

## Introduction

A notice of availability for the Gas Hills In-situ Recovery Uranium Project Draft EIS was published in the *Federal Register* on November 16, 2012. A 45-day public comment period following the notice in the *Federal Register* was scheduled to end on December 31, 2012; however, the BLM extended the comment period to January 31, 2013, to allow the public additional time to submit comments. During the public comment period the BLM held open-house style public meetings in Riverton and Lander, Wyoming, on December 4 and 5, 2012, respectively.

As of the end of the comment period the BLM received comment letters on the draft EIS from a total of 21 parties. The comment letters received consist of two letters from Federal agencies, one letter from a tribal agency, nine letters from State of Wyoming agencies, one letter from a local agency, one letter from a non-governmental organization, and seven letters from private individuals or businesses. The letter numbers and commenting parties are as follows:

<b>Letter Number</b>	<b>From</b>
F01	U.S. Fish and Wildlife Service
F02	Suzanne Bohan – U.S. Environmental Protection Agency
T01	Waste' Win Young – Standing Rock Sioux Tribe
S01	Burl Gies – Riverton & Lander Workforce Centers
S02	Cody Beers – Wyoming Department of Transportation
S03	Ryan Lance – Wyoming Office of State Lands and Investments
S04	Jason Fearneyhough
S05	Lyle K. Lamb – Wyoming Department of Transportation
S06	John Emmerich – Wyoming Game and Fish Department
S07	Matthew Mead – Governor State of Wyoming
S08	Ken Rairigh – Wyoming Department of Environmental Quality , Air Quality Division
S09	John Wagner – Wyoming Department of Environmental Quality
L01	Jeri Trebelcock – Popo Agie Conservation District
N01	Bruce Pendery – Wyoming Outdoor Council
P01	Ginger Bennet
P02	Jim Gores
P03	Jonathan Buscher
P04	Ú^;•[ ] aÁ - !{ aá } Á ã@@ ã
P05	Ron Smith – Strathmore
P06	Jazmyn McDonald
P07	Jeanie Wolford – Cameco Resources



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Ecological Services  
5353 Yellowstone Road, Suite 308A  
Cheyenne, WY 82009

DEC 20 2012

In Reply Refer To:  
06E13000/WY13EC0002

### Memorandum

To: Field Manager, Bureau of Land Management, Lander Field Office, Lander, Wyoming RV

From: For Field Supervisor, U.S. Fish and Wildlife Service, Wyoming Field Office, Cheyenne, Wyoming [Signature]

Subject: Draft Environmental Impact Statement (DEIS) for the Proposed Gas Hills *In Situ* Recovery Uranium Mine

Thank you for the Notice of Availability, received in our office on November 16, 2012, concerning the Bureau of Land Management (BLM) request for comments on the DEIS for the proposed Gas Hills *In situ* Recovery Uranium Mine. The project area is located in southeastern Fremont County and southwestern Natrona County in the Gas Hills Mining District and is approximately 45 road miles east of Riverton, Wyoming and approximately 65 road miles west of Casper, Wyoming. The proposed project involves *in situ* solution mining for uranium with construction disturbance on approximately 1,315 acres. The project area encompasses approximately 8,500 acres.

In response to your request for comments, the U.S. Fish and Wildlife Service (Service) is providing recommendations for protective measures for threatened and endangered species in accordance with the Endangered Species Act of 1973, as amended (Act), 16 U.S.C. 1531 *et seq.* We are also providing recommendations concerning migratory birds in accordance with the Migratory Bird Treaty Act (MBTA), 16 U.S.C. 703, and the Bald and Golden Eagle Protection Act (BGEPA), 16 U.S.C. 668. Wetlands are afforded protection under Executive Orders 11990 (wetland protection) and 11988 (floodplain management), as well as section 404 of the Clean Water Act. Other fish and wildlife resources are considered under the Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661 *et seq.*, and the Fish and Wildlife Act of 1956, as amended, 16 U.S.C. 742a-742j.

### Specific Comments

**Page 2-40: 2.4.5 Reduced Number of Evaporation Ponds:** This section states that the evaporation ponds would be “flagged or netted as necessary to reduce birds accessing the pond”

and would “contain bird ladders as needed to allow birds to escape.” Table 2-3 in Page 2-38 shows that two evaporation ponds would result in a total of 27 acres of disturbance; however, the size of the actual ponds in terms of surface area is not provided. Based on Figure 2-4, we assume that the ponds will be over 1 acre in size. Netting ponds that are over 1 acre in size are an engineering challenge and maintenance intensive as the weight of the net and/or a heavy snow load can cause the netting to sag into the pond fluids. The DEIS should provide the surface area of the ponds as well as assess the feasibility of enclosing the evaporation ponds with netting to exclude birds and other wildlife. Information should be included on how the netting will be installed to prevent net sagging and also how the netting will be maintained to ensure that wildlife is adequately excluded from the evaporation ponds. Flagging is not effective at excluding birds and bats from pits and industrial wastewater ponds (Esmoil and Anderson 1995, Ramirez 2010).

**Page 4.8-4 Section 4.8 – Public Health and Safety:** This section states that the response to all spills of hazardous materials would be implemented according to a Spill Contingency Plan (SCP) based on the current SCP use at the Smith Ranch-Highland Facility. The DEIS should include a copy of the Smith-Ranch-Highland facility SCP for reference and review.

**Page 4.17-4 Section 4.17.2.2 Raptors and Other Migratory Birds:** The second paragraph states that the raptor breeding season is from February 1 to July 31. Please include a statement specifying that the breeding season for golden eagles is from January 15 through July 31 and revise the breeding season for all other raptors to February 1 through August 31 or until the young have fledged and are no longer dependent on the nest. The second paragraph states that a reduction in habitat suitability and overall carrying capacity for ferruginous hawks would occur if surface disturbance activities occur within 0.75 mile from an active nest. Please change the buffer distance to 1 mile (see attached Raptor Guidelines).

**Page 4.17-10 Section 4.17.2.4 Special Status Wildlife Species:** Mitigation measure WFM-4 and SSS-2 should be revised as follows:

In addition, to prevent electrocution to raptor species, all new power lines will be constructed to meet or exceed the 2006 APLIC guidelines. All existing power lines will be retrofitted to meet the 2006 APLIC guidelines. Perch management cannot be a replacement for following the 2006 APLIC guidelines in the construction and retrofitting of power lines to reduce the potential for electrocution of migratory birds. Perch management can displace birds from APLIC-compliant power poles to other power poles in the area that may not be raptor-friendly and thus increase the number of raptor electrocutions. Perch management is discouraged and should only be undertaken when there is no other alternative. Perch management is only appropriate as a last resort in the following situations:

1. When constructing new lines, proper separation and/or insulation should be used. Equipment that is dangerous to birds, for which there is no insulation available, should be avoided or installed in a way that provides proper separation without perch management. Perch management alone may be

acceptable only for temporary emergencies where proper separation or insulation is not possible.

