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**OVERVIEW OF
 PLACES OF TRADITIONAL RELIGIOUS AND CULTURAL SIGNIFICANCE
 CAMECO/POWERTECH PROJECT AREAS**

SRI Foundation
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OVERVIEW OF PLACES OF TRADITIONAL RELIGIOUS AND CULTURAL SIGNIFICANCE CAMECO/POWERTECH PROJECT AREAS

Background

The Northern Plains has been occupied for the last 12,000 years. Historically documented tribes with an interest in the Cameco/Powertech project areas include Apache, Arapaho, Arikara, Assiniboine, Cheyenne, Hidatsa, Kiowa, Mandan, Pawnee, Ponca, Sioux, and Shoshone tribes. While these tribes have distinct cultural traditions, they also share a number of traits and beliefs, and material aspects of these practices are mutually recognizable. Thus –

Generally from the tribal-historical perspective, it is not considered important whose ancestors created an Ancient Indian or prehistoric site. Traditionalists do not generally identify cultural material scatters, petroglyphs, bison kill sites and stone feature sites as being Crow, Northern Cheyenne or Sioux. Rather, they describe why the Indians who made the site might have camped or hunted in that particular location or why they might have chosen to build particular features. What is important from this perspective is that Indians (people who share certain beliefs with the site interpreters) or spirit beings known to Indians made the sites, and that their actions are explicable and understandable by contemporary Indians who follow traditional ways. Historic period sites are identified by tribal affiliations when they are known through oral histories. (BLM Montana Field Office n.d.)

A number of landforms and features are generally associated with the traditional cultural practices and spiritual beliefs of the Northern Plains tribes. These places and features are discussed generally below. Additional consultation with tribes, and on the ground investigations could identify specific places in the project areas that might have traditional religious and cultural significance to the Indian tribe consulting on the Cameco/Powertech projects.

Land Forms

According to Lakota cosmology, the Lakota live in a dual universe, with star people in the sky and humans on earth. The people in these two universes occupy analogous and sometimes interchangeable roles. Features on the landscape are directly related to constellations, and at times offer an interface where the two universes meet. Actions in one universe are mirrored in the other. The contact points between the two universes can also provide a contact place where people and events in one universe can move seamlessly into the other.

Sundstrom (1996) states that, “The activities and ceremonies conducted in the villages on earth were mirrored by the ‘star villages.’” Goodman (1992) explains that traditionally the seasonal round of the Lakota was linked with the astronomical calendar, such that, as various constellations moved across the sky the Lakota would move to the corresponding places on the landscape. The Black Hills play a central role in this dual universe, and are a place of profound spiritual significance for Northern Plains tribes.

Traditionally, the Lakota maintained maps on animal hides that illustrate the relationship between constellations and the physical features on the landscape (Goodman 1992; Bad Heart Bull and Blish 1967). The Amos Bad Heart Bull map of the Black Hills (Bad Heart Bull and Blish 1967) illustrated this sacred geography, showing "... the Race Track (a ring-shaped depression surrounding the interior Black Hills), Reynolds Prairie, Inyan Kara, Devils Tower (Bear Lodge Butte), Black Buttes, Bear Butte, Rapid Creek and Hot Springs. Outside the Black Hills the map shows the location of Warbonnet Creek (Hat Creek), Old Woman's Creek, Thunder Butte, and Slim Buttes" (Sundstrom 1996).

There are several levels or spaces in Cheyenne cosmology, extending from beyond the universe through the earth's atmosphere and into Deep Earth (BLM Montana Field Office n.d.). Topographic features are associated with the different spaces. Thus, high points such as mountain tops reach towards Near Sky Space and increasing spirituality; exposed cliffs and badlands are Deep Earth and inanimate. All things are related and have a spiritual connection to one another, and "cultural sites" include water resources, plant gathering areas, hunting areas, mineral (paint) and fossil sources (BLM Montana Field Office n.d.).

The cosmologies of the Lakota and Cheyenne provide examples of the relationship between the Northern Plains tribes and their environment. As indicated above, while there is individual variation among the tribes, there is also substantial amount of shared cultural traits and beliefs in the Northern Plains. Thus, the Cheyenne, Arapaho, Kiowa, Kiowa-Apache, Mandan, and Arikara also consider the Black Hills as sacred. Sundstrom (1996) identifies Bear Butte and/or Bear Butte Lake, Devils Tower (Bear Lodge Peak), Inyan Kara and Harney Peak, and the Race Track as being features of significance to one or more of the Northern Plains tribes. The inter-relatedness described for the Northern Cheyenne holds true throughout the Northern Plains tribes (BLM Montana Field Office unknown).

