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Attention: Scoping Comments on proposed Otter Creek coal mine

Dear Ms. Ponozo:

These comments are submitted in response to the Montana Department of Environmental Quality (DEQ) Notice of Intent to prepare an environmental impact statement (EIS) on the permit application submitted by Otter Creek Coal, LLC, a subsidiary of Arch Coal, to construct and operate an open pit coal mine in the Otter Creek Valley of southeastern Montana.

In this letter, over 150 Northern Cheyenne tribal citizens and involved community members, listed at the end of this document from a variety of backgrounds and expertise, have identified the topics that the DEQ must address in the Draft EIS for the proposed Otter Creek coal mine project. To be clear, these are from Northern Cheyenne citizens and the comments are not to be confused with comments submitted by the Northern Cheyenne Tribal Council.

We expect that all these questions be thoroughly and independently reviewed and answered in the Draft Environmental Impact Statement (DEIS). We also fully expect that the DEQ will analyze a "NO MINE" option to the same extent it analyzes the mine option.

"The Tongue River area was the Northern Cheyenne last refuge and is still recognized as the place where they were able to survive and come together as a people."

Cultural and Historic Impacts

In the permit application, Otter Creek Coal, LLC. states that there are no unique characteristics of the Otter Creek valley. This statement is patently false. The valley may hold no significance to the

coal company and hired archaeologists but to the Cheyenne people, the Otter Creek valley is rich in cultural, traditional and historic sites, in fact, the entire valley is sacred to the Cheyenne.

We ask that a Traditional Cultural Property Inventory be conducted in the Otter Creek and Tongue River valley. The National Park Service states that important historic and cultural sites,

“may not necessarily come to light through the conduct of archeological, historical or architectural surveys. The existence and significance of such locations often can be ascertained only through interviews with knowledgeable users of the area, or through other forms of ethnographic research.”

1. Medicinal & Ceremonial Plants

There are hundreds of important plants in the Otter Creek and Tongue River valleys that will be impacted by the construction and operation of the Otter Creek coal mine and Tongue River Railroad.

Please answer the following questions in the DEIS:

- How will the proposed mine and railroad impact the plants that are culturally important to the Cheyenne?
- If water quality in the Tongue River, streams, creeks and springs is impacted, how will that impact these plants?
- How will noxious and invasive weeds that are brought in by the railroad and the mine impact these plants?
- What will the state of Montana and the mine operator do to mitigate or avoid impacts to these plants?

2. Tribal consultation and Fort Laramie Treaty Tribes

The Cheyenne are one of many Plains tribes that are historically and culturally connected to the Tongue River and Otter Creek valleys.

Please answer the following questions in the DEIS:

- How will the state of Montana ensure that all the tribes that are connected to the region are appropriately consulted when cultural sites, burial sites, sacred sites or human remains are found?
- What is the process for the inadvertent discovery of human remains?
- How will Tribes be involved in the development of the DEIS?

3. Noise pollution

The mine and associated infrastructure and activities will cause an increase in noise pollution in the Tongue River and Otter Creek valleys in addition to increased noise from

the road traffic. Noise impacts our ceremonies that are held in various places on and off the reservation.

Please answer the following questions in the DEIS:

- What are the decibel levels that will be experienced by people during the construction and operation of the mine and construction and operation of the Tongue River Railroad in communities on and around the Northern Cheyenne Reservation?
- How will the mine operator accommodate Cheyenne ceremonies? For example, will the mine shut down operations during important Cheyenne ceremonies that are held in earshot of the mine?

4. Burial Sites

The Montana Human Skeletal Remains and Burial Site Protection Act and its implementing regulations provide legal protection to all unmarked burial sites regardless of age, ethnic origin or religious affiliation by preventing unnecessary disturbance and prohibiting unregulated display of human skeletal remains. The Burial Preservation Board determines the treatment and final disposition of any discovered human remains and associated burial materials. The Act establishes the preference that human remains be left undisturbed where they are found.

Please answer the following questions in the DEIS:

- In detail, how will all of the laws and regulations surrounding cemeteries, burial sites, inadvertent discovery of human remains and mining be implemented? What is the exact process that the state agencies and the coal company follow?

Northern Cheyenne Otter Creek Homesteaders

In January 1881, all of the Northern Cheyenne that were sent to Fort Keogh and were eventually allowed to move south and take homesteads near the Tongue River and on Rosebud and Muddy Creeks under the Indian Homestead Act of 1875. However, in 1900, the Northern Cheyenne families were removed or agreed to move under duress off of their private or individual holdings on which the Army under General Miles' command had helped them settle and placed on the newly expanded reservation. In 1884 the Northern Cheyenne Indian Reservation was created on unsurveyed lands north of Tongue River. The Reservation boundaries excluded 46 Northern Cheyenne families who had been encouraged to homestead along the east bank of the Tongue River and along Otter Creek. At the same time, 46 white homesteads, both legal and illegal, had been established within the boundaries of the Reservation.

In 1901, the white settlers on the newly expanded reservation lands in the Tongue River valley were ordered to leave. The Federal government paid the 46 white settlers \$150,445 for

their “improvements” (buildings etc.) on the west side of the Tongue River and compensated the 46 Cheyenne families with only \$1,150 for their homesteads on the east side.

Descendants of these families argue that because the government never paid fair value for these homesteads and that they were promised the chance to return, they still have claims to this land.

As Joan Brownell states in her 2005 report to the Custer National Forest,

The Cheyenne consider the Tongue River Region as a sanctuary necessary to ensure their survival as a people. They hold a spiritual connection with the river, its water, and the springs and hills of the Tongue River Valle. The history of the Cheyenne homesteads on the east side of the Tongue River is an integral part of the overall history of the Cheyenne peoples in their struggle to retain their homeland in southeastern Montana.¹

We will not go into the entire extensive history in this document but have provided appropriate references for more detailed examination by DEQ. This issue must be addressed before any of this process moves forward.

Please answer the following questions in the DEIS:

- The ownership claims of the Cheyenne homesteader families have never been resolved. How can the permit process for this mine move forward without these property claims being addressed?
- If developed, the homesteader sites will be destroyed. How will the company work with the homesteader families to identify and protect important cultural and historic sites from these home sites?
- How are the homesteader families expected to know what sites have been identified when DEQ refuses to allow them to see the baseline cultural and historic site inventory that was completed by Otter Creek Coal Company?
- How is the state of Montana planning to address this issue?
- What is the exact process the DEQ will follow to address this issue?