2. When used along with insulation as a redundant form of protection.
3. When necessary to deter perching areas where increased predation of sensitive species by raptors are an issue, and only when specifically recommended by a state or federal management agency. When perch management is used for this purpose, it will only be placed on equipment that is raptor-friendly prior to installation of the perch management device. Extreme care will be used to ensure that perch management does not increase the chance of electrocution of birds.

**Page 4.17-10 Section 4.17.2.4 Special Status Wildlife Species:** The second paragraph assigns a 0.75-mile protection buffer for ferruginous hawk nests. This should be changed to a 1-mile buffer.

**Page 4.17-12 Section 4.17.3.2 Raptors and Other Migratory Birds:** The second paragraph states that the raptor breeding season is from February 1 to July 31. Please include a statement specifying that the breeding season for golden eagles is from January 15 through July 31 and revise the breeding season for all other raptors to February 1 through August 31 or until the young have fledged and are no longer dependent on the nest.

For our internal tracking purposes, we would appreciate notification of any decision made on this project (such as issuance of a permit or signing of a Record of Decision or Decision Memo). Notification can be sent in writing to the letterhead address or by electronic mail to [FW6\\_Federal\\_Activities\\_Cheyenne@fws.gov](mailto:FW6_Federal_Activities_Cheyenne@fws.gov).

We appreciate your efforts to ensure the conservation of endangered, threatened, and candidate species and migratory birds. If you have questions regarding this letter or your responsibilities under the Act and/or other authorities or resources described above, please contact Pedro 'Pete' Ramirez of my office at the letterhead address or phone (307) 772-2374, extension 236.

Enclosure (1)

cc: BLM, Endangered Species Program Lead, Cheyenne, WY (C. Keefe) (e-mail)  
FWS, Project Planning Coordinator, Region 6, Denver, CO (D. Carlson)  
WGFD, Non-game Coordinator, Lander, WY (B. Oakleaf)  
WGFD, Statewide Habitat Protection Coordinator, Cheyenne, WY (M. Flanderka)

#### References

Esmoil, BJ and SH Anderson. 1995. Wildlife mortality associated with oil pits in Wyoming. *Prairie Nat.* 27(2):81-88.  
Ramirez, P. Jr. 2010. Bird mortality in oil field wastewater disposal facilities. *Environmental Management* 46:820-826.



## **U.S. Fish and Wildlife Service, Wyoming Ecological Services Field Office**

### **Protections for Raptors**

Raptors, or birds of prey, and the majority of other birds in the United States are protected by the Migratory Bird Treaty Act, 16 U.S.C. 703 (MBTA). A complete list of migratory bird species can be found in the Code of Federal Regulations at 50 CFR 10.13. Eagles are also protected by the Bald and Golden Eagle Protection Act, 16 U.S.C. 668 (Eagle Act).

The MBTA protects migratory birds, eggs and nests from possession, sale, purchase, barter, transport, import, export, and take. The regulatory definition of take, defined in 50 CFR 10.12, means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to hunt, shoot, wound, kill, trap, capture, or collect a migratory bird. Activities that result in the unpermitted take (e.g., result in death, possession, collection, or wounding) of migratory birds or their eggs are illegal and fully prosecutable under the MBTA. Removal or destruction of active nests (i.e., nests that contain eggs or young), or causing abandonment of an active nest, could constitute a violation of the MBTA, the Eagle Act, or both statutes. Removal of any active migratory bird nest or any structure that contains an active nest (e.g., tree) where such removal results in take is prohibited. Therefore, if nesting migratory birds are present on or near a project area, project timing is an important consideration during project planning. As discussed below, the Eagle Act provides additional protections for bald and golden eagles and their nests. For additional information concerning nests and protections under the MBTA, please see the U.S. Fish and Wildlife Service's (Service) Migratory Bird Permit Memorandum, MBMP-2.

The Service's Wyoming Ecological Services Field Office works to raise public awareness about the possible occurrence of birds in proposed project areas and the risk of violating the MBTA, while also providing guidance to minimize the likelihood that take will occur. We encourage you to coordinate with our office before conducting actions that could lead to the take of a migratory bird, their young, eggs, or active nests (e.g., construction or other activity in the vicinity of a nest that could result in a take). If nest manipulation is proposed for a project in Wyoming, the project proponent should also contact the Service's Migratory Bird Office in Denver at 303-236-8171 to see if a permit can be issued. Permits generally are not issued for an active nest of any migratory bird species, unless removal of the nest is necessary for human health and safety. If a permit cannot be issued, the project may need to be modified to ensure take of migratory birds, their young or eggs will not occur.

For infrastructure (or facilities) that have potential to cause direct avian mortality (e.g., wind turbines, guyed towers, airports, wastewater disposal facilities, transmission lines), we recommend locating structures away from high avian-use areas such as those used for nesting, foraging, roosting or migrating, and the travel zones between high-use areas. If the wildlife survey data available for the proposed project area and vicinity do not provide the detail needed to identify normal bird habitat use and movements, we recommend collecting that information prior to determining locations for any infrastructure that may create an increased potential for avian mortalities. We also recommend contacting the Service's Wyoming Ecological Services office for project-specific recommendations.

### **Additional Protections for Eagles**

The Eagle Act protections include provisions not included in the MBTA, such as the protection of unoccupied nests and a prohibition on disturbing eagles. Specifically, the Eagle Act prohibits knowingly taking, or taking with wanton disregard for the consequences of an activity, any bald or golden eagle or their body parts, nests, chicks or eggs, which includes collection, possession, molestation, disturbance, or killing. The term "disturb" is defined as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (50 CFR 22.3 and see also 72 FR 31132).

The Eagle Act includes limited exceptions to its prohibitions through a permitting process. The Service has issued regulations concerning the permit procedures for exceptions to the Eagle Act's prohibitions (74 FR 46836), including permits to take golden eagle nests which interfere with resource development or recovery operations (50 CFR 22.25). The regulations identify the conditions under which a permit may be issued (i.e., status of eagles, need for action), application requirements, and other issues (e.g., mitigation, monitoring) necessary in order for a permit to be issued.

For additional recommendations specific to Bald Eagles please see our Bald Eagle information web page ([http://www.fws.gov/wyominges/Pages/Species/Species\\_SpeciesConcern/BaldEagle.html](http://www.fws.gov/wyominges/Pages/Species/Species_SpeciesConcern/BaldEagle.html)).

