatial extent of the site.

Natural Site Features: Describes natural features found at the site, e.g., a site located on a ridgeline, or near a water feature.

Physical Attributes: Describes the physical components of the site (how the site can be recognized), e.g., rock alignments, depressions.

Associated Physical Features: Describes associated features generally located within view of the site, e.g., other identified sites of significance to the Tribe within view.

The Tribe could also provide any additional information about the significance of the site that it is willing to share.

5.2 Data Acquisition

The actual mechanisms used to document cultural resources, sometimes referred to as “instruments” or “site forms,” vary greatly depending on the types of resources being documented and the types of information being sought. For example, the State of Nebraska requires that archaeological sites be documented on standardized State site forms (see Nebraska SHPO 2006: Appendix 5). The Nebraska SHPO does not currently have a formal policy on how tribal cultural surveys should be conducted, nor does it have a standardized TCP site form (see Steinauer 2011:18–19).

Based on input from the Tribe, the NRC staff will develop a site form to be used during the field investigation of the CBR ISR license area. Using the data collection format described in Section 5.1 above, the form will, at a minimum, provide the NRC staff with information about the nature of each identified site, potential adverse effects to each site, and, for TCPs, how the TCP meets National Register eligibility criteria. Thus, TCP site forms will elicit information on the integrity of the site and (1) how individual TCP locations relate to events important in Lakota history, (2) whether TCP locations are associated with Lakota individuals of importance, (3) how constructed or modified Lakota features represent significant and distinguishable entities, even though they might lack individual distinction, or (4) how TCP locations might contribute to better understandings of Lakota history.

If archaeological sites are identified, these will be documented on site forms in accordance with the standards established by the State of Nebraska and permanent site numbers will be assigned to those localities (Nebraska SHPO 2006). Because these forms are accessible to permitted archaeologists (but not the general public), these archaeological forms will exclude any information sensitive to the Tribe.

5.3 Protection of Sensitive Information

The NRC staff will work closely with the Tribe to determine what information is appropriate to be disclosed in a public format in a manner that is respectful to the Tribe.

The NRC staff seeks information to make informed decisions necessary to comply with the NHPA and NEPA, including preparing a supplement to the EA. For NRC purposes, the tribal cultural survey report will be a general summary that includes a synthesis of relevant information. Information on the locations of identified sites, and any other information deemed sensitive by the Tribe, will be redacted from a public version of the report. As discussed in Section 5.5, relevant information from oral history interviews will be provided in a summary, allowing the Tribe to control the extent of information provided. After the survey report is completed, a copy (including the information on the locations of identified sites) will be provided to CBR, and CBR will have access to the information in the report in support of its licensing activities so that it can seek to avoid impacting such locations. The NRC staff and CBR will protect sensitive information associated with the tribal cultural survey (i.e., locations and significance of the identified sites) and oral history interviews consistent with applicable federal laws and regulations and the protective order that governs this proceeding.

5.4 Field Investigation

This section describes the approach for a field investigation to identify sites of significance to the Tribe.⁸

The license area was subject to two previous archaeological investigations, one conducted in 1982 by the University of Nebraska (Bozell and Pepperl 1982) and the other in 1987 by Nebraska State Historical Society (Bozell and Pepperl 1987), both of which encompassed 546 ha (1,350 ac). A significant portion of the license area had been planted in winter wheat or used as pasture, and limited testing at five archaeological sites documented significant subsurface disturbances, including a “plow zone” at least 40 centimeters (16 inches) deep across areas that had been cultivated previously (Bozell and Pepperl 1987; Späth and Walth 2003). Most archaeological sites were identified in the wheat fields, where they had been exposed by modern farming activities; hence, many of the identified cultural materials were discovered in secondary contexts.

Seven Native American sites with lithic artifacts and mammal bone fragments were documented during the two previous archaeological investigations, as well as two other possible locations, one with a single lithic flake and the other with charcoal and bison or cow bone fragments but no other artifacts. Test excavations were conducted at four of the nine sites to determine whether subsurface cultural deposits were present. Even though all of the sites had been badly disturbed by modern agriculture, two of the sites were recommended as eligible for listing in the National Register under Criterion D, in that there was some potential that portions of the sites might be undisturbed and contain important information (Bozell and Pepperl 1987).

Although the 1982 and 1987 surveys were conducted according to the professional standards of that time, the concept of tribal involvement in the identification of cultural resources had not yet emerged and was not required in NHPA Section 106 implementing regulations or discussed in state or federal guidance.

Because the license area has been previously disturbed by licensed and non-licensed activities, the field investigation will be based on the extent of ground disturbances and commensurate with the magnitude and nature of the proposed action (i.e., a license renewal authorizing continued operation of the ISR facility). The field investigation will allow for different approaches depending on landscape, topography, and previous disturbances. For example, areas with steep slopes might not be conducive to a transect-based approach, and a transect-based approach would not be necessary when re-examining previously-identified sites.

The standard transect width for Class III archaeological surveys in Nebraska is 30 meters (Nebraska SHPO 2006). In its June 17, 2021 input, the Tribe recommended 5-meter transect widths with a five-person crew and supervisor. This methodology does not prescribe a particular transect width, but recognizes that, during the field investigation, the transect width would be adjusted based on factors such as ground visibility and topography while keeping in mind the scope and nature of the proposed action (i.e., a license renewal authorizing continued operation of the ISR facility).

⁸ The survey will be executed in accordance with all applicable Federal and State laws, including all terms and procedures found in Nebraska Code 12-1201 to 12-1212, “Unmarked Human Burial Sites and Skeletal Remains Protection Act.”

In light of the current ground disturbances and the scope of the proposed action, this methodology prioritizes surveying areas likely to identify sites of traditional significance to the Tribe within the license area. The approach, in order of priority, is (1) investigation of undisturbed areas, (2) reexamination of previously documented archaeological sites, and (3) investigation of previously disturbed areas. Each of these aspects is discussed further in sections below.