Environmental Impacts

1. Air

a. Quality

i. Health

Rosebud County has one of the highest rates of respiratory disorders in the State of Montana. Air quality impacts from the Otter Creek mine and associated infrastructure pose a very real risk to those already suffering from these disorders and is likely to contribute to

an increase. As members of the Cheyenne, the undersigned hold the protection of tribal elders and children as the highest responsibility.

Please answer the following questions in the EIS:

- What is the projected increase in respiratory disorders?
- Specifically, does DEQ expect to see an increase in disorders with children and the elderly?
- Will IHS receive additional funding for the monitor and treatment of respiratory disorders?
- If IHS will receive additional funding to treat childhood and elder respiratory illness, where will it come from? Will taxpayers bear the burden?
- What will be the cumulative impact of Otter Creek, the Tongue River Railroad, the Colstrip Power Plant, the Rosebud Mine and the Decker Mine on the frequency of respiratory disorders among elders and children of the Northern Cheyenne people?

b. Air Monitoring

Air pollution associated with coal mining is a top concern of those living near the mine. Hazardous gases from explosives and particulate matter pose a very real and well documented health risk to those living near mines.

Please answer the following questions in the DEIS:

- Where will particulate matter, NO₂ and ozone monitors be located?
- How many particulate matter, NO₂ and ozone monitoring stations will be placed around the mine?
- Who will conduct monitoring for particulate matter, NO₂ and ozone?
- What size of particulate matter will be monitored?
- How successful, generally, is monitoring equipment for particulate matter at informing the public of risk?
- Will the Northern Cheyenne tribal government receive funding from the state or Arch coal to conduct their own monitoring for each harmful pollutant or will they be expected to pay for it out of the existing budget, potentially offsetting other services that citizens rely on?
- How will the population, both on and off the reservation, be informed of violations of the National Ambient Air Quality Standards for particulate matter?
- Will an emergency alert system be established in population centers for hazardous air warnings?
- How would such a system be funded and who would operate it?

c. Dust pollution

Coal mines and coal trains emit large amounts of dust into the environment from the operation of heavy equipment in the mines and on unpaved roads, loading stations,

blasting, transport of coal, the reclamation process, and spoil piles. The construction of this proposed mine and the Tongue river railroad will surely emit large amounts of dust as well.

Please answer the following questions in the DEIS:

- How much fugitive dust can be expected from the construction of the mine?
- How much fugitive dust can be expected from the construction of the Tongue River Railroad?
- How many new unpaved roads will be constructed to serve the mine, including private roads operated only by the mine?
- How much dust will come off these roads during operation of the mine?
- What measures will be required to mitigate the fugitive dust from the roads and how effective will they be?
- What measures will be taken to keep dust from blowing off spoil heaps?
- What measures will be taken at loading stations to keep coal dust from going fugitive?
- How much dust will be emitted from blasting at the mine?
- How will dust from mine blasting be kept from blowing onto the reservation?
- What effect will dust from all sources associated with mine have on respiratory disorders on the reservation and in Ashland, both existing and new cases?

d. Diesel Emissions

If the Otter Creek mine is constructed, the area will suffer an increase in diesel emissions from mine equipment, the associated railroad to service the mine, and from the increase in semi truck traffic through the reservation. Diesel emissions are of particular concern, given that they are associated with a wide range of health problems such as lung and bladder cancers. When combusted, diesel emits ultra-fine particles of ash, metallic abrasion particles, sulfates, and silicates. It also emits hazardous gases like nitrogen oxides and carbon monoxide.

Please answer the following questions in the DEIS:

- Are cancer incidents expected to increase on the reservation?
- What impact will increased diesel emissions have on both existing respiratory illnesses and to the number of new cases on the reservation?
- How will fine particulates (PM 0.1) be monitored on the reservation?
- Are diesel emissions expected to contribute to haze problems?
- Will the Northern Cheyenne Class 1 Airshed be protected if diesel emissions cause violations to air quality standards?
- Approximately how much diesel will be used at the mine on a daily basis?
- Approximately how much diesel will be used to transport the coal to the existing railroad line on the Yellowstone River on a daily basis?

e. Mine Blasting

Mine blasting creates unique air quality problems that threaten public health. In Gillette, Wyoming, air quality warnings are regularly issued to address orange clouds from blasting sites, the color being an indication of the presence of high concentrations of Nitrogen Dioxide (NO₂).

Please answer the following question in the DEIS:

- How will air quality warnings be handled in Ashland?
- What kind of alert system will be established by DEQ and/or Otter Creek Coal Co.
- Who will pay for air quality monitoring and warning systems in Ashland?
- Will the seasonal inversion in Ashland create sinks of hazardous gases like NO₂?
- What will happen to mine operations if air quality in Ashland exceeds NAAQS?
- What will be the cumulative impact of the Tongue River Railroad and the Otter Creek mine on the air quality in Ashland?

Mine blasting poses problems beyond air quality. Mine blasting is associated with structural damage to buildings, roads, and other infrastructure and property. Please address the following questions:

Please answer the following questions in the DEIS:

- What is the radius around the mine in which structures may be in danger of damage?
- How was the radius of potential damage established?
- What precautions will be taken to insure the safety of structures within this radius?
- Does blasting pose a danger to existing wells, springs, and streams?
- If wells are rendered inoperable by blasting, who will replace them?
- If wells must be replaced, will new wells have retain seniority status in terms of water rights?
- Is blasting expected to have an impact on water quality in the Tongue River or any of its tributaries?
- Does blasting pose any danger to water quality?
- How will blasting impact wildlife through noise and toxins in the air?
- How will explosives be stored?
- Who will monitor the disposal of unused explosives?
- Will blasting contribute to noise pollution on the Northern Cheyenne Reservation or in Ashland? To what degree?
- What is the anticipated impact of blasting on livestock health, weight gain, and conception rates?
- What are the cumulative impact of the Tongue River Railroad and the use of explosives on structures in the area of the mine?