### **Recommended Steps for Addressing Raptors in Project Planning**

Using the following steps in early project planning, agencies and proponents can more easily minimize impacts to raptors, streamline planning and permitting processes, and incorporate measures into an adaptive management program:

1. Coordinate with appropriate Service offices, Wyoming Game and Fish Department, Tribal governments, and land-management agencies at the earliest stage of project planning.
2. Identify species and distribution of raptors occurring within the project area by searching existing data sources (e.g., Wyoming Game and Fish Department, Federal land-management agencies) and by conducting on-site surveys.
3. Plan and schedule short-term and long-term project disturbances and human-related activities to avoid raptor nesting and roosting areas, particularly during crucial breeding and wintering periods
4. Determine location and distribution of important raptor habitat, nests, roost sites, migration zones and, if feasible, available prey base in the project impact area.
5. Document the type, extent, timing, and duration of raptor activity in important use areas to establish a baseline of raptor activity.
6. Ascertain the type, extent, timing, and duration of development or human activities proposed to occur, and the extent to which this differs from baseline conditions.
7. Consider cumulative effects to raptors from proposed projects when added to past, present, and reasonably foreseeable actions. Ensure that project mitigation adequately addresses cumulative effects to raptors.
8. Minimize loss of raptor habitats and avoid long-term habitat degradation. Mitigate for unavoidable losses of high-valued raptor habitats, including (but not limited to) nesting, roosting, migration, and foraging areas.
9. Monitor and document the status of raptor populations and, if feasible, their prey base post project completion, and evaluate the success of mitigation efforts.
10. Document meaningful data and evaluations in a format that can be readily shared and incorporated into wildlife databases (contact the Service's Wyoming Ecological Services office for details).

Protection of nesting, wintering (including communal roost sites), and foraging activities is considered essential to conserving raptors. In order to promote the conservation of migratory bird populations and their habitats, Federal agencies should implement those strategies directed by Executive Order 13186, "Responsibilities of Federal Agencies To Protect Migratory Birds" (66 FR 3853).

### **Recommended Seasonal and Spatial Buffers to Protect Nesting Raptors**

Because many raptors are particularly sensitive to disturbance (that may result in take) during the breeding season, we recommend implementing spatial and seasonal buffer zones to protect individual nest sites/territories (Table 1). The buffers serve to minimize visual and auditory impacts associated with human activities near nest sites. Ideally, buffers would be large enough to protect existing nest trees and provide for alternative or

replacement nest trees. The size and shape of effective buffers vary depending on the topography and other ecological characteristics surrounding the nest site. In open areas where there is little or no forested or topographical separation, distance alone must serve as the buffer. Adequate nesting buffers will help ensure activities do not take breeding birds, their young or eggs. For optimal conservation benefit, we recommend that no temporary or permanent surface occupancy occur within species-specific spatial buffer zones. For some activities with very substantial auditory impacts (e.g., seismic exploration and blasting) or visual impacts (e.g., tall drilling rig), a larger buffer than listed in Table 1 may be necessary, please contact the Service's Wyoming Ecological Services office for project specific recommendations on adequate buffers.

As discussed above, for infrastructure that may create an increased potential for raptor mortalities, the spatial buffers listed in Table 1 may not be sufficient to reduce the incidence of raptor mortalities (for example, if a wind turbine is placed outside a nest disturbance buffer, but inadvertently still within areas of normal daily or migratory bird movements); therefore, please contact the Service's Wyoming Ecological Services office for project specific recommendations on adequate buffers.

Buffer recommendations may be modified on a site-specific or project-specific basis based on field observations and local conditions. The sensitivity of raptors to disturbance may be dependent on local topography, density of vegetation, and intensity of activities. Additionally, individual birds may be habituated to varying levels of disturbance and human-induced impacts. Modification of protective buffer recommendations may be considered where biologically supported and developed in coordination with the Service's Wyoming Ecological Services Field Office.

Because raptor nests are often initially not identified to species (e.g., preliminary aerial surveys in winter), we first recommend a generic raptor nest seasonal buffer guideline of January 15<sup>th</sup> – August 15<sup>th</sup>. Similarly, for spatial nesting buffers, until the nesting species has been confirmed, we recommend applying a 1-mile spatial buffer around the nest. Once the raptor species is confirmed, we then make species-specific and site-specific recommendations on seasonal and spatial buffers (Table 1).

Activities should not occur within the spatial/seasonal buffer of any nest (occupied or unoccupied) when raptors are in the process of courtship and nest site selection. Long-term land-use activities and human-use activities should not occur within the species-specific spatial buffer of occupied nests. Short-term land use and human-use activities proposed to occur within the spatial buffer of an occupied nest should only proceed during the seasonal buffer after coordination with the Service, State, and Tribal wildlife resources management agencies, and/or land-management agency biologists. If, after coordination, it is determined that due to human or environmental safety or otherwise unavoidable factors, activities require temporary incursions within the spatial and seasonal buffers, those activities should be planned to minimize impacts and monitored to determine whether impacts to birds occurred. Mitigation for habitat loss or degradation should be identified and planned in coordination with applicable agencies.

Please contact the Service's Wyoming Ecological Services Field Office if you have any questions regarding the status of the bald eagle, permit requirements, or if you require technical assistance regarding the MBTA, Eagle Act, or the above recommendations. The recommended spatial and seasonal buffers are voluntary (unless made a condition of permit or license) and are not regulatory, and they do not supersede provisions of the MBTA, Eagle Act, Migratory Bird Permit Memorandum (MBMP-2), and Endangered Species Act. Assessing legal compliance with the MBTA or the Eagle Act and the implementing regulations is ultimately the authority and responsibility of the Service's law enforcement personnel. Our recommendations also do not supersede Federal, State, local, or Tribal regulations or permit conditions that may be more restrictive.