Within this framework, it is clear why some landforms might be culturally significant to the Northern Plains tribes. Unusual land formations and conspicuous landmarks are often considered sacred and "power points" associated with spiritual matters. LeBeau, who conducted Traditional Cultural (TCP) studies on behalf of the Cheyenne River Sioux Tribe, explained that, the "evaluation [of a place as sacred] includes looking at the inter-related physical features of a landscape ..." (2009:15; cited in Steinauer 2011). Such areas also may be associated with stories and traditions about important events, either actual or supernatural, that have taken place. Moreover, because of the inherent spiritual nature of these places, they often are the locations of vision quests, eagle trapping, offerings, and other activities that have spiritual significance to the individual or the tribe. The vision quest is a practice of fasting and praying in order to obtain a guardian spirit power. It continues to be an important spiritual practice among Indians throughout the Plains. Eagles have strong spiritual associations for the Northern Plains tribes, and eagle trapping is also an important ceremonial practice associated with specific rituals and protocols.

Caves and rockshelters are also described as having connections with the supernatural. For example, caves and underground caverns are associated with themes of regeneration and renewal (Liebmann 2002), and described as places of female reproductive power (Schlesier 1987; Walker 1983, cited in USFS Custer National Forest 2004; Sundstrom 1996). USFS Custer National

Forest (2004) citing Bowers (1950) and Walker (1917), note that among the Northern Plains tribes, caves are the “entrances to the underground world where the spirits of the buffalo herds and other animals are believed to reside in winter and from which they emerged each spring to repopulate the plains with game.” Caves that emit clouds of condensation during the winter are particularly significant (USFS Custer National Forest 2004). Some caves and caverns are associated with specific supernatural beings, such as the stories of Falling Star in Wind Cave and its underground caverns in the central Black Hills (Sundstrom 1996; LaPoint 1976).

Springs, rivers, groundwater, and other distinctive natural water sources are also considered sacred by Northern Plains tribes, and are believed to be sources of power and inspiration (e.g., BLM Casper Field Office 2005; BLM Montana Field Office unknown; Winham and Hannus 1990). The BLM Montana Field Office (unknown) report that the Northern Cheyenne associate springs with medicinal and ceremonial plants, and spiritual beings. Both surface and ground water have spiritual qualities. Springs and rivers are inhabited by various types of spirits and their spiritual qualities may vary seasonally.

The contact point between two types of land formations or features constitutes a particularly powerful place. Liebmann (2002) notes that the Big Horn Medicine Wheel “... is situated at a place in which ... two spiritual realms meet. ... the Big Horn Medicine Wheel lies at the juncture of two supernatural realms—the zenith and nadir; peak and underworld; the connection of spirit domains above and below.” This provides a “portal” and an ideal place to seek a vision. The BLM Casper Field Office (2005) states that, “The presence of flowing water or bodies of water and high isolated locations such as buttes in close proximity to one another were sometimes considered especially powerful or close to the spirits. These kinds of locations were commonly used for fasting or vision quests.”

Resource Areas

Besides identifying certain landforms as culturally significant places, the Northern Plains tribes also identify resource procurement areas as being of traditional importance. For example, while specific resource gathering areas were not discussed, the BLM Montana Field Office (unknown) documented over 170 plants with traditional cultural uses still that are being gathered and used today by the Northern Cheyenne. These included “a minimum of 81 separate ceremonial uses for these plants, 184 medicinal uses, 67 industrial uses and 94 subsistence uses” (BLM Montana Field Office unknown). Hunting and fishing resource areas, and locations where eagles and other birds of prey have been hunted, might be considered culturally significant to Northern Plains tribes.

Fossil and mineral sources are also important resources for traditional cultural practices among the Northern Plains tribes. Minerals are used to produce various colors of paints (e.g., Tallbull and Deaver 1991; CBEG 1996; Peterson et al. 1995). Steinauer (2011) reports that, according to Lakota oral history, paleontological materials such as fossil bone is used in the production of spiritual medicine. LeBeau (2002) identified 14 Traditional Cultural Property (TCP) sites at Agate Fossil Beds National Monument in northwestern Nebraska, of which some were “fossil quarries of spiritual and medicinal significance” (Steinauer 2011).

Stone itself holds particular importance among at least some Northern Plains tribes, having “its own form of animation and unique energy” and “having special properties that make it essential for certain ritual or ceremonial activities and prayer” (Surface Transportation Board 2010). Sundstrom, quoting from the South Dakota State Archaeological Center (SARC) database, reports that on one site, “some cairns are believed to have traditional [cultural] property significance due to the colors of the stones used” (Sundstrom 2006). This suggests that particular attributes of stones might be relevant in identifying culturally significant features.

