ENVIRONMENTAL ASSESSMENT

On an Application for an

OPENCUT MINING PERMIT

The Montana Department of Environmental Quality (DEQ) prepared this Environmental Assessment (EA) in accordance with requirements of the Montana Environmental Policy Act (MEPA). An EA functions to identify, disclose, and analyze the impacts of a proposed action. This document may disclose impacts that have no legislatively required mitigation measures, or over which there is no regulatory authority.

The state law that regulates gravel mining operations in Montana is the Opencut Mining Act. This law and the rules adopted thereunder place operational guidance and limitations on a project during its lifetime, and provide for the reclamation of land affected by opencut mining operations.

Local governments and other state agencies may have authority over different resources and activities under their regulations. Approval or denial of this Opencut Application will be based on a determination of whether or not the proposed operation complies with the Opencut Mining Act and the rules adopted thereunder. The DEQ approval of this application would not relieve the operator from the obligation to comply with any other applicable federal, state, or county statutes, regulations, or ordinances. The operator is responsible for obtaining any other permits, licenses, approvals, etc. that are required for any part of the proposed operation.

APPLICANT: Wyo-Ben Inc. **COUNTY:** Carbon

SITE NAME: Montana 2 Permit - Loyning **DATE:** September 2015

LOCATION: Sections 4 & 5, T9S, R25E & Sections 32 & 33 T8S, R 25E

PROPOSAL: The applicant proposes to permit a new, long-term bentonite mine to mine, stockpile and transport an estimated 1,400,000 cubic yards of bentonite from a 1,923.3-acre site located approximately 6.8 miles north of the Wyoming border and approximately 20 miles south of Bridger, Montana. The site is located within the Core Sage Grouse area designated by Montana Fish Wildlife and Parks. In addition the site is crossed by utilities and pipelines. The appropriate easements have been identified in the map and the required setbacks would be maintained.

A reclamation bond would be held by DEQ to ensure that final reclamation of the site to rangeland/pasture would be completed by December 2035. This application contains all items required by the Opencut Mining Act and its implementing rules. Proponent commits to properly conducting opencut operations and would be legally bound by the permit.

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	**POTENTIAL IMPACTS AND MITIGATION MEASURES**
1. TOPOGRAPHY, GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:	The mine area terrain is gently sloping (0-10%) from Highway 310 to a ridgeline that trends northwest to southeast. The terrain slopes gently to the southwest, with occasional small to medium sized ephemeral channels dissecting the area. The terrain on the northeast side of the ridge is a steep slope cut into the Thermopolis shale formation that is characterized by heavy clay soils dissected by small, steep ephemeral channels. The area is underlain by gray, fine- to medium-grained, locally conglomeratic sandstone with interbeds of dark gray carbonaceous shale, local conglomerates, porcellanite, coal, and bentonite. The onsite soils consist of clay and silty clay soils. The operator would strip and replace all soil and subsoil from the site prior to any Opencut disturbance. Soil

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	test pits and depths are discussed in the application for the large mine site. The site receives approximately 6 inches of precipitation per year. *Impacts:* An irreversible and irretrievable removal of gravel from the site would occur. A small impact to the quantity and quality of soils from salvaging, stockpiling, and re-soiling activities also would occur, but this would not impair the capacity of the soils to support full reclamation. There are no unusual topographic, geologic, soil, or special reclamation considerations that would prevent reclamation success.
2. WATER QUALITY, QUANTITY AND DISTRIBUTION	The operator would avoid the creeks within the permitted boundary and would avoid ephemeral drainages when possible. When Opencut activities disturbed an ephemeral drainage the operator would follow the erosion control and mining methods described within the application to protect the integrity of the ephemeral drainage. Water would be used for dust control for this site and would be obtained from an offsite source located in excess of 300 lineal feet from the permit boundary. *Impacts:* The proposed activities would have a minimal effect on the quantity and quality of the surface and groundwater resources. *Cumulative:* Cumulative impacts would be negligible.
3. AIR QUALITY	Air quality standards are based upon the Clean Air Act of Montana and pursuant rules and are administered by the DEQ Air Resources Management Bureau (ARMB). Its program is approved by the Environmental Protection Agency (EPA). These rules and standards are designed to be protective of human health and the environment. Air quality permits would be required on the processing equipment before installment. Machinery, such as generators, crushers and asphalt plants, are individually permitted for allowable emissions. Best Available Control Technology (BACT) is the usual standard applied. Fugitive dust is that which blows off the pit floor, stockpiles, gravel roads, farm fields, etc. It is considered to be a nuisance but not harmful to health. *Impacts:* Air quality standards as set by the federal government and enforced by the ARMB would allow minimal detrimental air impacts.
4. VEGETATION COVER, QUANTITY AND QUALITY	There are three possible rare or sensitive plants or cover types present in the site area. The plant present are the Vagrant Aspicilia Lichen, Geyer's Milkvetch, and Gray's Milkvetch. Onsite vegetation consists of Birdfoot Sagebrush Wyoming Big Sage, Prickly Gilia, Gardener's Saltbrush, Rubber Rabbitbrush, Fringed Sagewort, Greasewood, Bud Sagebrush, Skunkbush Sumac, Sandberg Bludegrass, Basin Daisy, Broom Snakeweed, and other grasses and forbs; and provides approximately 60 to 70% cover. The vegetation would be removed as soil is stripped and the site would be replanted with plant species compatible with the proposed reclaimed use. *Impacts:* No long term detrimental impacts to the vegetation would occur.
5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:	The area is used primarily for rangeland/pasture, but also supports populations of deer, rodents, song birds, coyotes, foxes, raptors, insects and various other animal species. Population numbers for these species are not known.