**Table 1. Service’s Wyoming Ecological Services Field Office’s Recommended Spatial and Seasonal Buffers for Breeding Raptors**

<b>Raptors of Conservation Concern (see below for more information)</b>		
<b>Common Name</b>	<b>Spatial buffer (miles)</b>	<b>Seasonal buffer</b>
Golden Eagle	0.50	January 15 - July 31
Ferruginous Hawk	1.00	March 15 - July 31
Swainson's Hawk	0.25	April 1 - August 31
Bald Eagle	see Bald Eagle information web page <sup>1</sup>	
Prairie Falcon	0.50	March 1 - August 15
Peregrine Falcon	0.50	March 1 - August 15
Short-eared Owl	0.25	March 15 - August 1
Burrowing Owl	0.25	April 1 – September 15
Northern Goshawk	0.50	April 1 - August 15

**Additional Wyoming Raptors**

<b>Common Name</b>	<b>Spatial buffer (miles)</b>	<b>Seasonal buffer</b>
Osprey	0.25	April 1 - August 31
Cooper's Hawk	0.25	March 15 – August 31
Sharp-shinned Hawk	0.25	March 15 – August 31
Red-tailed Hawk	0.25	February 1 – August 15
Rough-legged Hawk (winter resident only)	----	----
Northern Harrier	0.25	April 1 - August 15
Merlin	0.50	April 1 - August 15
American Kestrel	0.125	April 1 – August 15
Common Barn Owl	0.125	February 1 – September 15
Northern Saw-whet Owl	0.25	March 1 - August 31
Boreal Owl	0.25	February 1 – July 31
Long-eared Owl	0.25	February 1 – August 15
Great Horned Owl	0.125	December 1 – September 30
Northern Pygmy-Owl	0.25	April 1 – August 1
Eastern Screech -owl	0.125	March 1 – August 15
Western Screech-owl	0.125	March 1 – August 15
Great Gray Owl	0.25	March 15 – August 31

<sup>1</sup> [http://www.fws.gov/wyominges/Pages/Species/Species\\_SpeciesConcern/BaldEagle.html](http://www.fws.gov/wyominges/Pages/Species/Species_SpeciesConcern/BaldEagle.html)

**Raptors of Conservation Concern**

The Service’s Birds of Conservation Concern (2008) report identifies “species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing” under the Endangered Species Act (16 U.S.C 1531 et seq.). This report is intended to stimulate coordinated and proactive conservation actions among Federal, State, and private partners. The Wyoming Partners in Flight Wyoming Bird Conservation Plan identifies priority bird species and habitats, and establishes objectives for bird populations and habitats in Wyoming. This plan also recommends conservation actions to accomplish the population and habitat objectives.

We encourage project planners to develop and implement protective measures for the Birds of Conservation Concern as well as other high-priority species identified in the Wyoming Bird Conservation Plan. For

additional information on the Birds of Conservation Concern that occur in Wyoming, please see our Birds of Conservation Concern web page.

### **Additional Planning Resources**

Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C. and Sacramento, CA.

Edison Electric Institute and the Raptor Research Foundation. 1996. Suggested Practices for Raptor Protection on Power Lines - The State of the Art in 1996. Washington, D.C.

Edison Electric Institute's Avian Power Line Interaction Committee and U.S. Fish and Wildlife Service. 2005. Avian Protection Plan Guidelines.

Edison Electric Institute and the Raptor Research Foundation. 1994. Mitigating Bird Collisions with Power Lines - The State of the Art in 1994. Washington, D.C.

U.S. Fish and Wildlife Service. 2000. Siting, Construction, Operation and Decommissioning of Communications Towers and Tower Site Evaluation Form (Directors Memorandum September 14, 2000), Arlington, Virginia.

U.S. Fish and Wildlife Service. 2007. National Bald Eagle Management Guidelines. United States Department of Interior, Fish and Wildlife Service, Arlington, Virginia. 23 pp.

Wyoming Game and Fish Department Internet Link to Raptor Information

### **References**

50 CFR 10.12 – Code of Federal Regulations. Title 50--Wildlife and Fisheries, Chapter I--United States Fish and Wildlife Service, Department of the Interior, Part 10--General Provisions.

50 CFR 10.13– Code of Federal Regulations. Title 50--Wildlife and Fisheries, Chapter I--United States Fish and Wildlife Service, Department of the Interior, Part 10--General Provisions.

50 CFR 22.3 – Code of Federal Regulations. Title 50--Wildlife and Fisheries, Chapter I--United States Fish and Wildlife Service, Department of the Interior, Part 22—Eagle Permits.

50 CFR 22.25– Code of Federal Regulations. Title 50--Wildlife and Fisheries, Chapter I--United States Fish and Wildlife Service, Department of the Interior, Part 22—Eagle Permits.

66 FR 3853 - Presidential Documents. Executive Order 13186 of January 10, 2001. Responsibilities of Federal Agencies To Protect Migratory Birds. Federal Register, January 17, 2001.

72 FR 31132 - Protection of Eagles; Definition of “Disturb”. Final Rule. Federal Register, June 5, 2007.

74 FR 46836 - Eagle Permits; Take Necessary To Protect Interests in Particular Localities. Final Rule. Federal Register, September 11, 2009.

U.S. Fish and Wildlife Service. 2003. Migratory Bird Permit Memorandum, MBMP-2, Nest Destruction (Directors Memorandum April 15, 2003), Washington, D.C.

U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp.



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 8**

1595 Wynkoop Street  
DENVER, CO 80202-1129  
Phone 800-227-8917  
<http://www.epa.gov/region08>

**FEB 1 - 2013**

Ref: EPR-N

Kristin Yannone, Project Manager  
Bureau of Land Management  
Lander Field Office  
1335 Main Street  
Lander, WY 82520

Re: Draft Environmental Impact Statement  
Gas Hills Project In-Situ Uranium Recovery Project  
Fremont and Natrona Counties, Wyoming  
CEQ#: 20120364

Dear Ms. Yannone:

The U.S. Environmental Protection Agency Region 8 (EPA) has reviewed the Bureau of Land Management's (BLM's) Draft Environmental Impact Statement (Draft EIS) for the proposed Gas Hills In-Situ Uranium Recovery (ISR) Project. Our comments are provided for your consideration pursuant to our responsibilities and authority under Section 102(2)(C) of the National Environmental Policy Act (NEPA), 42 U.S.C. Section 4332(2)(C) and Section 309 of the Clean Air Act (CAA), 42 U.S.C. Section 7609.

**Project Background**

The Draft EIS analyzes the potential impacts of a Plan of Operations submitted by Cameco Resources (also known as Power Resources Inc.) to develop mining claims using in-situ recovery techniques in the Gas Hills Mining District. The Draft EIS presents three alternatives: the No Action Alternative, the Proposed Action Alternative, and the Resource Protection Alternative for ISR mining and processing. The Resource Protection Alternative adopts mitigation strategies for some of the significant impacts analyzed in the Proposed Action while still meeting the project purpose and need. For both action alternatives, as much as 2.5 million pounds of uranium would be produced per year over a 25-year period by using ISR methods and some combination of three feasible wastewater disposal options.