2. Water

a. Quality

i. Tongue River discharge

Please answer the following questions in the DEIS:

- Are there any threats to the drinking water of Ashland or anywhere/one else that gets their water from the Tongue River because of mine discharge?
- Is there any known threat to irrigators from mine discharge into Otter Creek or the Tongue River?
- What change in EC and SAR is expected in the Tongue River?
- What increase in Sodium Bicarbonate is expected in the Tongue River due to mine discharge?
- How many discharge points will there be from the mine and where will they go?
- Who will monitor the water quality in discharge points?
- Who will monitor the water quantity coming from discharge points?
- Will monitoring stations be established up river from the mine to measure water quality?
- Will an alert system be established for up river irrigators if harmful constituents are detected in the Tongue River?
- If water quality or water quantity interferes with ceremony of Cheyenne people, what recourse will we have?
- What are the impacts of water pollution expected on edible fish in the Tongue River that some rely on for food?
- Will discharge from the mine have any impact on riparian areas in the Tongue River drainage?
- Has baseline data on water quality been collected in the Tongue River?
- When was baseline data taken on water quality in the Tongue River?
- Can the DEQ establish a clear baseline of what the Tongue River water quality should be, prior to Coal Bed Methane Development?
- Will pollution limits be based on pre or post coal bed methane development baseline data?
- What will the pollution limits be on all regulated constituents from the mine?
- Will coal be washed on the site of the mine? If so:
 - a. Where will coal slurry be stored?
 - b. Will slurry ponds be lined?
 - c. What will happen if slurry ponds storing wastewater from coal washing “seep”, leak, or leach into the existing aquifer?
 - d. Will wastewater storage reservoirs be monitored independently or only by the operator?
 - e. What assurance can be given to those concerned about wastewater storage by the DEQ given DEQ’s failure to stop coal ash ponds at Colstrip from “seeping” or leaking?

ii. Aquifer

Strip mining has the potential to sever moving water which travels through cracks in the coal seams. In doing so, mining activity can limit water availability and draw down aquifers.

Please answer the following questions in the DEIS:

- Will the operator be responsible for compensating landowners who experience groundwater loss as a consequence of mining at Otter Creek?
- How far out from the mine is aquifer drawdown expected?
- How many people will be impacted by aquifer drawdown?
- Which aquifers are expected to be impacted and to what degree?
- Will groundwater on the Northern Cheyenne Reservation be in the drawdown area?
- How many years will it take the aquifers to recover, including the life of the mine?
- How is DEQ defining the hydrologic area for analysis?
- What will the impact of mining on Otter Creek be to the entire hydrologic area as would be defined by a Cumulative Hydrologic Groundwater Analysis, not just within the confines of the permit area?
- What will the cumulative aquifer drawdown in the region as coal bed methane development encroaches into the area?

3. Wildlife

Wildlife are greatly impacted by energy development. The impacts of human encroachment and environmental pollution are evident wherever research biologists perform their studies: loss of habitat and territory; loss of food supply; behavioral changes in mating predation and migration; and changes in interspecies relationships, altered predator-prey balance, increased competition for food and shelter.

a. Habitat fragmentation

The Otter Creek and Tongue River region of southeastern Montana is an area that is largely unfragmented and provides exceptional habitat for many different wildlife species. Coal mines have large footprints that extend far beyond the area where coal is dug. Mines need a network of roads, power and utility lines, buildings, railroad spurs, potentially conveyor lines, water tanks, discharge points, wastewater storage, chemical storage, water system for employees, powder kegs, tipples, lights for security, office buildings and sewage management system, fences and a myriad of other structures.

This footprint will web out from the mine for miles and miles impacting the entire region and its wildlife. The population of the region will increase by thousands, which will increase road traffic, new infrastructure and human settlement.

Please answer the following questions in the DEIS:

- How much habitat fragmentation does the operator and DEQ expect to occur?

- What is the entire “footprint” (in square miles) of the mine and associated infrastructure that will need to be built including but not limited to direct mine operations (as listed above), housing for workers, new roads and the Tongue River Railroad?
- The Otter Creek and Tongue River valleys are migration corridors for ungulates and raptors. How will the development impact these migration routes?
- How will this fragmentation impact current migratory routes of wildlife species in the region?
- How will this fragmentation impact stress levels of wildlife in the region?
- How will this fragmentation impact breeding habits and genetic diversity of wildlife in the region?
- In the short, medium and long term, how will this fragmentation affect wildlife populations?
- How will this habitat fragmentation impact hunting opportunities in the region?
- How will habitat fragmentation from the mine impact Montana Fish, Wildlife and Parks revenue from selling hunting licenses in the region?
- How will it impact wildlife populations on the Northern Cheyenne reservation?
- How is the mine operator and the State of Montana planning on mitigating these impact described above if the mine is constructed?

b. Subsistence hunting and fishing

Many Cheyenne hunt and fish in the region for subsistence. Therefore, the entire region is important for the health, well-being and livelihood of many Cheyenne.

Please address the following questions in the DEIS:

- How will this mine and associated infrastructure including the TRR impact Cheyenne’s ability to harvest wild game and plants in region?
- When populations of game animals decrease due to the mine and railroad operations, how will tribal members be compensated for this loss?

c. Poaching

There is extensive documentation that poaching increases in areas of energy development. In addition, the Northern Cheyenne Tribe does not have the authority to prosecute non-natives for poaching violations on the Reservation. Montana Fish, Wildlife and Parks is already stretched thin and there are few wardens to enforce laws in large geographical areas. In addition, the Tribe maintains a Bison herd on the southern end of their Reservation.

- Does the state of Montana and mine operator expect to see an increase in poaching in southeastern Montana and on the Northern Cheyenne Reservation? If not, why not?
- How will the bison herd be protected from poachers?

- How does the state of Montana and the mine operator plan to address poaching that occurs on Reservation? How will the violations be addressed in the criminal justice system?
- How will Montana Fish, Wildlife and Parks deal with an increase in poaching? If the state must hire a new warden, who will pay for it? Taxpayers or the mine operator?

d. Riparian habitat and water systems

Riparian habitat in arid southeastern Montana is extremely important for wildlife. The proposed mine and associated infrastructure will have an impact on the Tongue River, streams, perennial springs and aquifers that feed these systems. Wildlife need them for water, places to raise young and forage.

