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From: C WHITE FACE [mailto:bhdefenders@msn.com]
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March 2, 2010

To: Nuclear Regulatory Commission

Re: Docket No. 40-9075

Dewey-Burdock Project, Edgemont, SD

Powertech (USA) Mining Company

Please consider these comments on the proposed Dewey-Burdock Uranium Mining Project, Edgemont, SD, which is currently being submitted by Powertech (USA).

We are strongly opposed to the proposed in situ recovery mining in the Dewey Burdock area north of Edgemont, SD, for the following reasons:

- A. Cultural Resources Protection
- B. Species Protection
- C. Water Protection

A. Cultural Resources Protection: The following addresses the characteristics of lands with supporting evidence.

The Aug. 20, 2008, Powertech (USA) Inc. submittal of a "Request for Determination of Special, Exceptional, Critical, or Unique Lands and Intent to Operate" to the state of South Dakota and which is available on the website of the South Dakota Department of Environment and Natural Resources on page 10, states that a level III Cultural Resources Evaluation was conducted by the Archeology Laboratory, Augustana College, Sioux Falls, SD.

"The small number of Euroamerican sites documented was not unanticipated given the peripheral nature of the project area in relation to the Black Hills proper. The disparity existing between the number of historic [since 1874 - author's note] and

prehistoric sites observed in the project area is also not unexpected; however, **the sheer volume of sites documented in the area is noteworthy.** [Author's emphasis] The land evaluated as part of the Level III cultural resources evaluation has an average site density of approximately 1 site per 8.1 acres. Even greater site densities were reported in 2000 during the investigation of immediately adjacent land parcels for the Dacotah Cement/land exchange [Winham et al., 2001]."

This factual information given by Powertech does indicate that this specific area is very exceptional in the number of antiquities that are located there. Many other places in the world prize their areas of ancient treasures that are irreplaceable and protect and preserve them to their best ability. This land area proposed to be mined by Powertech is just such a rare treasure and must be protected and preserved. According to Teton Sioux oral tradition, the area being nominated was used as a burial grounds, at least for the Teton Sioux, but also for other Indigenous nations in North America.

In February, 2008, in their report to the United Nations Committee on the Elimination of Racial Discrimination, the United States delegation states on page 110, Paragraph 346:

"Moreover, the special laws and executive orders relating to Indian tribes... include numerous programs designed to help preserve and protect the cultural and ethnic identities of Indian tribes. For example:

- The Native American Graves Protection and Repatriation Act (NAGPRA) - a process for transferring possession and control of human remains, funerary objects, sacred objects, and objects of cultural patrimony to culturally affiliated Indian tribes and individual Indians and Native Hawaiian organizations;

- The Archaeological Resources Protection Act - a process for protecting material remains of human life or activities that are at least 100 years of age and of archaeological interest;

- The American Indian Religions Freedom Act - requiring federal agencies to evaluate their policies and procedures, in consultation with native traditional religious leaders, in order to determine appropriate changes necessary to protect and preserve native religious cultural rights and practices;...

- The National Historic Preservation Act - a process for protecting historic and prehistoric archaeological sites:..."

In this land area which Powertech plans on disturbing for their mining processes are "archeological resources that are at least 100 years of age and of archaeological interest." Tetuwan (Sioux) people from the Pine Ridge and other South Dakota reservations were forbidden to leave the reservations after 1889 so the burial sites that are there are more than 100 years of age. These burial sites meet the criteria for protection under the federal Archaeological Resources Protection Act (ARPA) even though the area is not federal land as the project must be licensed by a federal agency, the Nuclear Regulatory Commission.

Near these grave sites is a very large sacred site, a prayer site. This site cannot be moved or mitigated and would be protected not only by ARPA but also by the American Indian Religious Freedom Act. As there are federal lands located within the area and adjacent to the area, and as the process of the Nuclear Regulatory Commission is also federal with regard to obtaining a permit for mining of uranium, this law will apply to the cultural resources in this entire area.

Other prayer sites are probably in the area and would also be protected by ARPA and the AIRFA as the Black Hills was used for tens of millenia by many Indigenous nations for prayer and funerary reasons. This specific area planned to be used by Powertech is an old burial ground.

For the above reasons, the Dewey-Burdock area does fall under the auspices and protection of federal laws: The Native American Graves Protection and Repatriation Act (NAGPRA); the Archaeological Resources Protection Act; the American Indian Religions Freedom Act; and the National Historic Preservation Act. Powertech's application to conduct in situ recovery mining in the Dewey Burdock Area must be denied.