The EPA provided Preliminary Draft EIS (PDEIS) comments for the project. We appreciate that the BLM addressed many of our PDEIS comments in this Draft EIS. As a result, we have narrowed our concerns to the following issues: 1) solar evaporation pond design, 2) monitoring and underground injection control (UIC) wells, 3) wastewater disposal options, 4) phased development, 5) air quality resources, and 6) water resources.

## Solar Evaporation Pond Design

The Proposed Action presents three options for handling the wastewater from the facility: solar evaporation ponds, a combination of solar evaporation ponds with forced evaporation and crystallization equipment, or a combination of UIC injection wells and solar evaporation ponds. For the solar evaporation ponds-alone option, for the maximum of 420 acre-feet of net evaporation needed in Project Year 7, the EPA calculates that over 180 acres of ponds would be needed. For the other two options, the Draft EIS does not identify either the number of ponds or the amount of evaporative surface area of ponds necessary.

Based on the design presented in the Draft EIS, the solar evaporation ponds option will not meet the current regulatory requirements of 40 CFR Part 61 Subpart W, National Emission Standards for Radon Emissions from Operating Mill Tailings, and it is unclear whether the other two options can comply with these requirements. This regulation allows for two impoundments (i.e., ponds), each no more than 40 acres. No new impoundment can be built unless it meets the work practice standards in Subpart W. In addition, an application for approval must be submitted to the EPA for the construction of any new radon source or the modification of an existing radon source, in accordance with 40 CFR §61.07.<sup>1</sup> Unless the impoundment facility design meets the regulatory requirements of 40 CFR Part 61, Subpart W, the EPA cannot grant its approval.

The Draft EIS states that for the options utilizing solar evaporation ponds, double liners are planned. According to 40 CFR Part 61, Subpart W and 10 CFR Part 40, Appendix A, Criteria 5A, 5E and 13, the impoundments must incorporate the basic groundwater protection standards specified by 40 CFR Part 192, Subpart D, which require a minimum of double liners with leak detection for ponds utilized in milling operations. We recommend that the Final EIS include an explanation of how the pond design details would meet these groundwater protection standards.<sup>2</sup>

## Monitoring and UIC Wells

### UIC Class V – Class I: Deep disposal wells

We recommend that the latest information from the wastewater disposal well testing program and wastewater disposal well permitting in the project vicinity be included in the Final EIS.<sup>3</sup> For example, groundwater sampling data submitted by Cameco on February 29, 2012, to WDEQ indicates that the Flathead may be an underground source of drinking water (USDW).

The WDEQ issued a final permit for two Class V wells (Gas Hills #1 and #2 wells) on November 3, 2011 with a minor modification issued on February 14, 2012. The Gas Hills #1 well reaches the Flathead formation (3850' depth) and is permitted to inject into the Phosphoria, Tensleep, Madison, and Flathead formations. Gas Hills #2 well is also drilled to the Flathead (5400' depth) and permitted to

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<sup>1</sup> EPA is currently undertaking a review of 40 CFR Part 61, Subpart W, which may result in changes to this regulation prior to construction of the facility. (<http://www.epa.gov/rpdweb00/neshaps/subpartw/rulemaking-activity.html>)

<sup>2</sup> EPA is currently undertaking a review of 40 CFR Part 192, which may result in changes to this regulation prior to construction of the facility. (<http://yosemite.epa.gov/oepi/nleqate.nsf/byRIN/2060-AP43#1>).

<sup>3</sup> See Wyoming DEQ website: WDEQ GEM database (<https://gem.wqd.apps.deq.wyoming.gov/Default.aspx>) and EPA UIC Program for additional information.

inject into the Cloverly, Morrison, Nugget, Phosphoria, Tensleep, Madison, and Flathead formations. These wells were permitted as Class V wells for performing injectivity tests. For Class V wells, the injectate cannot exceed MCLs or background, whichever is greater. We note that the Proposed Action Alternative anticipates the use of Class I wells for wastewater disposal. This would require that the two permitted Class V test wells be converted for permitted use as Class I deep disposal wells. Because this can be a complex process, if it becomes likely that this approach will be selected, we recommend contacting our office to discuss the process and requirements for conversion.

If the Flathead is determined to be a USDW, conversion of Class V test wells to Class I UIC disposal wells will require aquifer exemptions. Approval of an aquifer exemption removes a portion of a USDW from protection under the SDWA. Denial of an aquifer exemption impacts the Proposed Action Alternative and may render it infeasible. In addition, if waste fluid is planned to be injected into any of the formations above the Flathead through a Class I UIC well, a determination would need to be made as to whether these formations are USDWs. If they are, aquifer exemptions would be necessary. Requests for aquifer exemptions for Class I wells typically must demonstrate, among other things, that the exempted aquifer does not currently serve as a drinking water resource (i.e., no drinking water wells) within a defined radius of the Class I UIC disposal well, and that the disposed wastewater will not migrate outside of the aquifer exemption boundary. Additionally, if the USDW proposed for injection is found to be at or below 3,000 mg/l total dissolved solids, approval of such an exemption would be considered a substantial revision to the State's UIC program and require rulemaking signed by the EPA Administrator. We recommend that the Final EIS Table 1-2 indicate that the EPA would be responsible (per 40 CFR 144 and 146) for approving or denying any aquifer exemptions should a request be made by WDEQ to allow injection into the Class I wells.

Since Class I UIC wells are included in the Proposed Alternative, we recommend that the Final EIS confirm the ability of all receiving formations to receive injectate and include data from testing conducted in this regard. This information will be important in determining the viability of Class I disposal options.

The Draft EIS states that the WDEQ injection permit would require monitoring of groundwater conditions to establish baseline data and to ensure collection of information on migration and behavior of injected fluids. This information is not accurate. Current WDEQ Class I well permit monitoring requirements do not track the migration of the injected fluids or collect the in-situ water samples necessary to understand the geochemical behavior of the injected fluids in contact with the receiving formation. We recommend correcting this in the Final EIS and explaining that current Class I well monitoring requirements cannot detect unwanted migration of disposed wastewater beyond the permitted boundary.

#### Exploration Borehole Effects on UIC Class III ISR

More than 12,000 exploratory boreholes drilled in the existing Gas Hills mining district and the project area have penetrated the confining layers above and possibly below the production zone and may serve as conduits for unintended fluid migration. Unplugged boreholes could allow contaminants associated with injection fluids from Class III ISR operations to enter the aquifer. The EPA appreciates that the monitoring program for detecting excursions will identify the boreholes in the project area and the known geologic structures identified in the Draft EIS that may serve as pathways for unwanted

migration of fluids. We support disclosure in the Final EIS of plans for identifying and plugging boreholes that are shown to be hydraulically connected to the production zone.