IMPACTS ON THE PHYSICAL ENVIRONMENT	
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	Impacts: The proposed mine is expected to temporarily displace some individual species and it is likely that the site would be re-inhabited following reclamation to similar habitat.
6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:	The Montana Natural Heritage Program (MNHP) lists the following 15 species of concern in the vicinity of the site: **Greater sage-grouse** (*Centrocercus urophasianus)* is the largest of Montana's grouse. Both sexes have relatively long, pointed tails, feathered legs, and mottled gray-brown, buff, and black plumage. In Montana, it ranges primarily in the southwestern and eastern portions of the state. This species does not migrate. Sagebrush is its preferred habitat. **Burrowing owl** *(Athene cunicularia)* can be identified from other owl species by the fact that they live in the ground. This species is migratory in the northern portion of its range, which includes Montana. They winter south of the U.S.-Mexico border. Burrowing owls are found in open grassland habitat where they nest and roost in abandoned animal burrows. **Pinyon Jay (***Gymnorhinus cyanocephalus)* is a small blue crestless bird about 26-29 cm in total length. They are permanent residents in the state of Montana. Their habitat includes low-elevation ponderosa pine and limber pine-juniper woodlands. They are generally omnivorous, with pine seeds forming an important component of the diet. Juniper berries, wild fruits, agricultural grains, and animal matter are also eaten. Loss of ponderosa pine woodlands is probably the greatest threat to Pinyon Jays in Montana. **Clark's Nutcracker** *(Nucifraga columbiana)* is a jay-sized corvid that is crowlike in build and flight, with moderate sexual size dimorphism. The bird is light to medium gray with varying amounts of white around the eyes, on forehead and on chin; white around vent and at base of tail; wings and tail glossy black. The bird has a long, pointed, black bill with short nasal bristles and makes a distinctive grating call audible at great distance. **Blue–gray Gnatcatcher –** *(Polioptila caerulea)* is a very small bluish-gray long-tailed songbird. Breeding birds in Montana migrate out of state for the winter. Over-wintering locations have not been identified for Montana breeders. Breeding habitat in Montana is restricted to open stands of Utah juniper (Juniperus osteosperma) and limber pine (Pinus flexilis) with intermixed big sagebrush (Artemisia tridentata). Blue-gray Gnatcatchers feed on adult insects as well as their larvae and eggs, and also other arthropods (spiders, etc.). **Sage thrasher** *(Oreoscoptes montanus)* is a medium-sized, long-tailed songbird. Its summer range includes all but north central and northwest Montana. This bird winters in the southwestern states and northern Mexico. It is considered a sagebrush obligate in Montana. Its abundance is generally positively correlated with the amount of sage cover and negatively correlated with grass cover. **Loggerhead shrike** *(Lanius ludovicianus)* is a medium-sized songbird. Its summer range includes all of Montana. It winters from very southern Oregon, southern Kansas, Tennessee, and Virginia southward to southern Mexico. Nests are found in sagebrush, bitterbush, and greasewood, and are equally successful in all three.