Please answer the following questions in the DEIS:

- How many rivers, streams, creeks, springs and other wetland areas will be impacted (quality and/or quantity) by the mine and associated infrastructure? And how long will it take these systems to recover?
- How will wildlife be impacted by a decrease in water quality and quantity?
- How will the impacts to water quality and quantity be mitigated?

e. Migratory bird, ground birds and waterfowl

The Tongue River and Otter Creek and the surrounding area is located within the Central Flyway, which contains important migration corridors. Bighorn, Rosebud, Treasure, and Yellowstone counties are a major habitat for nesting, migrating and wintering waterfowl. Rivers and stockponds in the region provide important habitat for resident ducks and nesting areas for migrants. A large variety of ducks, geese, and shorebirds use riparian wetland habitats within the region for nesting and migration stopovers. Common species observed downstream of the Tongue River Reservoir include Canadian geese, common mergansers, mallards, shovelers, and blue-winged and green-winged teal, pintail, and gadwall. Raptors on the Reservation include bald and golden eagles, peregrine falcons, harriers, American kestrels, red-tailed hawks, sharp skinned hawks, northern goshawks and turkey vultures. Reservation owl species include the snowy owl, burrowing owl, screech owl, short-eared owl, and great horned owl. Some of these raptors have been identified by the State of Montana, the USFS, or the BLM as sensitive species or species of concern. Those listed by the State include northern goshawk, golden eagle, peregrine falcon, and the burrowing owl. These include the sharp-tailed grouse, sage grouse, Hungarian partridge, ringneck pheasant, turkey and mourning doves. Sharp-tailed grouse are generally found in the grassland, shrub-grassland, and woodland vegetation areas. Their habitat includes hills, benches, and rolling topography that have good stands of residual cover composed chiefly of grasses for roosting, feeding and nesting. Sage grouse are widely distributed in suitable habitat, but because numbers have declined significantly over the last 20 years they are a possible candidate for listing under the Endangered Species Act (ESA).

Please answer the following questions in the DEIS:

- How will the waterfowl and birds be impacted by the construction and operation of the Otter Creek mine and Tongue River Railroad.
- How will the sensitive and species of concern be impacted by the construction and operation of the Otter Creek mine and Tongue River Railroad.
- How will sage grouse and sage grouse habitat be impacted by the construction and operation of the Otter Creek mine and Tongue River Railroad.
- How will these impacts be mitigated by the mine operator?
- How will impacts be monitored by the state of Montana and who will pay for the monitoring?

f. Threatened and Endangered and Species of Concern

The black-tailed prairie dog warrants listing by the Fish and Wildlife Service under the Endangered Species Act; however, at this time it remains only a candidate for listing. Other species with close associations to prairie dogs are burrowing owls, mountain plovers, and ferruginous hawks. These are all species of concern. There is a black-footed ferret reintroduction occurring on the Reservation near Logging Creek. In addition, the Swift Fox has also been seen on the Reservation as well as the Bald Eagle, Mountain Plover and Peregrine Falcon. There also may be wolves and other species that have not been inventoried yet.

Please answer the following questions in the DEIS:

- How will the threatened and endangered species found on the Reservation be impacted by the construction and operation of the Otter Creek coal mine and Tongue River Railroad in the short, medium and long term?
- How will these impacts be monitored and who will pay for that monitoring?
- How will these impacts be mitigated?

g. Traffic: wildlife-vehicle collisions

Montana ranks in the top 10 states for wildlife-vehicle collisions and such incidents occur in the United States annually, mostly on rural two-lane roads.ⁱⁱ Not only are the collisions harmful to wildlife, but according to a 1995 study they also caused 211 human fatalities, 29,000 human injuries and more than \$1 billion in property damage.ⁱⁱⁱ The proposed mine and associated infrastructure will increase the population in the region, the number of passenger vehicles and industrial truck traffic on the roads and highways and will stress wildlife which may lead them to move more to avoid human interaction.

Please answer the following questions in the DEIS:

- What is the increase expected in wildlife-vehicle collisions on Highway 212 due to the mine and associated development?

- How many human injuries are expected due to an increase in these collisions?
- What is the increase in property damage expected from an increase in these collisions?
- Who will respond to increased accidents on 212 and other highways? If it is Northern Cheyenne first responders, how will the Tribe be compensated for increased work load? If more first responders are necessary, who will pay for training, hiring and salaries?
- What is the impact to wildlife populations expected to be due to an increase in these collisions?
- Will the state of Montana and the mine operator commit to putting wildlife overpasses and underpasses on Highway 212 in known migratory areas to decrease these collisions?
- How will these impacts be mitigated or avoided?

g. Noise pollution

Human-induced noise pollution is one of many factors contributing to the depletion of wildlife populations. Laboratory studies and field research have uncovered four major ways in which animals are adversely affected by noise pollution: hearing loss, resulting from noise levels of 85 db or greater; masking, which is the inability to hear important environmental cues and animal signals; non-auditory physiological effects, such as increased heart rate and respiration and general stress reaction; and behavioral effects, which vary greatly between species and noise characteristics, resulting in, for example, abandonment of territory and lost reproduction. Behavioral and physiological responses have the potential to cause injury, energy loss (from movement away from noise source), decrease in food intake, habitat avoidance and abandonment, and reproductive losses. Studies have shown that when certain bird species are flushed from nests in response to noise, eggs are broken and young are exposed to injury and predators.

Please answer the following questions in the DEIS:

- What will be the impact of the mine and associated infrastructure including the Tongue River Railroad on the “soundscape” of region?
- How will an increase in noise impact wildlife species in the region?
- What decibel levels are expected during mine operation including sustained day to day mine operation noise, blasting noise, noise from train operation?
- What will be done to mitigate or avoid these impacts to wildlife?

h. Cumulative impacts to the valley from industrialization

Direct and indirect impacts on wildlife of this particular development need to be analyzed but the cumulative impacts from the entire energy development in the Powder River Basin need to be analyzed in addition to the impacts from the Bakken oil field in northern Montana. Intact and large habitats are invaluable for wildlife species. In eastern Montana,

wildlife are experiencing shrinking and fragmenting habitats that will impact their population, health and genetics.