The expected number of field participants would be 8-10 individuals (five-person crew, three spiritual advisors, and potentially one field supervisor and one project manager). The schedule for the tribal cultural survey allows 15 work days for field investigation that could include the entire license area, based on a coverage rate of 40 acres per person per day (8-hour day) for a five-person crew. Several factors make this schedule reasonable: (1) much of the license area is agricultural lands with little or no ground visibility, (2) twentieth century farming activities (plowing and terracing) have largely eliminated surface evidence, and (3) approximately 485 hectares (1,200 ac) of the license area (the “developed area”) has been extensively disturbed by the construction of the CBR operational complex.

5.4.1 Undisturbed Areas

Undisturbed areas will be the first priority for the field investigation. Although the vast majority of the license area has been disturbed previously, either by CBR’s ISR activities or by agriculture, potential sites of significance to the Tribe may remain in undisturbed areas, specifically along waterways, fence lines, and ridges that were too steep to cultivate. As identified in the Tribe’s June 17, 2021 written input (OST 2021) and further explained during the July 8, 2021 meeting (NRC 2021d) between the NRC staff and Tribe, undisturbed areas will be the primary focus of the tribal cultural survey.

Three waterways occur within the CBR ISR license area: Squaw Creek, English Creek, and White Clay Creek. All of these have been modified to a greater or lesser degree through stream diversions, construction of water retention ponds, and down-cutting from periodic erosion. The wheat fields commonly extend to the edge of the stream entrenchments. The entrenchments themselves, however, are less disturbed and have the potential for culturally significant sites, either on the slopes leading to the creeks or exposed in the sidewalls of the creeks’ down-cutting. Because of their topography (steep slopes), these areas might not be conducive to transect-based surveys.

Other landforms with the potential for sites of significance include elevated landforms, such as ridge lines and low bluffs that are common throughout the license area. Previous archaeological investigations (Bozell and Pepperl 1987) found that the largest and most complex evidence of Native American occupations was located on these high points.

5.4.2 Previously Recorded Sites

Reevaluation of previously-identified sites will be the second priority for the field investigation. The NRC staff acknowledges that archaeological data collected in 1982 and 1987 surveys did not consider tribal views (it was not a federal requirement at that time). Therefore, the NRC staff sees the seven Native American sites and two isolated artifact locations (potential sites) that were identified in the previous surveys as a baseline from which the Tribe’s experts and elders can reexamine previously-identified cultural resources within the context of tribal core values (cf. Catches Enemy 2019). A reexamination of all indigenous sites regardless of previous eligibility determinations would allow the Tribe to define the nature of the site itself

(size, setting, and associated natural features), the nature of the activities that occurred there, and the interrelatedness of the place to the broader cultural landscape. It would also allow the Tribe to assign their own significance to the location.

The following considerations are noted:

- The location of these sites is already known, and access can be accomplished relatively quickly with minimal effort.
- Although the license area is significantly disturbed, the sites themselves were avoided during development of the CBR operational complex. Therefore, these locations should be relatively intact or somewhat similar to what they were in the 1980s when the prior surveys were performed.
- Many artifacts (stone tools, bison bones) were removed during the initial archaeological surveys and testing, making it more difficult for tribal elders and cultural resource specialists to evaluate the complete nature of the site.
- Accelerated erosion over the past 35 years due to adjacent ground disturbance might have obscured previously visible cultural materials, making it more difficult for tribal elders and cultural resource specialists to identify the complete nature of the site.

For previously-identified sites that were determined to be eligible for listing, a reevaluation by the Tribe's experts could modify the identified site's parameters, identify features not observed by archaeologists, offer insight as to the nature of repeated occupations of the site, and determine whether the significance of the site qualifies it as a TCP. Because these sites were already determined to be eligible for listing, a TCP designation would not change the eligibility status.

For previously-identified sites that were determined not eligible for listing, a reevaluation by the Tribe's experts could modify the site parameters, identify additional artifacts or features not observed by archaeologists, offer insight as to the nature of this site's use, and determine whether the site's eligibility should be reevaluated. For isolated artifact locations, a reevaluation by the Tribe's experts could identify additional artifacts or features not observed by archaeologists.

Sites applicable to these investigations include the following:

- 25Dw114 is an extensive scatter of lithic flakes and bone in 28 different concentrations in an area 150,000 square meters. Eight stone tools and one bone fragment were collected. One middle Archaic Duncan point (McKean Complex) was recovered from the west edge of the site. A private landowner has collected artifacts from the surface of the site for more than 20 years and recovered points representative of the Paleo-Indian to Historic periods, or more than 10,000 years of human history. She also recovered glass trade beads indicative of historic contact. The site was evaluated as eligible for listing in the National Register.
- 25Dw116 comprises a single chipped stone tool and two lithic flakes. No artifacts were collected. The site was evaluated as not eligible for listing in the National Register. The small nature of this site could make it difficult to re-identify.

- 25Dw194 is a sparse scatter of lithic flakes and bone fragments on the surface of a cultivated field within an area 1,600 square meters. All surface artifacts (three flakes and three mammal bones) were collected in 1982. According to the landowner, possible human bones were exposed and removed from a high ridge about 100 meters north of the site in the 1950s during gravel operations (SC&A 2012). Archaeologists never formally observed or documented the burial, and there is no record it was ever turned over to the Nebraska State Historical Society. Its status is currently unknown. The lithic scatter was later tested and three additional flakes, a fragment of burned animal bone, and three sandstone pebbles were recovered. No temporally diagnostic artifacts were observed. The site was evaluated as eligible for listing in the National Register.
- 25Dw195 is a small scatter of three flakes, three bison bone fragments, a retouched flake, a hammerstone, an unfinished knife or point, and fire-altered stones, all in surface contexts. Testing at the site produced six additional lithic flakes, burned mammal bone, and three pieces of sandstone. All artifacts except the fire-altered stones were removed. The site was evaluated as not eligible for listing in the National Register due to the nature of the secondary deposition. It is possible that erosion over the past 35 years has exposed additional artifacts or features.
- 25Dw196 is an extensive scatter of lithic flakes and bone debris along 80,000 square meters of a ridge line that was under cultivation. Collected artifacts included one biface, one side scraper, four retouched flakes, 14 flakes, three tooth fragments, three mussel shell fragments, two pieces of coal, and a hammerstone. The coal and mussel shells were believed to be associated with the historic agricultural use of the area. Four test units were excavated; artifacts were observed in the disturbed deposits of one unit. The site was evaluated as not eligible for listing in the National Register due to the nature of the secondary deposition.
- 25Dw197 comprises four discrete clusters of artifacts in an area 150,000 square meters in a wheat field. Samples were collected from all four clusters, including an end scraper, four lithic flakes, and a possible bison bone from FN87-10; an end scraper, a mammal tooth, and a flake from FN87-11; five flakes from FN87-12; and one side scraper and three large mammal bone fragments from FN87-13. The site had been badly impacted by plowing and terracing and was recommended as not eligible for listing in the National Register.
- 25Dw198 consists of a scatter of chipped stone tools and flakes along the crest of a prominent knoll in an area about 30,000 square meters in size. Three test units were later excavated, and one biface fragment, two retouched flakes, and 39 flakes were recovered. The site was evaluated as eligible for listing in the National Register.
- FN-1 is a single lithic flake and was not considered under Nebraska SHPO protocols to be an archaeological site.
- FN-2 is a buried charcoal horizon 50 meters (164 feet) long exposed on the west bank of Squaw Creek. Testing of the profile produced 20 large mammal bone fragments, either cow or bison, but no other artifacts.