B. Species Protection: The Dewey Burdock area is so ecologically fragile that, once it is adversely affected, it could not return to its former ecological role in the reasonably foreseeable future. The area is home to at least one small family of bald eagles which is listed in South Dakota's threatened or endangered species. The bald eagles' survival in the United States has been precarious for decades, and to destroy even one nest is to promote the extinction of this species that is a symbol of the United States. A place where a naturally occurring nest is found is very unique and must be protected and preserved as well as the food source area surrounding the nesting site.

Agricultural operations such as cattle grazing, usually will not have an adverse effect on nesting birds, but any kind of development that includes machinery, prolonged human presence, or disturbance and removal of the food source, or forage area, will contribute to the destruction of the nesting site and eradicate future progeny which is a violation of federal law. A federal law, the Bald Eagle Protection Act specifically states in the Selected Definitions category that the word 'take' includes "molest or disturb" and includes the molesting or disturbing of any nest or egg. Disturbance of the forage area so the parent eagles could not adequately feed their young would also mean a disturbance of the nest.

In a letter dated Oct. 17, 2008, to the SD Department of Environment and Natural Resources, the South Dakota Game, Fish, and Parks stated that no activity should be conducted on the land in the Dewey Burdock area that is planned to be used by Powertech, for seven months per year, between Feb. 1st to Aug. 31st, "...to avoid disruption of bald eagle activity at the nest" and also because of a nearby redtail hawk nest.

Furthermore, the water and forage available for the eagles will be polluted with the radioactivity from dust, the holding ponds, and any seepage into the surrounding soil. Small rodents, part of the nourishment of eagles, will be contaminated and the contamination passed on to the offspring as well as the parent eagles.

This does not address other threatened or endangered species such as the long-billed curlew (*Numenius americanus*), the golden eagle (*Aquila chrysaetos*), merlin (*Falco columbarius*), Cooper's hawk (*Accipiter cooperii*), American white pelican (*Pelicanus erythrorhynchos*), and long-eared owl (*Asio otus*).

The Migratory Bird Treaty Act of 1918 as amended further addresses disturbance of migratory bird areas of which most of the named species are migratory birds.

"Public Law 95-616 also ratified a treaty with the Soviet Union specifying that both nations will take measures to protect identified ecosystems of special importance to migratory birds against pollution, detrimental alterations, and other environmental degradations."

The fact that the Dewey Burdock area has enough food and water to sustain a breeding bald eagle nest when South Dakota recognizes the threatened and endangered status of the bald eagle should be enough to stop any mining or other human activity. The fact that other species can also be found in this same area gives further credence to the need to protect and preserve this special and unique environment that they all need to continue to survive. These kinds of places are becoming more and more threatened with the increasing human population. The survival of what is remaining of these species depends on long range foresight and planning by human beings. Therefore, Powertech's plans to conduct In Situ Recovery mining in the Dewey-Burdock area needs to be denied.

C. Water Protection:

The Dewey Burdock area is within the recharge area of many aquifers that traverse the Region, and also a river, the Cheyenne River, that eventually empties into the Missouri River. To allow any kind of pollution into these water systems will eventually contaminate the entire system which serves the Upper Midwest Region. The water systems must be protected and preserved.

Water is the link and essential in all ecosystems. Because the land area in the Dewey Burdock is usually very dry, consequently very fragile, the flora and fauna living here have adapted to this ecology. It is because of the sparsity of water, that all water in this area is precious and any adverse effects on the water, any tiny amount of pollution to the ground or surface water, will harm all living organisms.

Adverse effects would include well drilling to any depth, and open-pit mining through which runoff water pours onto surface areas, or seepage into the ground water. Any type of pollution to the water, both surface and ground, will have an irreversible impact not just on the local ecosystem, but in this case, pollution will have an impact on the ecosystems of the entire state and greater region.

Although the Dewey Burdock area plays a small part in the recharge area of many aquifers, these aquifers have an influence on the entire state of South Dakota. As stated on page 299 of Regional Ground-Water Flow Concepts in the United State: Historical Perspective by J.D. Bredehoeft, W. Back, BB. Hanshaw, Geological Society of America, Special Paper 189, 1982:

"The Dakota aquifer in South Dakota is the classic artesian aquifer. Many modern ideas concerning artesian aquifers stem from M.H. Darton's investigation of the Dakota aquifer during the 1890s and early 1900s. Darton recognized that the recharge to the system occurred in the Black Hills in western South Dakota while the major discharge was in eastern South Dakota, 300-500 km to the east."

Darton and his colleague, J.E. Todd, mapped the groundwater geology in the area along the James River in eastern South Dakota from Nebraska to North Dakota. While Todd covered eastern South Dakota, Darton mapped the entire Black Hills.