### **Wastewater Disposal Options for the Resource Protection Alternative**

The EPA recommends that the Final EIS further evaluate the UIC Class V wastewater disposal option for the Resource Protection Alternative. The potential significant impacts associated with exempting a portion of the Flathead aquifer from the SDWA for UIC Class I disposal would be avoided if the UIC Class V disposal option were selected. Under the Class V option, wastewater will be treated to reduce regulated contaminants to maximum concentration limits (MCLs) or background so that injection can be permitted without an aquifer exemption. The EPA recommends that the Final EIS evaluate onsite treatment using a combination of ion exchange, reverse osmosis, and radium settling followed by deep disposal in Class V injection wells, land application, or a combination of deep well disposal in Class V injection wells with land application during the irrigation season.

### **Phased Development**

The Draft EIS Figure 2-3, Project Activity Schedule, shows that mine unit restoration and reclamation would be performed concurrently with production from adjacent operating units. It is our understanding that both the production process and restoration process may use the same reverse osmosis (RO) treatment unit(s). Since it is critical to sustain restoration activities without interruptions that could lead to excursions, we recommend including in the Final EIS a more complete description of the RO treatment capacity and associated RO production and restoration operational design capacity. We also suggest constructing a process water balance from this Schedule to determine production and wastewater demand for the RO units.

### **Air Quality**

There are a number of inconsistencies between tables in the Draft EIS and Appendix E which make it difficult to confirm many of the air quality conclusions reached in the Draft EIS. For example, the annual PM emissions listed in Table 3-2 do not appear to be consistent with the emissions listed in Table 3-1. In another example, Appendix E, Table 3-4 lists four to eight drill rigs operating at any one time. However, Chapter 4 of the Draft EIS, Table 4.1-2 identifies up to 14 drill rigs could be operated simultaneously. In addition, Table 2-3 of Appendix E lists the emission factors used to calculate emissions of criteria pollutants from internal combustion engines. These emission factors appear to yield significantly higher emission rates than those presented in the total hourly criteria pollutant emission rates listed in Table 3-6 of Appendix E. Based on our reviewed of Appendix E, it appears that the Draft EIS underestimates maximum short-term emission rates for the activities conducted by the equipment in the emission inventory. We recommend that the BLM re-evaluate its emissions inventory and reassess whether substantial changes have occurred from any revisions to the Plan of Operations assumptions in the Proposed Action Alternative. Additional modeling may be warranted if the changes are significant.

The EPA has found from similar information in other ISR projects that there is the potential for short-term impacts associated with fugitive dust and NO<sub>x</sub> emissions. We recommend an adaptive management strategy to prevent adverse PM impacts by minimizing the magnitude and duration of PM emissions and by requiring lower-emitting technology for the drill rigs. The strategy could involve suppressing fugitive

dust during drilling with a stand-by water truck. Emission controls on the equipment exhaust gases such as catalytic oxidation converters and particulate filters with regeneration have been employed to mitigate adverse impacts at other ISR facilities.

Chapter 3 of the Draft EIS lists the Annual PM<sub>2.5</sub> NAAQS as being 15 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) (page 3.1-4). On December 14, 2012, the EPA lowered the NAAQS to 12.0  $\mu\text{g}/\text{m}^3$ .<sup>4</sup> We recommend including the current NAAQS in the Final EIS.

The EPA recommends that Chapter 3 of the Final EIS include current information regarding NAAQS attainment within the State of Wyoming. In March 2009, the Governor of Wyoming recommended to the EPA that Sublette County and parts of northeastern Lincoln and Northwestern Sweetwater Counties be designated non-attainment for ozone due to exceedances of the 75 parts per billion ozone NAAQS. The EPA published final air quality designations for the ozone NAAQS in the Federal Register on May 21, 2012.

### **Water Resources**

According to the Draft EIS, the Project potentially would impact 15 acres of wetlands along West Canyon Creek in Mine Unit 4, including the perennial reaches of the Creek. We recommend that the Final EIS explain that siting wellfields and crossing tributaries upstream of jurisdictional wetlands may require the applicant to obtain Clean Water Act Section 404 permits. The discharge of dredged and fill material into waters of the U.S. is permitted by the United States Army Corps of Engineers (USACE) with nationwide permits for construction activities (e.g., drilling wells, laying pipeline, and constructing access roads). The USACE may need to conduct additional environmental impact analyses to support issuance of CWA Section 404 permits associated with the project. In addition, it appears that some of the wastewater evaporation ponds may be within the 100-year floodplain as calculated in Table 3.15-2. The EPA recommends evaluating options to avoid discharge from these facilities during flood events.

We recommend including in the Final EIS any updates on the status of the USACE permitting process for the Gas Hills project, information on the specific acreages of wetlands that could be impacted and the identification of mitigation for impacts.

Table 3.15-4 presents average concentration data for background groundwater in the proposed mine units. The table includes a column showing the Wyoming Class III standards. We find the inclusion of these standards in this table to be confusing and without context. We recommend deleting these standards in the revised table in the Final EIS.

### **EPA's Rating and Recommendations**

Consistent with Section 309 of the CAA, it is the EPA's responsibility to provide an independent review and evaluation of the potential environmental impacts of this project. The Draft EIS does not identify a preferred alternative. Accordingly, we have rated the Proposed Action Alternative and the Resource Protection Alternative as "EC" - Environmental Concerns. We have rated the quality of the DEIS as "2"-Insufficient Information. The "EC" rating indicates that the EPA review has identified

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<sup>4</sup> (<http://www.epa.gov/airquality/particlepollution/actions.html>)

environmental impacts that need to be avoided in order to protect the environment. The "2" rating indicates that the EPA review has identified a need for additional information, data, analysis or discussion in the Final EIS in order for the EPA to fully assess environmental impacts from the proposed project. A description of the EPA's rating system is enclosed.

We hope that our comments will assist you in further reducing environmental impacts of this project. We appreciate the opportunity to review and comment on the Draft EIS. If we may provide further explanation of our comments, please contact me at 303-312-6925, or your staff may contact James Hanley, at 303-312-6725.

Sincerely,

A handwritten signature in black ink, appearing to read "Suzanne J. Bohan", with a long horizontal flourish extending to the right.