5.4.3 Disturbed Areas

The lowest priority will be given to disturbed areas within the license area, which include the 1,199-acre developed area that is used for CBR's ISR activities, and a significant portion of the area outside of the developed area that has been or is being used for agricultural activities. No additional development associated with ISR activities is planned or authorized under the current license in the approximately 664 ha (1,640 ac) outside of the developed area.

The area surrounding the developed area has been largely disturbed by previous agricultural activities but probably retains greater depositional integrity than the developed area. Also, some agricultural areas may have retained greater depositional integrity than areas subject to repeated plowing.

Within the license area, the 1,199-acre developed area has been severely disturbed. During construction of the wellfields, topsoil was completely removed over 80 percent of the wellfield area and then replaced and reseeded when construction was complete. In addition, the entire wellfield area was subject to heavy equipment traffic and other surface construction activities. Areas where underground infrastructure was installed in the wellfields (well houses, trunklines, lateral piping runs, valve stations, power lines, and access roads) required excavation to depths of several feet. Additionally, beyond the monitor well rings for each wellfield, extending out to the license area boundary, heavy vehicle traffic and delineation drilling occurred in approximately 40 percent of that area.

Due to the combined effects of prior agricultural activities and the subsequent construction of CBR ISR wellfields, it is highly improbable that undisturbed sites will be encountered in the developed area (1,199 ac), and most sites will lack the necessary integrity for NHPA eligibility articulated in 36 CFR 60.4. However, as noted by Parker and King (1998:10), a property can retain its traditional cultural significance even though it has been substantially modified, and the integrity of a possible TCP must be considered with reference to the views of traditional practitioners. If its integrity has not been lost in their eyes, it probably has sufficient integrity to justify further evaluation.

Given the extensive disturbance within the developed area associated with CBR's ISR activities, the methodology gives higher priority to areas surrounding the developed area, where there is a greater likelihood of identifying sites of significance to the Tribe.

5.4.4 Summary of Field Investigation Approaches

In summary, the tribal cultural survey proposed in this methodology will involve systematic pedestrian surveys of locations with greater potential to have sites of tribal significance, even if those sites do not retain sufficient integrity to qualify as TCPs. Past archaeological investigations found most sites in cultivated fields, and there seems to be a greater potential that sites of tribal significance will be identified in fields that have less vegetation. The developed area, which has been extensively disturbed by construction of the ISR operational complex, has a much lower potential for sites of tribal significance, and access to some parts of the developed area may be limited in light of safety and security concerns associated with an operating facility. The Tribe could, at their discretion, choose to exclude areas with "considerable previous disturbance" (OST 2021:1).

The systematic nature of the tribal cultural survey will involve the following:

- Prioritization of efforts based on likelihood of identifying sites, and allowance for the use of different approaches depending on landscape, topography, and previous disturbances. A transect-based approach is more appropriate to investigations of areas that have lesser disturbance.
- Documentation of newly discovered archaeological sites on official Nebraska State site forms (Nebraska SHPO 2006: Appendix 5).
- Documentation of all sites of significance on NRC staff-developed site forms, as discussed in Section 5.2.
- Identification of TCPs, including evaluations of TCP integrity and National Register eligibility sufficient for National Register review by the Nebraska SHPO, following the documentation format in Bulletin 16A “How to Complete the National Register Registration Form” (NPS 1997b), suggested by Parker and King (1998), or a different format developed in consultation with the Tribe.

5.5 Oral History Interviews

The purpose of the oral history interviews is to supplement the field investigation, i.e., to gather information about the significance of the identified sites within the CBR license area from knowledgeable tribal elders, historians, and spiritual advisors. The intent is to better understand and document the Tribe’s history with respect to the identified sites and how these are related to the broader traditional cultural landscape where the CBR ISR facility is located. The outcome of the oral history interviews will inform the evaluation of potential impacts on sites of significance to the Tribe from the CBR ISR license renewal. Therefore, the scope of the oral history interviews will be focused on gathering information related to identified sites to inform this impact evaluation.

This oral history process can be informal, which is consistent with advice from Michael Catches Enemy that “Conversations, rather than formal interviewing and surveying with specific questions, is more *Oglála Lakóta* culturally sensitive and appropriate for this type of research. The conversations have brought ideas, memories, and vision least expected about a variety of topics,” including traditional and natural significant places (2019:210–211).

Oral history interviews will be led and conducted by the Tribe or individuals authorized by the Tribe who have the appropriate expertise and capacity to conduct the interviews in the Lakota language. This is the approach recommended by the Tribe in its June 17 input and at the July 8 meeting. In addition to allowing the interviews to be conducted in Lakota, this approach also addresses potential concerns about sharing of sensitive information with non-tribal members.