Please answer the following questions in the DEIS:

- How will the mine and associated infrastructure compound current impacts of energy development including coal bed methane, coal fired power plants, oil drilling and fracking and other activity in the Powder River Basin and the Bakken on wildlife in eastern Montana?

4. Vegetation

Southeastern Montana is relatively free from many invasive weeds that have spread throughout the west. This is due to the relative isolation of the region. However, the proposed mine and train will increase the number of invasive weeds taking hold in the region due to increased truck track, train movement etc. Coal mines can lead to dramatic changes in flora and fauna in the vicinity. noxious weeds, soil erosion, and the propagation of native plants are all issues of concern.

Please answer the following questions in the DEIS:

- How does the mine operator plan on dealing with invasive weeds on and off mine property?
- If spraying is part of the plan, how will the mine operator address the impacts of use of herbicides?
- Please provide a complete inventory of the native plants that exist within and adjacent to the permit area.
- How will sensitive native plants be protected? How will culturally important native plants be protected?
- Are there any chemicals used in mining that could prove harmful for reestablishment of native plants?
- What native plants in the area are used for food or medicines?
- How will gathering rights be protected for plants used for food or medicines?
- Will the mine work with the county weed board to establish a plan to mitigate noxious weeds?
- What noxious weeds are most likely to establish themselves during mining?
- Will vehicles be required to be washed when coming to or leaving the mine site?
- Will off-road vehicles be washed to scrub invasive plants and seeds during the mining process? If so, how would this be enforced?
- Please describe the erosion control plan that would be used at the mine.
- Does erosion into waterways pose any threat to water quality in Otter Creek or the Tongue River?
- How will top soil that erodes be replaced?

5. Climate Change

Climate change is already causing many species to shift to new locations, often at faster rates than scientists previously expected. As temperatures have increased, land-based plants and animals have been moving further north and to higher elevations. Continued climate change this century is projected to cause biome shifts for about 5 to 20 percent of North America. Individual species respond differently to changes in the timing of seasons or the frequency of extremes, which can create mismatches between animals and their food sources. At the same time, the ranges of some species are shifting at different rates, creating interactions among species that previously did not coexist. Ecologists expect that climate change will bring an overall decline in biodiversity. Even small changes in winter temperature or precipitation can have marked impacts on ecosystems. Most notably, pests and the pathogens that cause diseases are increasingly able to survive and thrive during the winter, which allows their populations to explode. Longer growing seasons and warmer winters are enhancing bark beetle outbreaks, increasing tree mortality and the likelihood of intense and extensive fires. Declining snow cover is leaving soils without their normal insulation, leading to colder and more frozen soils. This has been shown to lead to increased root mortality, decreased decomposition, and significant losses of nutrients to runoff. Dwindling snowpack accumulation in mountain areas is creating greater risks of winter and springtime floods, and depriving downstream areas of valuable snowmelt runoff during the summer and fall. These shifts in the seasonal cycle of stream flow present significant challenges for managing water supply for human consumption and agriculture, in addition to the stresses they put on fish and wildlife.

These changes undermine the ecological health of the Northern Cheyenne Reservation including adjacent areas and impact our quality of life. Healthy public lands produce vital water supplies and natural resources for energy, food, and shelter. They also provide valued recreation opportunities, and places of solitude and beauty, which nurture and replenish our spirit. These core values and benefits are threatened by the environmental changes underway.

Due in part to a “holistic” worldview, physiographic landscapes and the natural and cultural resources that they contain are inseparable from American Indian culture, traditions, religion, and belief systems. As an example, in Cheyenne cosmology all things are related, with people, land, water, plants, animals (as well as rocks, minerals and fossils) all having a spiritual connection to each other. There are numerous native plants (over 170 species) harvested by the Cheyenne people for traditional ceremonial, medicinal, industrial, and subsistence uses, with each plant having special rules and cultural traditions governing its procurement and use. The Cheyenne people also regard animals as relatives. Eagles and hawks, in addition to being spiritual mediators, are also recognized as sacred. Game animals and predator species also serve ceremonial functions. Native plants and animals continue to play an important role for the Cheyenne, both in their diet and in their ceremonial life. As a result, the consequences of climate change have the potential to result in a disproportionate effect upon American Indian peoples, particularly with respect to the maintenance of their traditional cultural life-ways and religious/ceremonial practices.

Please answer the following questions in the DEIS:

- What management approach will be used to better understand these challenges of climate change and support a balanced stewardship of the diverse natural resources of the Cheyenne homeland?

a. Impacts to Montana

It will not be news to DEQ that climate change will have extreme impacts on Montana. In fact, DEQ's website states,

"Global climate change is affecting Montana now and will continue to do so into the future. Climate change will affect all of Montana's major economic sectors: agriculture, forestry, transportation and tourism, and energy supply. We may be challenged with decreased crop yields, longer forest fire seasons, reduced snowpack, and declining hydropower. The environmental costs may include reduced wildlife habitat and diminished water quality and stream flow. It is imperative that we all begin to do what we can to address this crucial issue for our own sake and the sake of the generations of Montanans to come."^{iv}

Therefore, the DEIS must consider that the mining and burning of the coal in the Otter Creek valley will impact the climate and how climate change is impacting Montana.

i. Wildlife impacts

As stated above, wildlife are heavily impacted by climate change. A large part of Montana's economy is based on wildlife recreation and hunting. Therefore, the state, its people and its wildlife have a lot to lose under a rapidly changing climate.

Please answer the following questions in the DEIS:

- What is the amount of carbon that will be released into the atmosphere if this mine is developed to full capacity and the coal is burned?
- What are the likely impacts of climate change on Montana's wildlife and how will that impact Montana's wildlife, recreation and tourism economy?
- What is the amount of money the state of Montana and taxpayers will have to pay to address climate change issues in the state?
- How will these impacts be mitigated or avoided?

ii. Vegetation impacts

Plant species, just like wildlife, are greatly impacted by climate change. As the climate changes, native plant species become more vulnerable to invasive weeds. Increases in invasive plant species usually result in a loss of services from the affected ecosystems. In many cases, these changes could even lead to ecosystem collapse over large landscape areas over the long term.