"Darton (1909) summarized his Dakota investigations in USGS Water Supply Paper 227 in which he pointed out that potentials within the Dakota system are controlled by the elevation of the sandstone outcrops in the Black Hills.

"The evidence of this pressure, as found in many wells in eastern South Dakota, is conclusive that the water flows underground for many hundreds of miles. Such pressures can be explained only by the hydrostatic influence of a column of water extending to a high altitude on the west. If it were not for the outflow of the water

to the east and south the initial head which the waters derive from the high lands of the intake zone would continue under the entire region, but owing to this leakage the head is not maintained, and there is a gradual diminution toward the east known as "hydraulic grade," a slope sustained by the friction of the water in its passage through the strata."

Further studies reiterate the fact that the groundwater in eastern South Dakota is recharged by the Madison aquifer in the Black Hills. The Madison aquifer is one of the water sources of many population centers in western South Dakota as well.

"Swenson (1968) reexamined the ability of the Dakota system, under existing hydraulic gradients, to transmit the quantity of water known to be produced in eastern South Dakota...the bulk of Dakota water in eastern South Dakota is recharged from these underlying Madison group limestones. The suggestion that the Dakota is recharged by water from the Madison group limestones had been stated previously by Dyer and Geohring (1965) in an open-file study of the Dakota aquifer in southeastern South Dakota."

Of particular importance is the fact that the Madison formation is overlain by the Inyan Kara group which contains the formations, Lakota and Fall River, which are planned to be used by Powertech for their In Situ Recovery mining of uranium. Furthermore, a report by the Tennessee Valley Authority, Norris (USA). Div. Of Water Resources, 1980 May 01, states:

"Separate aquifer tests were conducted in two aquifers which may be affected by TVA's proposed uranium mining operation near Burdock, South Dakota. In April 1979, a constant-discharge test was conducted in the Chilson member of the Lakota formation which comprises the principal ore body and an aquifer of regional importance. The hydraulic properties of both the Lakota (Chilson) aquifer and the overlying Fuson shale aquitard were determined. A second test was conducted in July 1979 in the Fall River aquifer which overlies the Fuson. The hydraulic characteristics of the Fall River aquifer and a second estimate of the Fuson aquitard properties were obtained from the test. The test results indicate that the two aquifers are hydrologically connected via: (1) general leakage through the Fuson shale; and (2) direct pathways: probably in the form of numerous old (pre-TVA) unplugged exploration boreholes..."

As stated in Regional Ground-Water Flow Concepts in the United States: Historical Perspective by J.D. Bredehoeft, W. Back, BB. Hanshaw, Geological Society of America, Special Paper 189, 1982, Darton states,

"Another factor which undoubtedly somewhat influxes the hydraulic grade in the Great Plains region is a certain but unknown amount of general leakage through the so-called impermeable strata, especially when under great pressure."

This raises the question that any disturbance to the groundwater in the Dewey Burdock area, no matter how small, will have an eventual effect on the entire state of South Dakota. There are currently more than 4,160 uranium exploratory wells that were drilled more than 40 years ago and allowed for cross contamination of the aquifers. Any disturbance of radioactive materials will have an effect lasting millions of years. For this reason alone, Powertech should not be allowed to do in situ recovery mining for uranium in the Dewey Burdock area.

In addition, the ground water velocities of the Madison Aquifer are approximately 1,000 feet per day due to a well-developed fracture system as stated in a report entitled Vulnerability (Risk) Mapping of the Madison Aquifer near Rapid City, South Dakota, by Scott L. Miller, Dr. Arden D. Davis, and Dr. Alvis L. Lisenbee.

“About 90% of South Dakota's population relies on ground water from aquifers such as the Madison for drinking water supplies. The Madison aquifer is vitally important because it contains approximately 66 million acre-feet of drinking-quality water in South Dakota. Cities such as Rapid City use water from wells drilled into the Madison aquifer... The water in the Madison will become more important in the future, as South Dakota's population grows and more people require water from scarce and dwindling supplies.”

As most of the water use in western and much of eastern South Dakota, and particularly in the Dewey Burdock area, comes from wells tapped into the groundwater, it would behoove the protection of all groundwater. “Wellhead protection emphasizes the prevention of drinking water contamination as a principal goal, rather than relying on correction of contamination once it occurs...” as stated by the Environmental Protection Agency.

From the above discussion, it is clear that any disturbance will have far reaching and long lasting effects that would precipitate a system-wide ecological reaction of unpredictable scope or dimension. Therefore, Powertech’s plans to operate in situ recovery uranium mining in the Dewey Burdock area must be denied.

Submitted by

Charmaine White Face

Defenders of the Black Hills

and as an Individual

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