The number of individuals and number of hours the interviews take need to be commensurate with the information the NRC staff needs and limited to information relevant to identified sites and their significance. Based on input received during the August 2021 meetings with CBR and the Tribe, there will be 5-15 interviews lasting up to 15 hours each. In addition, based on the Tribe’s input during the August 25, 2021 meeting, the NRC staff will provide guidance (e.g., sample questions) on the information the staff seeks from the interviews (NRC 2021g).

The oral history interviews will be conducted during the 15 work days of the field investigation plus up to 10 additional days to be determined by the Tribe and will be completed no more than 14 calendar days after the field investigation is completed. These interviews will include both onsite interviews during the field survey as well as interviews at other locations (e.g., Pine Ridge Reservation) for individuals who cannot travel to the site. This approach merges the field investigation process with the oral history interviews to maximize the information provided by tribal elders or spiritual advisors supporting the field investigation.

Based on discussions with the Tribe during the August 25 meeting (NRC 2021g), the interviewers will create audio recordings or take notes during the interviews, and will prepare a summary of the interviews in English. The recordings or notes will remain in the Tribe's possession. The summary will contain information relevant to the sites identified during the field investigation and their significance, and will be provided to the final report preparer within 30 calendar days after completing the interviews. This summary will be included as an appendix or chapter in the final survey report, and a standalone copy will also be provided to the NRC. The summary content shall be provided in a format that can be disclosed to the public (i.e., that does not contain information that is sensitive/confidential to the Tribe).

6. Final Report

After the field investigation and oral history interviews have been completed, a final report will be prepared within 60 calendar days after completing the field investigation. The report will summarize three elements:

- (1) field observations made by the Tribe's field experts, spiritual advisors, elders, and others that describe the nature, extent, and significance of individual sites of significance to the Tribe and their surrounding natural features
- (2) traditional perspectives on the sites identified within the CBR license area, their significance to the Tribe, and how they relate to the broader cultural landscape, based on oral interviews with the Tribe's elders, historians, and spiritual advisors
- (3) geospatial mapping of cultural and natural resources through which the Tribe and NRC staff can visualize the interrelatedness of the sites of significance to the Tribe to each other and their natural environment.

In addition, the report will also include information supporting National Register eligibility, potential impacts to identified sites, and recommendations for appropriate avoidance or possible mitigation measures.

The third element of the report, geospatial mapping, involves the mapping of the traditional cultural landscape and sites of significance using geographic information systems software to identify all sites of significance in the project area. Specific to the CBR ISR license area, these will include the following, to the extent possible:

- individual sites of significance identified by the Tribe within the context of the interrelatedness of those locations on the landscape
- sites of significance identified by the Tribe as they relate to natural features in the license area

- integration of the above datasets (shape files) into a holistic view of the Tribe's land-use values

Geospatial analysis can assist individuals who are not tribal members in visualizing the cultural importance of the entire landscape and how individual locations are connected to each other and to natural features found on that landscape. It can also assist the NRC staff in identifying and avoiding culturally sensitive areas in its environmental determinations.

7. Implementation

The Tribe or a contractor selected by the Tribe will conduct the tribal cultural survey, which will be facilitated by the NRC contractor, who is experienced in planning, performing, and reporting surveys and who developed this methodology. The NRC staff and NRC contractor will accompany the Tribal participants as they survey the site; provide mapping, note-taking, and other data collection support as needed; and provide logistical support (e.g., marking survey boundaries, equipment support, answering questions). As discussed in Section 5.5, the oral history interview component of the effort will also be conducted by the Tribe or its contractor.

At the conclusion of the field work and interviews, the Tribe or its contractor will prepare a draft report, which the NRC contractor will review to ensure it contains sufficient information for the NRC staff to fulfill its NHPA and NEPA obligations. The Tribe or its contractor will then prepare the final report. Alternatively, if the Tribe conducts the tribal cultural survey without the assistance of a contractor, and the Tribe chooses not to prepare the report, the Tribe will provide the data from the field survey and the oral history interview summaries to the NRC staff contractor, who will prepare the final report. In this case, the NRC staff contractor will provide a draft of the final report to the Tribe for its review. If the Tribe conducts the survey on its own, the Tribe will decide by the time the oral interviews are completed whether to prepare the report or to have the NRC staff contractor prepare the report.

CBR will provide the Tribe a firm fixed price or "lump sum" payment to carry out the survey according to this methodology. The payment will cover all of the expenses relating to the field investigation, the oral history interviews, and, as applicable, the preparation of the draft and final reports. The amount will be negotiated and agreed upon by CBR and the Tribe. The Tribe may use the payment to carry out the survey with its own participants or hire a contractor of its choosing to carry out the survey.

The remainder of this section is a summary of proposed implementation steps based on the more detailed discussions of methods in Section 5.

Field Investigation

During the period from early- to mid-October 2021 through the end of November 2021, access to the site will be provided for up to 15 work days of field investigation by a five-person survey crew, up to three tribal elders/spiritual advisors, and potentially one field supervisor and one project manager. Additional field survey participants can be considered in order to reduce the duration of the field investigation, but the number of participants will not affect the amount of the lump sum payment.

- Access to the entire license area would be provided, except for areas that CBR has designated as off-limits for safety and security reasons. In an effort to carry out an

effective and efficient field survey, Tribal representatives will prioritize their efforts according to the following priority (discussed in Section 5.4):

- Undisturbed areas outside the developed area
- Revisit previously-identified sites
- Disturbed areas outside the developed area (e.g., land disturbed by agriculture)
- The 1,199-acre developed area (area disturbed by CBR ISR operations)
- A transect-based approach will be used to the extent possible, recognizing that this approach is not suitable for some activities and areas. Transect width will depend on factors such as terrain, vegetation, visibility, topography, and extent of disturbance.
- The NRC contractor will be present during the field investigation to provide facilitation (logistical support).

Oral History Interviews

The Tribe will conduct interviews of Tribal historians, elders, and spiritual advisors regarding the significance of previously-identified sites or any new sites identified during the field investigation.

- Interviews will be conducted during the 15 work days of the field investigation and on 10 additional days to be determined by the Tribe. Interviews will be completed within 14 calendar days of the last day of field investigation.
- The Tribe will prepare a summary of the interviews in English that will be incorporated as a chapter or appendix to the final survey report.