Features

The above discussion references places or areas on the landscape that, of themselves, may have spiritual or cultural significance. These places may also be marked or identified by man-made features. For example, rock art, typically located on the overhang of rimrocks and in durable sandstone, may indicate an important place. Stone alignments or prayer lines may lead to ceremonial sites, and cairns that mark the locations of important events or specific rituals (e.g., Surface Transportation Board 2010). In addition to the physical setting or identifiable physical features, there may be oral traditions associated with the cultural activities. Because these are places of intense spiritual energy, they often lend themselves to other cultural activities, such as vision quests or eagle trapping, that have additional traditional religious and cultural meaning.

The physical setting for fasting, prayer, and vision questing sites, for example, is a hilltop or mountain peak. Human-generated features and materials associated with such sites might include vision quest or fasting structures, cairns, small stone circles or clusters of stone, rock alignments, and offerings. Eagle trapping locations also occur on high points, and might consist of an excavated pit large enough for a man to lie in, which would be covered with a lattice of brush and grass.

Alignments are man-made arrangements of stone having a relatively low profile, and being in the shape of a straight line or geometric pattern (Abbott, Ranney and Witten 1982 cited in Sundstrom 2006). These generally serve as “directional markers/prayer lines associated with major ceremonial sites ... or drive lines ... to channel ... deer, antelope and bison. (BLM Montana Field Office unknown). As demonstrated by the site and feature descriptions compiled by Sundstrom (2006), at times it is difficult or impossible to discern whether a rock feature is an alignment, a disturbed stone circle, or some other petroform.

Stone circles, perhaps the most common stone alignment in the Northern Plains, are often the result of using stones to anchor the bottom of tipi covers. Aspects including the dimensions of the stone circle, occurrence with other stone circles and features, ground slope, size and distribution of the artifact assemblages and features at the site inform on whether a stone circle might be a tipi ring and part of a habitation site or something else. Sundstrom (2006, citing Dsoovich (1998) and Peterson (1998), respectively, reports that South Dakota tipi rings average 5.7 meters in outside diameters and Montana tipi rings average 4.85 meters. Stone circles that are larger or smaller, that occur on sloped ground, and that lack an assemblage associated with habitation may have had some other function. These functions could include memorials or vision quest stations for small circles, and ceremonial or dance grounds or animal enclosures for large rings (Sundstrom 2006).

Sundstrom (2006), following Abbott, Ranney, and Whitten (1982) defines a *cairn* as “a pile of stones on the surface; this may have collapsed into a mosaic [an arrangement of stones in the form of a solid figure or pavement].” It is not clear the extent to which this definition is adhered to in reporting on cairns in cultural resource reports. As Sundstrom (2006) demonstrates throughout her report, the dimensions and configurations of cairns can vary considerably. This variation relates in part to the purpose of the feature. Cairns are associated with a variety of contexts and features, including burials, medicine wheels, memorials of important events or persons, trail markers, animal drives, marker for a ritual or ceremonial site, and monuments to important (spiritual) place (e.g., Hall 1985; Liebman 2002; Sundstrom 2006; USFS Custer National Forest 2004; BLM Montana Field Office unknown; Surface Transportation Board 2010). They can occur singly, in clusters, and in alignments. They can be stand alone features or components of larger features (e.g., associated with alignments). Such features, particularly when they are aggregates of larger features, may have significant time depth. Variability in cairns also depends on the relative integrity of the feature, its age, and the extent to which it or its location has been reused over time.

Medicine wheels are stone alignments that generally include a central cairn or stone circle from which lines (spokes) radiate outward. There are many variations on this (see Brumley 1988 and Sundstrom 2006 for examples). The number of spokes (either 4, 6, 7, 8 or 28) and their arrangement are based on culturally significant numbers. Thus, if a medicine wheel has four spokes, these will be laid out in the cardinal or semicardinal directions. Additional alignments would bisect these cardinal spokes.

Sundstrom (2006) notes that the distribution of medicine wheels across the northern Great Plains, “corresponds to the territories of Algonkian speaking groups such as the Blackfoot Confederacy, the Cheyenne, and the Arapaho. Relatively few medicine wheels have been recorded in South Dakota and Wyoming, and it appears that none have been document in Nebraska. The function of medicine wheels continues to be debated (see Sundstrom 2006; Liebman 2002; Hall 1986; Brumley 1985, *inter alia*, for discussions of the possible purpose of medicine wheels as well as a more thorough literature reviews). While there is no doubt that these features have religious and cultural significance to the Northern Plains tribes, it is likely that medicine wheels served a variety of functions. These functions might not have been mutually exclusive.