Please answer the following question in the DEIS:

- How will the burning of Otter Creek coal impact the spread of invasive plant species in Montana due to climate change?
- How will the spread of these invasive plant species impact wildlife and livestock forage?
- How will the spread of invasive species such as cheat grass impact wildfires?

iii. Wildfire and forest health impacts

Many forest and prairie ecosystems in the American West have evolved so that episodic fires are part of their natural cycle. However, climate change is creating conditions conducive to megafires with the potential to dramatically alter habitat for fish and wildlife. Throughout the American West, wildfires have become increasingly frequent and severe, and 2012 was the third worst wildfire season yet. Hotter, longer burning, and wider-ranging fires are the new norm and are likely to get worse in the future. Researchers have shown that climate change is now a major factor increasing the size and number of forest fires. The cost of wildfire suppression—about \$3 billion a year—has tripled in the United States since the late 1990s. The majority of these expenses are borne by the U.S. Forest Service, which now spends about half of its annual budget just fighting fires. They are struggling to keep up with these longer fire seasons, which in some places are now effectively year-round, leaving little time to regroup and prepare for the next incident. Moreover, they are finding it harder to control fires, in part because fires are less likely to quiet down at night like they used to. Nighttime conditions are hotter and drier, meaning that fires can stay active around the clock. Larger, more frequent, and more intense fires make it harder for wildlife to recover afterwards. Many animals must move longer distances to find habitat that can support them. The burned soils have lost important nutrients, and even more nutrients wash away in the erosion after the fires. The mining and burning of Otter Creek coal will exacerbate climate change and will be a major contributor to CO₂ emissions.

Please answer the following question in the DEIS:

- How will the mining and burning of Otter Creek coal impact wildfire seasons in Montana?
- Who will pay for the increase in dollars needed to address wildfires in Montana?
- How will an increase in wildfires and megafires impact Montana's wildlife populations and health?
- How will an increase in wildfires impact Montana's tourism and wildlife economy?
- How will Montana's forests be impacted by the spread of bark beetle and how will that spread impact our forests?

iv. Water impacts

Water is life. Without it, we don't exist. Climate change is threatening Montana's water supplies. Rivers are closed during the summer months due to increased temperatures because there is not enough snow melt for mid to late summer for instream flows and fish and wildlife depend on. Montana's number one economic driver is agriculture, which depends on snowmelt for irrigation. "Agriculture is Montana's largest industry, employing more than 31,000 people. According to some sources, up to 30 percent of all economic activity in the state is supported by agriculture."^v

Please answer the following questions:

- How will the mining and burning of this coal impact Montana's snowpack, snowmelt, instream flows for fish and wildlife and agricultural production?
- How will the mining and burning of this coal impact the Cheyenne water supplies on the reservation and water in the Tongue River?
- How will the mining and burning of this coal impact fisheries in the Tongue River?

v. Social impacts

Rises in temperatures, changes to precipitation patterns and extreme weather events caused by climate change will result in the following human impacts: Increased health problems and death due to heat stress; Injury, trauma or death caused by extreme weather events; Greater incidence and extent of infectious disease; Increased pollution-related respiratory problems.

Please answer the following questions in the DEIS:

- How will the mining and burning of this coal impact extreme weather events in Montana?
- How will the state of Montana adapt or mitigate the social impacts from climate change caused by the mining and burning of coal?
- What are the specific social impacts that the Cheyenne can expect from climate change in the short, medium and long term?

Socio-Economic Impacts

Gillette Syndrome is the social disruption that can occur in a community due to rapid population growth. Such disruptions usually include increased crime, degraded mental health, weakened social and community bonds, abnormally high costs of living and other social problems. Gillette Syndrome is most relevant to boomtowns that are growing rapidly due to nearby natural resource extraction, such as coal mining. Psychologist ElDean Kohrs coined the term "Gillette Syndrome" in an attempt to describe the social impacts of rapid coal mining development in Gillette.

1. Health

Significant differences in morbidity and mortality among Cheyenne tribal members on the are well documented—with rates of diabetes, cancer and heart disease three or more times that of the U.S. population. Mortality differences among American Indians are pronounced; with death rates 21% to 45% higher than the U.S. all races rate. Persistent environmental stressors have been studied in other AI groups and account for marked differences in morbidity and mortality. Stress from conditions of perceived or known man-made contamination in the environment, increase susceptibility to disease. In the last decade a mounting body of literature shows that environmental stressors contribute to Allostatic load, the “wear and tear on the body and brain.” The constant wear and tear on the body and brain results in disparate rates of morbidity and mortality. Unique traditional lifestyles and ceremonies of the Cheyenne people call for additional protections to mitigate exposure related to environmental stressors.

The proposed mine at Otter Creek will increase environmental, social, and cultural stressors and thus, increase morbidity and mortality. DEQ has an obligation to fully assess public health impacts associated with Otter Creek mine and consider how to mitigate and reduce health risks. DEQ must consider the substantive body of scientific literature that demonstrates health impacts from chronic environmental stressors.

- How will DEQ monitor health impacts on the Cheyenne people from the mine and associated industrialization of the valley?
- How with the DEQ develop a baseline data set in order to measure change?
- How will health impacts be mitigated or avoided?

2. Crime and Legal and Jurisdictional Issues

In the last couple of years, drug crimes in eastern Montana have more than doubled. Assaults in Dickinson, N.D., have increased fivefold in just two years. The Bakken energy boom has brought more crime, forcing law enforcement from the U.S. and Canada to deal with spiking offenses ranging from drug trafficking and gun crimes to prostitution. Yet there are indications that communities and several Indian reservations in the Northern Plains have found themselves dealing with new types of crime more commonly associated with urban areas. Organized drug trafficking and prostitution rings top the list, officials said.^{vi}

There will be an increase in non-Natives in the region. Inevitably, there will be relationships between Native and non-Natives. However, Tribes have no jurisdiction to prosecute non-Indian abusers on reservations. And, Non-Indians commit more than 85 percent of all violent crimes against Native women, according to the Department of Justice. Leaving prosecution to county, state or federal authorities has not worked, said Robert Anderson, professor of law at the University of Washington School of Law.