Suzanne J. Bohan  
Director, NEPA Compliance and Review Program  
Office of Ecosystems Protection and Remediation

Enclosure: EPA's Rating System Criteria

**U.S. Environmental Protection Agency Rating System for  
Draft Environmental Impact Statements  
Definitions and Follow-Up Action\***

**Environmental Impact of the Action**

**LO - - Lack of Objections:** The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

**EC - - Environmental Concerns:** The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

**EO - - Environmental Objections:** The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

**EU - - Environmentally Unsatisfactory:** The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the Final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

**Adequacy of the Impact Statement**

**Category 1 - - Adequate:** EPA believes the Draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

**Category 2 - - Insufficient Information:** The Draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new, reasonably available alternatives that are within the spectrum of alternatives analyzed in the Draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the Final EIS.

**Category 3 - - Inadequate:** EPA does not believe that the Draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the Draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the Draft EIS is adequate for the purposes of the National Environmental Policy Act and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised Draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.





**T** RIBAL HISTORIC PRESERVATION OFFICE  
**S** TANDING ROCK SIOUX TRIBE  
Administrative Service Center  
North Standing Rock Avenue  
Fort Yates, N.D. 58538  
Tel: (701) 854-2120  
Fax: (701) 854-2138

February 1, 2012

Kristin Yannone, Project Manager  
Bureau of Land Management  
Lander Field Office  
1335 Main Street  
Lander, WY 82520

File No: 13-19

Dear Mrs. Yannone ,

The Standing Rock Sioux Tribe-Tribal Historic Preservation Office (SRST THPO) wishes to submit the following comments for the proposed Gas Hills In-Situ Recovery Uranium Project Draft Environmental Impact Statement(DEIS).

#### Section 106 Identification Efforts under the National Historic Preservation Act (NHPA)

The SRST THPO would like to assist in identification of historic and religious properties that may be significant to the tribes. The SRST THPO would like identification efforts in the form of a Traditional Cultural Properties study in order to fulfill the Section 106 requirements under the NHPA regulations. In section 4.2-4 the TCP's (or sites of significance to Tribes) would have a .25 mile buffer from proposed impacts. Since we do not yet know what the TCPs are we cannot reasonably place this pre-determined length of a buffer around sites that have not been identified. It would be imperative to have Traditional Cultural specialists or Tribal Monitors on site during identification efforts and construction monitoring.

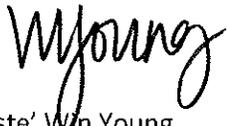
#### Mitigative Measures and Treatment Plans

Traditional Cultural Specialists and (or) Tribal Monitors can serve as Construction monitors as part of the construction phase of the project. This would ensure that any TCP's and historic and religious properties associated with Indian tribes are protected. The specialists would also assist in establishing buffers—this could be done with pre-planning efforts and on site in case of an inadvertent discovery.

In May of 2012 the PA for this project was amended to extend the terms of the original PA from 2003. To our knowledge the SRST THPO did not receive notice soliciting comments for this PA. We would like to be notified on any amendments, changes or new proposed PA's for BLM projects that may affect historic and religious properties of significance to Indian tribes.

If you have any questions regarding these comments please contact me at the Standing Rock Sioux Tribe- Tribal Historic Preservation Office via phone or email.

Sincerely,  
STANDING ROCK SIOUX TRIBE

A handwritten signature in black ink, appearing to read "W. Young". The signature is written in a cursive, flowing style with a large initial "W".

Waste' Win Young  
Tribal Historic Preservation Officer

## Dufresne, Doree

---

**From:** BLM\_WY\_Gas\_Hills\_Uranium\_EIS <BLM\_WY\_Gas\_Hills\_Uranium\_EIS@blm.gov>  
**Sent:** Monday, December 10, 2012 8:59 AM  
**To:** Dufresne, Doree  
**Subject:** Gas Hills EIS

Doree: Tom and I will be checking this email address.

**From:** Burl Gies (DWS) [<mailto:burl.gies@wyo.gov>]  
**Sent:** Wednesday, December 05, 2012 11:06 AM  
**To:** BLM\_WY\_Gas\_Hills\_Uranium\_EIS  
**Subject:** EIS

Hello Project Manager:

I attended the EIS Public Comment meeting for Cameco's project at the Riverton Library yesterday and wanted to comment on the project.

Having worked in the Gas Hills in the uranium industry in the late 1970's an early 1980's I know the many benefits of having work in that area that produces useful goods and provides gainful employment for Wyoming workers. In Fremont County we generally have one of the higher unemployment rates in the state and have a significant number of workers that could benefit greatly from more good paying jobs in our area. In the past, there have always been ways to balance the environmental issues with good mining practices to generate work that is safe for the environment yet provides useful mineral products and good jobs for Wyoming people. It is my hope that the EIS for Cameco will move forward in a positive and productive manner that results in approval of their work beginning soon. I believe this can be done in a way that allows for multiple use of the lands to benefit Wyoming's people while protecting Wyoming's lands in a sensible way.

Please place me on your mailing list concerning this project.

Thank you,  
Burl Gies

--

*Burl Gies, Manager  
Riverton & Lander Workforce Centers  
422 East Fremont  
Riverton, WY 82501  
307-856-9231  
[burl.gies@wyo.gov](mailto:burl.gies@wyo.gov)*

**Mission:** To bridge human and economic development for Wyoming's Future.

E-Mail to and from me, in connection with the transaction of public business, is subject to the Wyoming Public Records Act and may be disclosed to third parties.



# Written Comment Sheet

## Gas Hills Uranium Project

### Environmental Impact Statement

We appreciate your comments! If you have any comments about the Gas Hills Uranium Project Environmental Impact Statement (EIS), please complete this comment sheet, fold it in on the lines with the return address showing, tape it closed, affix a stamp, and drop it in the mail to us. You may attach additional pages.

If you prefer, you can email comments to [Gas\\_Hills\\_Uranium\\_EIS\\_WY@BLM.gov](mailto:Gas_Hills_Uranium_EIS_WY@BLM.gov) or you can contact Kristin Yannone, BLM Project Manager at the BLM Lander Field Office. If you have no comments, but would like to be on our mailing list, please complete the contact information below and mail it to us.

Primary transportation route should be from mine site to US20-26 at Wattman. Right now charts show primary transportation route through Riverton, a much longer haul.

We need to know this ASAP so we can establish Wyo 136 as a higher-priority road and possibly budget money for highway improvements. The Gas Hills Rd (Wyo 136) is currently the lowest priority road for snow plowing and maintenance.

We are not opposed to this plan, but transportation needs must be considered as part of future conversations w/ WYDOT. Please contact Shelby Carlson, WYDOT District Engineer at (307) 568-3400.

Please provide your contact information. If you would like to receive further announcements about the EIS, fill in the box on the reverse side.