8. References

36 CFR Part 60. *U.S. Code of Federal Regulations*. "National Register of Historic Places," Part 60, Chapter I, Title 36, "Parks, Forests, and Public Property."

36 CFR Part 800. *U.S. Code of Federal Regulations*. "Protection of Historic Properties," Part 800, Chapter I, Title 36, "Parks, Forests, and Public Property"

Advisory Council on Historic Preservation (ACHP). n.d. "Determining which archaeological sites are significant: identification." Web site.

https://www.achp.gov/Section_106_Archaeology_Guidance/Questions%20and%20Answers/Determining_which_archaeological_sites_are_significant_identification, accessed July 15, 2021.

ACHP. 2009. "Section 106 Archaeology Guidance." Current as of 01/01/2009. (<https://www.achp.gov/sites/default/files/guidance/2017-02/ACHP%20ARCHAEOLOGY%20GUIDANCE.pdf>)

ACHP. 2011. "Native American Traditional Cultural Landscapes Action Plan." November 23, 2011. (<https://www.achp.gov/sites/default/files/guidance/2018-06/NativeAmericanTCLActionPlanNovember232011.pdf>)

- ACHP. 2012. "Traditional Cultural Landscapes in the Section 106 Review Process," March 19, 2012. (<https://www.achp.gov/sites/default/files/guidance/2018-06/TCLsintheSection106ReviewProcess.pdf>)
- ACHP. 2016. "Information Paper on Cultural Landscapes: Understanding and Interpreting Indigenous Places and Landscapes," October 11, 2016. (https://dahp.wa.gov/sites/default/files/ACHP_Information%20on%20TraditionalCulturalLandscapes.pdf)
- Anderson, M. Kat. 2015. "Traditional Ecological Knowledge: An Important Facet of Natural Resources Conservation." U.S. Department of Agriculture, Natural Resources Conservation Service. (https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1045244.pdf)
- Atomic Safety and Licensing Board (ASLB). 2016. In the Matter of Crow Butte Resources, Inc., License Renewal for the In Situ Leach Facility, Crawford, Nebraska, Partial Initial Decision, Docket No. 40-8943, ASLB Panel No. 08-867-02-OLA-BD01. May 26.
- Ball, David, Rosie Clayburn, Roberta Cordero, Briece Edwards, Valerie Grussing, Janine Ledford, Robert McConnell, Rebekah Monette, Robert Steelquist, Eirik Thorsgard, and Jon Townsend. 2015. "A Guidance Document for Characterizing Tribal Cultural Landscapes." Outer Continental Shelf Study BOEM-047, Bureau of Ocean Energy Management, Pacific Outer Continental Shelf Region, Camarillo, CA. November 30. (<https://www.boem.gov/2015-047/>)
- Bozell, John R., and Robert E. Pepperl. 1982. "Preliminary Cultural Resources Investigations within the Proposed Crow Butte Permit Area, Dawes, County Nebraska. Stage 1: The Pilot Plant Study." Department of Anthropology Technical Report No. 82-02. University of Nebraska, Lincoln, NE.
- Bozell, John R., and Robert E. Pepperl. 1987. "A Cultural Resources Study of the Crow Butte Uranium Prospect, Dawes County, Nebraska." Nebraska State Historical Society, Lincoln, NE.
- Branam, Kelly M., Kathleen Costello, Benjamin Gessner, and Austin Jenkins. 2010. "Survey to Identify and Evaluate Indian Sacred Sites and Traditional Cultural Properties in the Twin Cities Metropolitan Area," funded by the Minnesota Arts and Heritage Fund. August. (https://mn.gov/admin/assets/2010-Survey-to-Identify-and-Evaluate-Indian-Sacred-Sites-and-Traditional-Cultural-Properties-in-the-Twin-Cities-Metropolitan-Area_tcm36-187016.pdf)
- Bureau of Land Management (BLM). 2004. "Identifying and Evaluating Cultural Resources." BLM Manual 8110. U.S. Department of the Interior, Washington, DC. https://www.blm.gov/sites/blm.gov/files/uploads/mediacenter_blmmanual8110_0.pdf.
- BLM. 2020. "Cultural Resource Fieldwork Guidelines and Standards BLM Supplement H-8110—Utah." BLM Utah State Office, Salt Lake City, UT.
- Catches Enemy, Michael. 2019. "Traditional and Naturally Significant Places Process Primer for the Oglala Sioux Tribe." Culminating Projects in Cultural Resource Management. No. 32. December. https://repository.stcloudstate.edu/crm_etds/32.
- Crow Butte Resources, Inc. (CBR). 2021. "Crow Butte Resources E-mail Transmitting Responses to NRC July 19 Clarification Questions." July 26, 2021. ADAMS Accession No. ML21207A072.

Frison, George C. 1991. *Prehistoric Hunters of the High Plains (2nd Edition)*. Academic Press, Cambridge, MA.

King, Thomas F., 2003. *Places That Count: Traditional Cultural Properties in Cultural Resource Management*. AltaMira Press, Walnut Creek, CA.

LeBeau, Sebastian C. II. 2002. "Wico'cajeyate, Traditional Cultural Property Evaluation, Agate Fossil Beds National Monument." Manuscript on file, Agate Fossil Beds National Monument, Harrison, NE.

LeBeau, Sebastian C. 2009. "Reconstructing Lakota Ritual Landscape: The Identification and Typing System for Traditional Cultural Property Sites." Ph.D. Dissertation, University of Minnesota, November 2009. (<https://conservancy.umn.edu/handle/11299/57833>)

Nabokov, Peter. 2006. *Where the Lighting Strikes: The Lives of American Indian Sacred Places*, Penguin Group, New York, NY, 2006.

Nebraska State Historic Preservation Office (Nebraska SHPO). 2006. "National Historic Preservation Act Archeological Properties Section 106 Guidelines." Lincoln, NE.

Nickens, Paul R., Christopher M. Johnson, and Christopher E. Sittler. 2018. "Summary of Tribal Cultural Heritage Resources Data Acquired in June 2018 at the Dewey-Burdock In Situ Uranium Recovery Project, Fall River and Custer Counties, South Dakota." Report prepared by SC&A, Arlington, VA, for the NRC, Washington, DC, under Contract HQ-25-14-E-003.