Finally, burials, graves, and cemeteries are also places of cultural significance. Burials have a spiritual significance to the Northern Plains tribes. Respectful treatment and minimal disturbance of these places are of paramount importance. Burials may take several forms, including graves and cairns. Burial mounds, which are present in eastern South Dakota, are not found in the Powertech/Cameco project areas (Winham and Hannus 1990). Out of respect for the sentiments expressed by the Northern Cheyenne about graves and burials, the BLM’s discussion of site types excludes burials, graves or cemeteries (BLM Montana Field Office unknown). As noted above, some of the features covered in this report are sometimes associated with human remains.

Summary

Within the Cameco/Powertech project areas, it is possible that culturally significant places may be found in a variety of settings. Because of their spiritual significance in the Northern Plains traditions, certain landforms and aspects of the landscape are likely to be places of traditional and cultural significance. Moreover, such areas might also be locations where additional spiritual activities or traditional procurement practices continue to be culturally significant today.

Following is a list of types of places and landscape features within the Cameco/Powertech project areas that might be culturally significant–

- Bone beds
- Depressions
- Hills (conical shaped, “humped back” or odd shaped)
- Hilltops (ridge and flat-top)
- Natural rock formations
- Quarries (fossil, mineral, and rock)
- Prominent knolls
- Promontories
- Rimrock
- Rockshelters
- Rugged, high altitude, isolated topographic features

Locations of cultural activities that are likely to be considered places of traditional religious and cultural significance among the Northern Plains tribes include –

- Archaeological sites
- Battle sites
- Burial mounds - not included in regions for Cameco/Powertech project areas.
- Burials
- Eagle catching sites/eagle trapping pits & lodges
- Fasting sites/structures
- Dance locations (e.g., Ghost Dance, Sun Dance)
- Medicine wheels
- Memorials
- Monuments
- Paint sources
- Pilgrimage/trail marker cairns
- Offerings and prayer sites (may be at trees, springs, rock art, rivers, etc.)
- Rock Art/Petroglyphs
- Sacred sites (personal religious observations along the lines of the vision quest)
- Stone alignments
- Stone cairns
- Stone circles/rings (very large and very small)
- Sweat lodges
- Vision quest sites/structures

Not all of these site types are likely to be found in the project areas. Medicine wheels and dance locations are not common in this part of the Northern Plains, for example. The high elevations and extreme topography associated with eagle catching activities are also not within the current areas of potential effect.

This discussion has identified a number of general characteristics of places that might be culturally significant to Northern Plains Indian tribes. While there are common cultural aspects of the Plains tribes that allow for generalizations about such places, we recognize that there are also important differences between the tribes. Consultation with the tribes, individually and as a cohort, will provide additional information about the types of sites expected within the project areas.

References Cited

- Abbott, James, William Ranney, and Richard Whitten
1982 *Report of the 1982 East River Petroform Survey*. Vermillion: University of South Dakota Archaeology Laboratory.
- Bad Heart Bull, A. and Blish H.H.
1967 *A Pictographic History of the Oglala Sioux*. Lincoln: University of Nebraska Press.
- Bowers, Alfred W.
1950 *Mandan Social and Ceremonial Organization*. University of Chicago Press, Chicago.
- Brumley, John H.
1988 *Medicine Wheels on the Northern Plains: A Summary and Appraisal*, Archaeological Survey of Alberta Manuscript Series 12: Edmonton.
- CBEG 1996
- Dasovich, Steve J.
1998 *An Analysis and Critique of Stone Circle Research in the Northern Plains: The View from South Dakota*, Ph.D. dissertation, University of Missouri-Columbia
- Goodman, R. (ed.)
1992 *Lakota Star Knowledge: Studies in Lakota Stellar Theology*. Rosebud, SK: Sinte Gleska University.
- Hall, Robert L.
1985 Medicine Wheels, Sun Circles, and the Magic of World Center Shrines. *The Plains Anthropologist*, Vol. 30, No. 109 (August 1985), pp. 181-193.
- Howard, James H.
1972 Notes on the Ethnogeography of the Yankton Dakota. *The Plains Anthropologist*, Vol. 17, No. 58, Part 1 (November 1972), pp. 281-307.
- LaPoint, J.
1976 *Legends of the Lakota*. San Francisco: The Indian Historian Press.
- LeBeau II, Sebastian C. (Bronco)
2002 Wico'cajeyate: Traditional Cultural Property Evaluation, Agate Fossil Beds National Monument. Pahin Hunkankan, Gettysburg, South Dakota. On file, Agate Fossil Beds National Monument.