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	**POTENTIAL IMPACTS AND MITIGATION MEASURES**
	Brewer's sparrow *(Spizella breweri)* is a songbird strongly associated with sagebrush over most of its range. In summer it is found across Montana. This species migrates to the southwestern U.S. and northern Mexico for winter. Brewer's sparrows are closely associated with sagebrush, preferring dense stands broken up with grassy areas. **Hoary Bat** (*Lasiurus cinereus*) is a large lasurine (20 to 35 g) with long pointed wings and heavily-furred interfemoral membrane. Hoary Bat is the largest bat species found in Montana. Its dorsal pelage in is a mixture of browns and grays, tinges with white, giving the bat a frosted or hoary appearance. Hoary Bat is migratory and only a summer resident in Montana, and occupies forested areas. They are reported to favor moths but stomach contents of 7 individuals captured in Carter County revealed beetles, moths, true bugs, leafhoppers, lacewings and true flies. They are also carnivorous, and have been reported to attack, kill, and eat pipillistrel bats. **Spotted Bat** *(Euderma maculatum)* have huge pink ears (37 to 50 millimeters long), the dorsum is blackish with a large white spot on each shoulder and on the rump, and white patches at the posterior base of each ear. Spotted Bats differ from other bats in Montana by the unique patterning of the fur and the extremely large ears. Their echolocation calls (an insect-like clicking) are audible to the unaided human ear. The species has not been reported during winter in Montana. Spotted Bats have been encountered or detected most often in open arid habitats dominated by Utah juniper (Juniperus osteosperma) and sagebrush (Artemisia tridentata and A. nova), sometimes intermixed with limber pine or Douglas-fir, or in grassy meadows in ponderosa pine savannah (Fenton et al. 1987, Worthington 1991a, Hendricks and Carlson 2001). Cliffs, rocky outcrops, and water are other attributes of sites where Spotted Bats have been found (Foresman 2012), typical for the global range. This species is insectivorous. Apparently Spotted Bats feed primarily on noctuid moths, and sometimes beetles (Barbour and Davis 1969, Schmidly 1991, Van Zyll de Jong 1985). **White-tailed Prairie Dog** *(Cynomys leucurus)* is a medium-sized squirrel-like rodents and are smaller than the only other prairie dog found in Montana, the Black-tailed Prairie Dog *(Cynomys ludoviscianus)*. White-tailed Prairie Dogs are non-migratory. Juveniles disperse to other colonies or the periphery of their natal colony in September/October. In Montana they inhabit these habitats dominated by two types of vegetation: areas with Gardener's saltbush *(Atriplex gardneri)* with lesser amounts of big sage, and areas with small-flowered marsh-elder *(Iva axillaris)* and winterfat *(Krascheninnikovia lanata)*(Flath and Paulick 1979). White-tailed Prairie Dogs feed primarily on forbs. **Greater short-horned lizard** *(Phrynosoma hernandesi)* has a broad and flattened body, short spines crowning the head, a spiny back, and maximum total length of 6 inches. It ranges across much of Montana, mostly east of the Continental Divide. Habitat reports mention individuals on ridge crests between coulees, and in sparse, short grass and sagebrush with sun-baked soil. **Vagrant Aspicilia Lichen (Aspicilia fruticulosa)** is a plant that little is known about. However it has erect hemispherical to spherical cushions of knobby balls. Branches terete (or nearly so), short, thick, blunt, and tipped with conspicuous pseudocyphellae. Its range is Eastern Montana, southern Idaho and eastern

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	Oregon. It reproduces by spores from apothecia, which are rarely produced. **Geyer's Milkvetch** *(Astragalus geyeri)* is a small annual herb with simple or branched stems arising 5-20 cm high from a slender taproot. The pinnately compound leaves are 2-10 cm long with 5-13 linear to narrowly elliptic leaflets. Foliage is sparsely hairy. Ascending flower stalks arise from the leaf axils and are 6-25 mm long with 2-8 flowers. Each nodding pea-like flower is 3-15 mm long with a somewhat recurved upper petal that is 5-8 mm long, and a calyx that is 2-4 mm long and sparsely covered with light-colored hairs. Greenish, bladdery, pendant fruits are 15-24 mm long and shaped like a half moon. This milkvetch occupies loose, sandy soils with little or no organic matter and soil development; most Montana records are from sandy alluvial plains and terraces. In the Pryor Mountains, Geyer's milkvetch is restricted to sandy alluvial plains and terraces. **Gray's Milkvetch** *(Astragalus grayi)* is an herbaceous perennial with numerous, simple or branched stems, 20-35 cm long and arising together from a branched rootcrown just below the ground. The plant that is rare in the state of Montana and is locally restricted to Carbon and Big Horn counties. *Impacts:* None of the listed species have been found on this site. Even if suitable habitat did exist on this site, the disturbance area would be small and large areas of similar or identical habitat surrounds the site. The possible impact to these species would be minimal.
7. HISTORICAL AND ARCHAEOLOGICAL SITES	The Montana State Historic Preservation Office (SHPO) was notified of the application. It reported that a few previously recorded sites within the designated search locale had been identified. A pedestrian survey of the area by DEQ personnel was not thorough enough to identify any potential sites SHPO recommends that a cultural resource inventory be conducted at this site in order to determine whether or not sites exist and if they would be impacted *Impacts:* If during operations resources were to be discovered, activities would be temporarily moved to another area or halted until SHPO was contacted and the importance of the resources was determined.
8. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY	There are no unusual demands on land, water, air or energy anticipated as a result of this project. *Impacts:* Negligible impacts to land, water, air, or energy would occur.