Odess, Daniel. 2016. "A Landscape-Scale Approach to Mitigating Adverse Effects on Historic Properties," U.S. Department of the Interior draft document, June 6, 2016. (<http://nathpo.org/wp/wp-content/uploads/2016/05/Landscape-106-guidance-document-for-review-June-6-2016-002.pdf>)

Oglala Sioux Tribe (OST). 2021. "Crow Butte Uranium Project, Traditional Cultural Properties Survey." Oglala Sioux Tribe input received by the NRC on June 25, 2021. ADAMS Accession No. ML21172A162.

Ollendorf, Amy, and Carolyn Anderson. 2004. "Final Report: Cultural Resource Management Traditional Cultural Property and National Register of Historic Places Eligibility Assessment for *Taku Wakan Tipi* (Morgan's Mound) Hennepin County, Minnesota," prepared for 934th Airlift Wing, U.S. Air Force Reserve, Minneapolis Air Reserve Station, MN.

Parker, Patricia L., and Thomas F. King. 1998. "Guidelines for Evaluating and Documenting Traditional Cultural Properties," National Register Bulletin 38. Revised. National Park Service, Washington, DC. (<https://www.energy.gov/sites/prod/files/2016/02/f30/nrb38.pdf>)

Sandy Cohen & Associates, Inc (SC&A). Part 3 of "Trip Report: Site Visit for Marsland Expansion Area License Application October 23–25, 2012." Prepared for the U.S. Nuclear Regulatory Commission under Contract No. NRC-41-10-013, Task Order 5. November 6, 2012. ADAMS Accession No. ML15131A102.

Santee Sioux Nation. 2013. "Crow Butte Project, Dawes County, Crawford, Nebraska." Santee Sioux Nation Tribal Historic Preservation Office, Niobrara, NE. ADAMS Accession No. ML13093A123.

Schlesier, Karl H. (editor). 1994. *Plains Indians, AD 500–1500: The Archaeological Past of Historic Groups*. University of Oklahoma Press, Norman, OK.

Smith, L.T. 2012. *Decolonizing Methodologies: Research and Indigenous Peoples* (2nd Edition), Zed Books, London.

Späth, Carl. 2006. "Crow Butte Resources North Trend Expansion Area Class III Cultural Resource Inventory, Dawes County, Nebraska." Report prepared by Greystone Environmental Consultants, Greenwood Village, CO, for Crow Butte Resources Inc., Crawford, NE. February.

Späth, Carl. 2007. "Crow Butte Resources, Three Crow Permit Area, Class III Cultural Resource Inventory, Dawes and Sioux Counties, Nebraska." Report prepared by ARCADIS U.S., Inc., Highlands Ranch, CO, for Crow Butte Resources, Inc., Crawford, NE. December.

Späth, Carl, and Cherie K. Walth. 2003. "Crow Butte Resources Evaluative Testing of Site 25DW198, Dawes County, Nebraska." Report prepared by Greystone Environmental Consultants, Greenwood Village, CO, for Crow Butte Resources, Inc., Crawford, NE.

Steinauer, Karen A. 2011. "Nebraska's Traditional Cultural Properties in the Section 106 Process." Master's thesis, University of Nebraska, Lincoln, NE. December.
(<https://digitalcommons.unl.edu/anthrotheses/19>)

U.S. Department of Agriculture. 2011. "Traditional Ecological Knowledge: Sustaining Our Lives and the Natural World," U.S. Forest Service, Newtown Square, PA, December 2011.
(<https://www.fs.usda.gov/r9>)

U.S. National Park Service (NPS). 1997a. "How to Apply the National Register Criteria for Evaluation." National Register Bulletin 15. National Park Service, Washington, DC.
(https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf)

U.S. National Park Service (NPS). 1997b. "How to Complete the National Register Registration Form." National Register Bulletin 16A, Washington, DC.

U.S. Natural Resource Conservation Service (NRCS). n.d. "Guidelines For Conducting Cultural Resource Surveys." Web site: <https://efotg.sc.egov.usda.gov/references/public/NM/cult8.pdf>.

U.S. Nuclear Regulatory Commission (NRC). 2014. "Final Environmental Assessment for the License Renewal of U.S. Nuclear Regulatory Commission License No. SUA-1534," Docket No. 040-08943, Crow Butte Resources, Inc. Washington, DC. November 2014. ADAMS Accession No. ML14288A517.

U.S. Nuclear Regulatory Commission (NRC). 2019. "Proposed Draft Cultural Resources Site Survey Methodology for the Dewey-Burdock In-Situ Uranium Recovery Project in Fall River and Custer Counties, South Dakota." Washington, DC. February 2019. ADAMS Accession No. ML19046A443.

U.S. Nuclear Regulatory Commission. 2021a. "Summary of February 8 2021 Meeting with Oglala Sioux Tribe Regarding Tribal Sites Identification Efforts for the Crow Butte License Renewal Proceeding." Washington, DC. February 8, 2021. ADAMS Accession No. ML21057A131.

U.S. Nuclear Regulatory Commission. 2021b. "Final Summary of April 12, 2021 Meeting with the Oglala Sioux Tribe Regarding the Crow Butte ISR License Renewal Proceeding." Washington, DC. April 12, 2021. ADAMS Accession No. ML21120A279.

U.S. Nuclear Regulatory Commission. 2021c. "Summary of May 18-19, 2021 Site Visit and Information Gathering Activities Regarding Native American Sites Identification Efforts for the Crow Butte Uranium Recovery License Renewal." Washington, DC. June 18, 2021. ADAMS Accession No. ML21166A383.

U.S. Nuclear Regulatory Commission. 2021d. "Transcript of July 8, 2021 U.S. Nuclear Regulatory Commission Meeting with Oglala Sioux Tribe Regarding Crow Butte Uranium Recovery Facility." July 8, 2021. ADAMS Accession No. ML21204A021.