2009 *Reconstructing Lakota Ritual in the Landscape: The Identification and Typing System for Traditional Cultural Properties*. Ph.D. Dissertation. Department of Anthropology, University of Minnesota, Minneapolis.

Liebmann, Matthew

- 2002 Demystifying the Big Horn Medicine Wheel: A Contextual Analysis of Meaning, Symbolism, and Function, *The Plains Anthropologist*, Vol. 47, No. 180 (February 2002), pp. 61-71.

Peterson, Lynelle A.

- 1998 Statistical Analysis of Stone Feature Sites Located Within 20 Counties of Central Montana, paper presented at the 56th annual Plains Anthropological Conference, Bismarck, ND.

Peterson, L. A., J. Ibanez and J. L. Brownell (editors)

- 1995 Cultural Resource Investigations of the Tongue River Dam Project and Potential Irrigation Developments on the Northern Cheyenne Reservation. Ethnoscience for Montana Dept. of Natural Resources and Conservation, Helena, Montana.

Schlesier, K. H.

- 1987 *The Wolves of Heaven: Cheyenne Shamanism, Ceremonies, and Prehistoric Origins*. Norman: University of Oklahoma Press.

Steinauer, Karen A.

- 2011 Nebraska's Traditional Cultural Properties in the Section 106 Process. M.A. Thesis, Department of Anthropology, University of Nebraska, Lincoln.

Surface Transportation Board

- 2010 Letter from to Mr. Richard Currit, Department of State Parks & Cultural Resources, Wyoming State Historic Preservation Office, January 6, 2010.
[http://www.stb.dot.gov/ect1/ecorrespondence.nsf/PublicOutgoingByLetterDate/0728DFCAFDDB15761852576A500537DD6/\\$File/EO-1388.pdf?OpenElement](http://www.stb.dot.gov/ect1/ecorrespondence.nsf/PublicOutgoingByLetterDate/0728DFCAFDDB15761852576A500537DD6/$File/EO-1388.pdf?OpenElement), accessed May 21, 2012.

Sundstrom, Linea

- 1996 "Mirror of Heaven: Cross-Cultural Transference of the Sacred Geography of the Black Hills," *World Archaeology*, Vol. 28, No. 2 (Oct., 1996), pp. 177-189.
- 2006 *Boulder Effigy Sites in South Dakota: History, Description, and Evaluation*. Submitted to South Dakota State Historical Society, Cultural Heritage Center. Day Star Research. Ms on file with the South Dakota State Historical Society.

Tallbull, B. and S. Deaver

- 1991 Potential Cultural Effects to the Northern Cheyenne from the Proposed Tongue River Railroad Extension. Northern Cheyenne Culture Commission and Ethnoscience for the Interstate Commerce Commission, Washington, DC. CRABS Report No. RB-3-12712.

[BLM Casper Field Office] U.S. Department of the Interior, Bureau of Land Management, Casper Field Office

- 2005 Task 1D: Report for the Powder River Basin Coal Review Current Environmental Conditions. Prepared for the Bureau of Land Management, Casper Field Office and Wyoming State Office. Submitted by ENSR Corporation, Fort Collins.
<http://www.blm.gov/pgdata/etc/medialib/blm/wy/programs/energy/coal/prb/coalreview/task1d.Par.1940.File.dat/complete.pdf>, accessed May 21, 2012.

[BLM Montana Field Office] U.S. Department of the Interior, Bureau of Land Management, Montana Field Office

- n.d. Chapter 7, Northern Cheyenne Cultural Resources.
http://www.blm.gov/pgdata/etc/medialib/blm/mt/field_offices/miles_city/og_eis/cheyenne.Par.26503.File.dat/Chap7.pdf, accessed May 21, 2012.

[USFS Custer National Forest] U.S. Department of Agricultural, Forest Service, Custer National Forest, Custer National Forest

- 2004 Sioux Ranger District FEIS: Chapter 3 – Affected Environment/Environmental Consequences.

Walker, James R.

- 1917 *The Sun Dance of the Oglala*, Anthropological Papers of the American Museum of Natural History, Vol. 16, Pt. 2., New York.

- 1983 *Lakota Myth*, edited by Elaine A. Jahner, University of Nebraska Press: Lincoln.

Winham, R. Peter and L. Adrien Hannus

- 1990 South Dakota State Plan for Archaeological Resources: Introduction and Overview to Historic Contexts and Archaeological Management Regions for Research and Planning: A Working Draft. Prepared for South Dakota Archaeological Research Center. Prepared by Archeology Laboratory, Augustana College, Sioux Falls, SD. Partially revised April 1991.