“The counties don’t want to spend resources where they don’t have taxing authority, and for the U.S. Attorney’s Office domestic violence and even rape is not a priority,” Anderson said. “As a result there is a long-standing lack of enforcement in Indian

Country. You don't have local law enforcement empowered to deal with these really serious crimes that take place on our local reservations." ^{vii}

In 1978, the Supreme Court case *Oliphant v. Suquamish* stripped tribes of the right to arrest and prosecute non-Indians who commit crimes on Indian land. If both victim and perpetrator are non-Indian, a county or state officer must make the arrest. If the perpetrator is non-Indian and the victim an enrolled member, only a federally certified agent has that right. If the opposite is true, a tribal officer can make the arrest, but the case still goes to federal court. ^{viii}

In 2011, the U.S. Justice Department did not prosecute 65 percent of rape cases reported on reservations. According to department records, one in three Native American women are raped during their lifetimes—two-and-a-half times the likelihood for an average American woman—and in 86 percent of these cases, the assailant is non-Indian. ^{ix}

Please answer the following questions in the DEIS.

- What is the expected increase in violent crime due to the construction and operation of the Otter Creek Coal mine both on and off the Northern Cheyenne Reservation?
- What is the expected increase in theft and burglary due to the construction and operation of the Otter Creek Coal mine both on and off the Northern Cheyenne Reservation?
- What is the expected increase in drug trafficking, meth use and prostitution due to the construction and operation of the Otter Creek coal mine both on and off the Reservation?
- What is the expected increase of suicide rates in the region due to the construction and operation of the Otter Creek coal mine?
- What is the expected increase in domestic violence rates due to the construction and operation of the Otter Creek coal mine both on and off the Reservation?
- What is the expected increase in visits to the Indian Health Services hospital on the Northern Cheyenne reservation due increase of crime rates.
- How will the above issue with the Tribal lack of jurisdiction over non-Natives be addressed by local, state and federal governments?
- What is DEQ proposing to deal with non-tribal members violating Northern Cheyenne governmental laws? The Northern Cheyenne Tribe is a sovereign nation that has its own tribal government and laws. An increase in traffic and population for the proposed coal mine means that there is going to be jurisdictional issues regarding violations and offenses both on and off the reservation from both non-members and tribal members. How does DEQ propose to deal with jurisdictional conflicts and issues?

3. Economic Impacts on the Reservation

During the energy boom in the region surrounding the Northern Cheyenne Reservation during the 1970s and 1980s created tremendous mineral wealth, led to the construction of

major industrial facilities, and provided over a thousand very high paid jobs in mining, construction, public utilities, and transportation. Despite these dramatically positive economic impacts in the surrounding region, the economic characteristics on the Northern Cheyenne Reservation actually deteriorated during this very boom period with real median incomes falling and unemployment and poverty rates rising. Relative to the economic gains in the rest of Rosebud County, the deterioration of economic conditions on the Reservation was even more dramatic. The economic gap grew even larger.^x There were numerous reasons for the deterioration of economic conditions on the Reservation during the past energy boom: the lack of access by Northern Cheyenne to the higher-paid energy jobs; the limited local commercial infrastructure on the Reservation; the lack of access to mineral revenue to support public services and infrastructure on the Reservation; and the impact of the Northern Cheyenne commitment to place.

Please answer the following questions in the DEIS:

- None of the above conditions have changed since the energy boom of the 1970s and 1980s. How will this energy boom be any different from the one that happened in Colstrip?
- Since none of the above conditions have changed, what makes this development beneficial to the Cheyenne and its people?
- What resources will be made available to make sure that this situation does not occur again?

4. Infrastructure

a. Roads

If built, the mine will increase the amount of traffic on existing and new roads. Road infrastructure will be impacted.

Please answer the following questions in the DEIS:

- What is the expected increase in truck and passenger traffic expected on Highway 212 during the construction phase and operating phase of the Otter Creek mine and Tongue River Railroad?
- How will the roads be maintained and who will maintain them?
- Who will pay of the increased road maintenance needed because of increased truck traffic?
- Many tribal citizens walk along Highway 212 to get around town. How will their safety be impacted by increased traffic?

b. Housing

One only needs to drive around southeastern Montana to realize that there is no housing infrastructure capable of handling an influx of mine and railroad workers. This lack of

housing will most likely lead to the construction of sprawling "man camps" that can accommodate hundreds of out-of-state workers needed to build the Otter Creek mine and Tongue River Railroad.

Please answer the following questions in the DEIS:

- How many man camps will be constructed to house mine and railroad workers both during the construction and operating phase?
- How will the long-term housing needs of the workers, their families and associated businesses be met?
- Who will pay for the necessary infrastructure upgrades in the county for sewage, utilities, water systems etc.?
- How will the mine and the railroad impact the current lack of housing on the Northern Cheyenne nation?

5. Tribal government funding and local services

Our government is not eligible for the local, county and state taxes that will be paid by the Otter Creek Coal Company and yet the Cheyenne people will have to deal with all of the same impacts as those off reservation,

Please answer the following questions in the DEIS:

- How will the impacts to the Cheyenne people be paid for?

6. Indian Health Services

Indian Health Services runs the Northern Cheyenne Service Unit in Lame Deer, MT. It offers outpatient and urgent care to over 6,300 enrolled tribal members. IHS may provide services to otherwise non-eligible individuals to (1) achieve stability in a medical emergency; (2) treat a non-Indian pregnant with an eligible AI/AN individual's child and (3) Non-Indian members of eligible AI/AN's households to whom the medical officer deems provision of services necessary to control a public health hazard, such as an acute infectious disease.^{xi}

There is little doubt that the influx of population and traffic on highway 212 will lead to more strain on the limited resources of IHS on the Northern Cheyenne reservation. If the proposed Otter Creek Mine and Tongue River Railroad are constructed, inevitably relationships will develop between Cheyenne and non-members that will migrate to the region for work. It is also inevitable that IHS will experience an increase in the treatment of "non-eligible" individuals listed above. In North Dakota, many oil field workers do not have insurance and the hospitals are stuck with the bill to treat them. Twelve rural medical facilities in western North Dakota saw their combined debt rise by 46 percent over the course of the 2011 and 2012 fiscal years, according to Darrold Bertsch, the president of the state's Rural Health Association.^{xii}

Please answer the following questions in the DEIS:

- What is the expected increase in emergency room visits in the Lane Deer IHS facility due to the construction and operation of the mine, railroad and associated infrastructure?
- How many additional car accidents are anticipated on highway 212?
- How much money will be spent treating emergencies by IHS to serve non-native emergency situations?
- What is the expected increase in cost to IHS due to increase in population in the region and mine, traffic and railroad accidents?
- Who will bear the burden of increased costs to IHS?
- Will additional funding be received by IHS?
- Will the federal government be expected to pay for the increase in services that will be required of IHS?
- Will the state government contribute any medical impact funding for IHS to augment their limited budget?
- Will Arch Coal be responsible for any of the health care costs that are incurred by IHS to treat non-natives who are there as a result of Arch's mine at Otter Creek?