U.S. Nuclear Regulatory Commission. 2021e. "Draft Survey Methodology to Identify Sites of Historic, Cultural, and Religious Significance to the Oglala Sioux Tribe." August 10, 2021. ADAMS Accession No. ML21222A186.

U.S. Nuclear Regulatory Commission. 2021f. "Transcript of August 18, 2021 U.S. Nuclear Regulatory Commission Meeting with Crow Butte Resources, Inc. Regarding the Draft Survey Methodology." August 18, 2021. ADAMS Accession No. ML21243A566.

U.S. Nuclear Regulatory Commission. 2021g. "Transcript of August 25, 2021 U.S. Nuclear Regulatory Commission Meeting with Oglala Sioux Tribe Regarding the Draft Survey Methodology." August 25, 2021. ADAMS Accession No. ML21243A569.

Appendix A: Cultural Resource Survey Methodologies Reviewed

Below are summaries of cultural methodologies reviewed in consideration of the proposed survey methodology.

1. The LeBeau Model

Dr. Sebastian LeBeau's model (LeBeau 2009) is a predictive model that offers a detailed approach to identifying Lakota traditional cultural properties (TCPs) on the landscape and their significance within the context of Lakota world views, values, history, and tradition. In effect, the model is a guide to help non-Lakotans see the landscape and TCPs found there as the Lakota people see them. He believes that Lakota TCPs can be assigned to one of two broad site types: places where spirits live and places where Lakota go to pray. The latter are further organized into places where Lakota go to pray, places where Lakota go to make offerings, and places where Lakota go to gather natural resources, all of which involve prayer and ritual. This is the only model that offers detailed instruction on how Lakota TCPs can be recognized on the landscape.

This model is applicable to the Crow Butte ISR license renewal project because it is specific to the Lakota, it was developed by a Lakota in consultation with Lakota spiritual advisors, tribal elders, and historians, and it is intended to apply exclusively to Lakota TCPs. The model allows for the Tribe itself to identify, describe, and assign significance to TCPs based on Lakota values. The model also allows for the organization of the data such that significance can be understood by individuals that are not Lakota who ultimately make NRHP eligibility determinations.

2. Bureau of Ocean Energy Management-National Oceanic and Atmospheric Administration Model

This landscape-based approach, developed by the Bureau of Ocean Energy Management and the National Oceanic and Atmospheric Administration, emphasizes the integration of indigenous world views of the inter-connectedness of all resources into federal landscape- and ecosystem level planning and management, recognizing that tribal knowledge is a valid component of federal planning. The model (Ball et al. 2015) offers detailed recommended guidance to federal agencies on the early involvement of Tribes before project planning; tribal self-determination and sovereignty; and data collection, synthesis, and presentation. The methodology in this document is loosely based on the organizational context presented in this model.

3. North Dakota Department of Transportation Approach

This approach requires cultural resource specialists to include a tribal Traditional Cultural Specialist into their field inventory efforts at the beginning of the field inventories specifically to identify stone features or other cultural resources of importance to the Tribes. Sites are identified and documented in consultation with a tribal member with particular knowledge of the identified feature, and eligibility evaluations are conducted with tribal involvement (see North Dakota Department of Transportation 2017). This approach lacks specificity into how tribal surveys should be conducted, but the involvement of tribal specialists in the initial cultural resource inventory is noteworthy.

4. Southern Nevada Model

This geographic information system (GIS)-based model uses field-interview forms to identify

resources, places, and landscapes of cultural significance. Place-specific forms are used to record site history, uses, and natural resources; these forms are intended to elicit detailed ethnographic information on material, behavioral, and spiritual connections between resources and places. This is based on a “conceptual organization of both features and places that are linked to the traditional practices, values, beliefs, history, and ethnic identity of a community” (Toupal et al. 2001:172). Methods involved having Indian tribes evaluate the sites themselves, furnishing as much background materials as possible to assist in the evaluation, providing a standardized instrument for data collections that reflect the Indian tribe’s informant’s concerns and areas of knowledge, allowing the informants to speak freely through use of open ended response opportunities, and developing a data-recording process that captured all comments and recommendations. Use of a GIS database allows for visualization of the interrelated nature of site types, natural resources, and settlement locations (e.g., sites are not found in isolation, but are connected to one another and to natural resources that comprise the cultural landscape). The model has been applied successfully to non-tribal cultural groups as well.

3. The Stoffle Method

The Stoffle approach employs the term "cultural landscape" to convey the manner in which Native peoples conceptualize their holistic view of the land and its cultural resources (Stoffle et al. 2000). Such a viewpoint encompasses the land, its natural components, places touched by pre-human spirits, and objects left by earlier Indian people. This concept of cultural landscapes reflects the full range of human activities, all of which are perceived as being a part of life and therefore culturally significant. Stoffle et al. (2000) identifies six categories of indigenous cultural landscapes: (1) eventscapes, (2) holy landscapes, (3) storyscapes, (4) regional landscapes, (5) ecoscapes, and (6) landmarks.

5. Solomon Islands Model

This conservation-oriented model emphasizes the complex interactions that occur between ideas, social structure, and physical features, and the importance of baseline ecological data to understand human-environmental systems and human responses to environmental change. The model’s three-step approach included (1) meetings and workshops with indigenous people to develop a better understanding of the cultural landscape and how they are valued, (2) allowing the community to develop its own conservation program constructed around their own knowledge base, and (3) integration of 87 different ecosystem variables into a cultural landscape map that accommodates community values and accomplishes preservation objectives. The communities that applied this model overwhelmingly assigned greater conservation priority to resources that were engrained in their cultural heritage (Walter and Hamilton 2014).