IMPACTS ON THE HUMAN POPULATION	
RESOURCE	**POTENTIAL IMPACTS AND MITIGATION MEASURES**
9. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS	County zoning clearance is not required for bentonite applications.
10. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING	As seen on the aerial photo of the surrounding area, there are no nearby residences. *Impact:* This commercial operation is being sited in this area because of the location of the resource, and to provide bentonite to meet the needs of their clients.

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11. AESTHETICS	The site is located in a common rangeland/pastureland area. There would be a temporary alteration of aesthetics while mining is under way. However, reclamation would return the area to a visually acceptable landscape. This project is considered to be long-term, i.e., planned to take 20 years to complete.
12. QUANTITY/ DISTRIBUTION OF EMPLOYMENT	Existing employees would mainly be utilized for this operation. There is low potential that this project would create a significant number of new jobs. *Impacts:* New employment opportunities would be limited.
13. INDUSTRIAL, COMMERCIAL, AGRICULTURAL ACTIVITIES AND PRODUCTION	The acreage listed in the proposal would be taken out of rangeland/pastureland use. Upon completion of mining, the land would be reclaimed to rangeland/pastureland. *Impacts:* Rangeland/pastureland production would be reduced as soil stripping and operations progress across the site. When the entire site is opened up for mining and mine-related activities, all rangeland/pastureland activities would cease, but would be restored as the site is reclaimed.
14. LOCAL, STATE TAX BASE AND TAX REVENUES, PERSONAL AND COMMUNITY INCOME	Local, state and federal governments would be responsible for appraising the property, setting tax rates, collecting taxes, etc., from the companies, employees, or landowners benefitting from this operation. Following reclamation, it is assumed the tax base would revert to pre-mine levels.
15. DEMAND FOR GOVERNMENT SERVICES	Limited oversight by DEQ Opencut Program personnel would be conducted in concert with other area activity when in the vicinity.
16. HUMAN HEALTH AND SAFETY	Any industrial activity would increase the opportunities for accidental injury. There are agencies that require the Operator to implement specific safety measures. If followed there is no reason to believe that significant safety issues would be present.
17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES	This activity would not inhibit the use of the identified resources.
18. NATIVE CULTURAL CONCERNS	*Impacts:* None identified.

19. Alternatives Considered:

A. Denial Alternative: The Department would deny an application that does not comply with the Act and Rules. No impacts to the natural or human environment would occur.

B. Approval Alternative: The Department would approve an application that complies with the Act and Rules. Impacts of this application are addressed in the body of the EA.

20. Public Involvement, Agencies, Groups or Individuals contacted: Montana State Historic Preservation Office, Montana Natural Heritage Program.

21. Other Governmental Agencies which May Have Overlapping or Sole Jurisdiction include, but may not be limited to: Carbon County Commission or County Planning Department (zoning), Carbon County Weed Control Board, MSHA and OSHA (worker safety), DEQ ARMB (air quality) and Water

Protection Bureau (groundwater and surface water discharge; stormwater), DNRC (water rights), and MDT (road access).

22. Regulatory Impact on Private Property: The analysis done in response to the Private Property Assessment Act indicates no impact. The Department does not plan to deny the application or impose conditions that would restrict the use of private property so as to constitute a taking.

23. Magnitude and Significance of Potential Impacts: This proposal is not likely to create impacts of significance due to mitigation, restrictions, and oversight mandated by the Opencut Mining Act and pursuant rules and the Montana Clean Air Act.

24. Recommendation for Further Environmental Analysis: [ ] EIS [X] No Further Analysis

EA Prepared By: J.J. Conner (Name) Opencut Mining Program Environmental Specialist (Title)

EA Reviewed By: Chris Cronin (Name) Opencut Mining Program Supervisor (Title)

PRIVATE PROPERTY ASSESSMENT ACT (PPAA) CHECKLIST

DOES THE PROPOSED AGENCY ACTION HAVE TAKINGS IMPLICATIONS UNDER THE PPAA?

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deprive the owner of all economically viable uses of the property?
	X	4. Does the action deny a fundamental attribute of ownership?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? (If answer is NO, skip questions 5a and 5b and continue with question 6.)
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property?
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally? (If the answer is NO, skip questions 7a-7c)
		7a. Is the impact of government action direct, peculiar, and significant?
		7b. Has the government action resulted in the property becoming practically inaccessible, waterlogged, or flooded?
		7c. Has the government action diminished property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?

Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b.

If taking or damaging implications exist, the agency must comply with § 5 of the Private Property Assessment Act, to include the preparation of a taking or damaging impact assessment. Normally, the preparation of an impact assessment will require consultation with agency legal staff.