IHS is also required to provide services to stem anything considered a public health threat. Invariably, an increase in population will mean an increase in contagious diseases that may fall under the auspices of IHS. Recently in North Dakota and eastern Montana, medical professionals have observed an increase in venereal disease, for example.

Please answer the following questions in the EIS:

- Is there a projected increase in infectious disease that will come with the influx of population to the region?
- Will IHS be expected to pay for stemming public health threats, such as venereal disease outbreak, from its existing budget?
- If so, where will additional funding come from?
- If IHS will not receive additional funding to pay for public health threats, what is the anticipated impact to the overall health care services that are provided to the existing Cheyenne community?

7. Reclamation

a. Water

Strip mining requires significant use of water. Once water has been used to clean coal, it generally contains constituents that are considered harmful and is therefore stored in impoundments.

Please answer the following questions in the DEIS:

- How will waste water impoundments be reclaimed?
- Will contaminated soils be removed from the site?
- If so, where will they be removed to and how will they be transported?
- How will reclamation of the hydrologic balance happen?

b. Vegetation

In the delicate environment of semi arid landscapes, native plants are vital to maintaining not only a healthy ecosystem, but a healthy range land. While often it is more convenient and less expensive for mine operators to use non-native grasses for reclamation, these are often “washy”, or grasses that do not produce weight gain in livestock and wildlife and have no cultural use for the Cheyenne.

Please answer the following questions in the DEIS:

- What is the anticipated post-mine use for the surface at the Otter Creek mine?
- What will the land that is leased but not mined be used for while it sits idle? Will it be grazed?
- What types of grasses and forbs will be used for reclamation? Where will the seed come from?
- Will any nonnative plants be introduced during the reclamation process?
- How will the operator insure that non native plants do not take hold and dominate the landscape if they are used in reclamation?
- What is the long term plan to reintroduce sage brush to mined areas?
- How many noxious weeds are anticipated to be introduced?
- What is the weed management plan along roads, railroads associated with the mine, and during the reclamation process?
- How will pine trees be reintroduced?
- How will noxious weeds that exist on the surface be dealt with as the land is prepared to be mined in order to prevent the spread of these weeds to new locations?
- If herbicides are used, how will they be prevented from contaminating the waterways?
- Will livestock be utilized in the reclamation process?

c. Soils

Please answer the following questions in the DEIS:

- How will soils be stored that have been removed from the mine pits?
- During reclamation, will soils be replaced by soils brought from offsite?
- How will DEQ be sure that these soils have the same or better productivity for the area?

- How will acid forming or toxin forming naturally existing constituents in the soil be stored?

d. Cultural, Sacred and Burial Sites

Please answer the following questions in the DEIS:

- Are Cheyenne burial sites considered cemeteries?
- Are tribal sacred areas where ceremonies occurred considered churches?
- What happens to cultural, sacred and burial sites when they are in the mining area?
- Are these sites excavated and by whom?
- Who will be notified of inadvertent discoveries of cultural, historic or burial sites?
- Will there be a written procedure?
- What happens to the items that are excavated? Who maintains control over them?

Conclusion

Please accept these comments and questions about the proposed Otter Creek Mine on behalf of the undersigned individuals.

All individuals listed have worked extensive hours to research, write and develop these comments and request that the DEQ fully, carefully and thoroughly address all issues brought up in this document.

***IN THIS VERSION SIGNATORIES ARE REDACTED ***

ⁱ Joan Brownell, "A Study of Locational Information Pertinent to Northern Cheyenne Homesteads on the East Side of the Tongue River," Contract No. 43-0355-4-0086, January 2005, Billings, MT.

ⁱⁱ Missoulian, Montana in top 10 for deer-vehicle collisions, http://missoulian.com/news/state-and-regional/montana-in-top-for-deer-vehicle-collisions/article_24be8160-326b-11e2-a33c-0019bb2963f4.html

ⁱⁱⁱ Ibid.

^{iv} Montana Department of Environmental Quality, <http://deq.mt.gov/ClimateChange/default.mcp>x

^v Montana Department of Environmental Quality, <http://www.deq.mt.gov/ClimateChange/Commerce/Agriculture/agriculture.mcp>x

^{vi} Matt Brown, AP, Bakken Oil Booms, Police Expect Rise In Drug Trafficking, Prostitution, Gun Crimes On Northern Plains, http://www.huffingtonpost.com/2012/04/23/bakken-oil-crime_n_1445410.html; Minnesota Public Radio, As the Bakken Booms So Does Crime, <http://minnesota.publicradio.org/display/web/2012/04/23/bakken-crime>

^{vii} Law would let tribes prosecute non-Indians' domestic violence http://seattletimes.com/html/localnews/2020389179_tribesviolencexml.html

^{viii} Sierra Crane Murdoch, On Indian Land, Criminals Can Get Away With Almost Anything, The Atlantic Monthly, February 22, 2013, accessed at <http://www.theatlantic.com/national/archive/2013/02/on-indian-land-criminals-can-get-away-with-almost-anything/273391/>

^{ix} Ibid.

^x Report to Bureau of Land Management

^{xi} National Congress of American Indians, “An Examination and Overview of Eligibility Requiriements in Indian Health Services, “ accessed at <http://www.ncaiprc.org/health-care-reform>

^{xii} Jeff Spross, How North Dakota’s Oil and Gas Boom is Straining the State’s Health Care System, Think Progress, January 28, 2013, accessed at <http://thinkprogress.org/health/2013/01/28/1503971/north-dakota-health-care-strain/>