6. Cultural Values Model

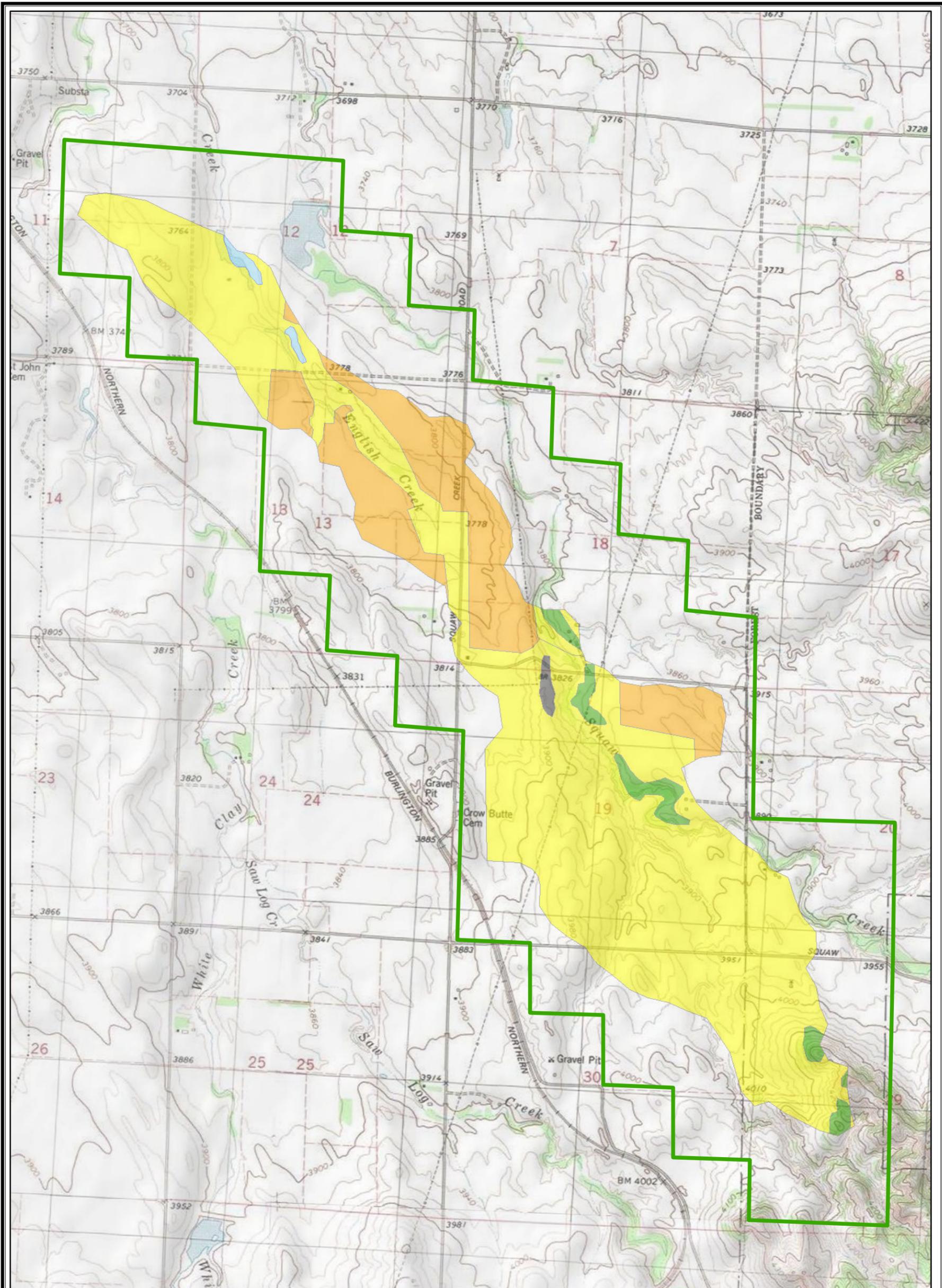
Stephenson (2008) has proposed a Cultural Values Model that emphasizes that all landscapes are valued in multiple ways by those closely associated with them. In brief, the common theme is that self-identity and group identity are intimately connected with the events and history associated with a tangible environment. Cultural values are not only attributes considered to be cultural, such as stories and oral traditions, but also natural attributes that are valued because meaning, significance, and interpretations of a landscape are generated by human relationships with and within landscapes. Stephenson's model, based on her research in New Zealand, is rooted in landscape theory, although it draws from ethnographic approaches targeting stories,

traditions, genealogies, naming practices, and a range of indigenous values to measure the relative contributions of landscapes. This methodology offers good insights into different ways to look at landscapes, in particular different ways humans interact with and assign value to landscapes, but it offers limited perspectives on resources found on those landscapes.

7. Twin Cities Model

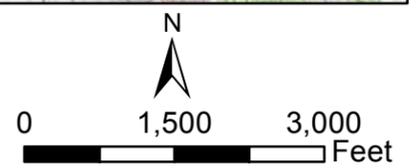
Branam et al. (2010) used ethnographic consultation as their primary instrument in an attempt to establish a uniform state database of Dakota sacred sites in the Minneapolis-St. Paul area. This methodology emphasizes Dakota world views, values, concerns, and interests. This approach is primarily ethnographic in scope, but is supplemented by site visits to complete a site form that includes site name, site type, location information, landowner information, site characteristics, cultural/community affiliation, site significance, impact risk assessments, National Register status, form preparation information, public disclosure information, and additional information and attachments. The researchers suggest a four-step process for identifying and evaluating TCPs, embracing LeBeau's (2009) predictive model as "a place to start" (Branam et al. 2010:32). The methodology was designed to address sacred sites in urban areas where land ownership is predominantly private and heavily impacted by development.

Appendix B



Legend

- Crow Butte License Boundary - 2,848 Acres*
- Maximum Disturbed Area - 1,199 Acres**
- Cropland - 252 Acres
- Forested - 36 Acres
- Mine/Quarry - 5 Acres
- Pastureland - 899 Acres
- Water - 7 Acres



CAMECO RESOURCES

FIGURE 1
CROW BUTTE PRE-OPERATIONAL
LAND USE WITHIN THE MAXIMUM
DISTURBED AREA

ARCADIS Date: 7/31/2012

Source: Cameco Resources. "Draft Scope of Work - Identification of Properties of Religious and Cultural Significance Cameco Resources Crow Butte License Renewal and North Trend, Marsland and Three Crow Amendment Areas." August 7, 2012. ADAMS Accession No. ML15244B363.

*As stated in footnote 6 of the survey methodology, the correct size of the license area is 1,149 ha (2,840 ac), as specified in CBR's Underground Injection Control permit (CBR 2021).