Before including your address, phone number, e-mail address or any other personal identifying information in your comment, you should be aware that your entire comment – including personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Name: Cody Beers Title: PR Specialist  
Mailing address: PO Box 1784  
City, State, Zipcode: Riverton, WY 82501  
Phone: 856-1341 Fax: 856-1572 E-mail: cody.beers@wyo.gov

Please hand in your completed comment sheet at the public meeting, or if you would like to mail your comments, please use the address on the reverse side by close of the public comment period December 31, 2012, to ensure your input is considered.

**Thank you for your interest and participation!**

WYOMING OFFICE OF STATE LANDS AND INVESTMENTS

122 West 25<sup>th</sup> Street  
Cheyenne, WY 82002  
Phone: 307.777.7331  
Fax: 307.777.3524  
[slfmail@wyo.gov](mailto:slfmail@wyo.gov)



MATTHEW H. MEAD  
Governor

RYAN M. LANCE  
Director

December 20, 2012

Bureau of Land Management  
1335 Main Street  
Lander, WY 82520-0589

Attn: Kristin Yannone

**RE: OSLI Project # 2012-003  
Gas Hills In-Situ Recovery Uranium Project  
Draft Environmental Impact Statement**

Dear Ms. Yannone,

The Wyoming Office of State Lands and Investments (OSLI) appreciates the opportunity to review the above captioned project, and offers the following comments relative to the proposed action insofar as it pertains to the mission of this office.

OSLI's goal is to effectively manage natural resources and funds for current and future generations. To that end, OSLI manages its assets for two key purposes consistent with traditional trust principles: (1) long term growth in value, and (2) optimum, sustainable revenue production. These principles guide both allocation of resources and land management practices.

Because the Board of Land Commissioners and OSLI are responsible for managing these trust assets for short- and long- term returns to the beneficiaries, we are quite interested in any action that could impact land use and/or development on state trust lands. Based on a brief internal analysis, OSLI staff concurs that there will be no direct impacts and negligible indirect impacts to state trust lands. The leased parcels are located in Township 33 North Range 89 West, Section 28, and Township 33 North, Range 89 West, Section 27.

According to the description provided in the document, 164 acres of state trust lands would be directly impacted by this project. All acreage is included in OSLI Uranium Lease #0-15211, executed on December 2, 2003 and expiring on December 1, 2013. Based on the activity described in the proposed action, this acreage would be substantially included in Unit 4.

The project proponents are advised that they must comply with the Rules and Regulations adopted by the Board of Land Commissioners in accordance with W.S. §36-2-107 and §36-9-118, in the event that development occurs on, or is necessary to traverse, state lands. In addition, siting of any sort on state trust lands will require the proponent to comply with the Governor's Executive Order 2011-5, Greater Sage-Grouse Core Area Protection.

If you have any questions or concerns pertaining to the state trust parcels, please feel free to contact our office.

Regards,



Ryan M. Lance  
Director

RL/sc/dt



*The Wyoming Department of Agriculture is dedicated to the promotion and enhancement of Wyoming's agriculture, natural resources and quality of life.*

December 17, 2012

Ms. Kristin Yannone, Project Manager  
Bureau of Land Management, Lander Field Office  
1335 Main Street  
Lander, WY 82520



Dear Ms. Yannone:

Following are the Wyoming Department of Agriculture's (WDA) comments pertaining to Draft Environmental Impact Statement (DEIS) for Gas Hills In-Situ Recovery (ISR) Uranium Project by the Lander Field Office of the Bureau of Land Management (BLM).

Our comments are specific to our mission: dedication to the promotion and enhancement of Wyoming's agriculture, natural resources, and quality of life. As this DEIS affects our agriculture industry, our natural resources, and the welfare of our citizens, it's important you continue to inform us of proposed actions and decisions and continue to provide the opportunity to express pertinent issues and concerns.

This project will impact grazing permittees, agriculture producers, landowners, and other citizens, as well as our natural resources, both in and near this 8500-acre project area. This project will heavily impact livestock grazing permittees, especially those utilizing the Gas Hills Allotment. The WDA appreciates commitments by the BLM and Cameco Resources to mitigate impacts to livestock grazing permittees by holding annual meetings to discuss operations, conducting surveys of range improvement projects prior to mine unit construction, correcting damage to livestock and range improvements and striving for timely and appropriate reclamation.

The WDA also offers the following specific comments to the DEIS:

**1.5.2.1 Cooperating Agency Participation, Table 1-5, p. 1-11**

Jason Fearneyhough and Michelle MacDonald are contacts with the Wyoming Department of Agriculture, not the USDA.

**2.3.9 Applicant-committed Environmental Protection Measures, p. 2-36, 2<sup>nd</sup> bullet**

"In those areas where there were few or no noxious weeds prior to being affected by the ISR operations, Cameco would control and minimize the introduction of noxious weeds into the revegetated areas for at least 5 years after the initial seeding had taken place."

The WDA believes it is essential that Cameco and the BLM control noxious weeds in all areas affected by ISR operations, not just in those areas that had few noxious weeds to begin with.

*Equal Opportunity in Employment and Services*

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ISR Uranium Project  
DEIS  
12/17/2012  
Page 2 of 2

In conclusion, we appreciate the opportunity to comment on the Gas Hills In-Situ Recovery Uranium Project DEIS. We encourage continued attention to our concerns and look forward to hearing about and being involved in proposed actions and decisions.

Sincerely,



Jason Fearneyhough  
Director

JF/jc

CC: Governor's Policy Office  
Rocky Mountain Farmer's Union  
Wyoming Association of Conservation Districts  
Wyoming Board of Agriculture  
Wyoming Farm Bureau Federation  
Wyoming Game and Fish Department  
Wyoming State Grazing Board  
Wyoming Stock Growers Association  
Wyoming Wool Growers Association





Matthew H. Mead  
Governor

# Wyoming Department of Transportation

*"Providing a safe, high quality, and efficient transportation system"*

5300 Bishop Boulevard  
Cheyenne, Wyoming 82009-3340



John F. Cox  
Director

January 11, 2013

Bureau of Land Management  
Attn: Kristin Yannone  
1335 Main Street  
Lander, WY 82520-0589



RE: Gas Hills Uranium EIS

Dear Ms. Yannone

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement for the Gas Hills In-situ Recovery Uranium Project. We have primarily reviewed the EIS for impacts to the highway system administered by WYDOT and the following are our comments in no particular order.

There is some confusion within the EIS and the public meeting held in Lander on the haul route for the slurry/resin to the Highland Resin Transfer System. In some areas it shows the route going to US20-26 on the Gas Hills Road and in others it shows the route going to Riverton along WYO 136 then US 26 towards Casper, which is the route mentioned in the public meeting. WYO 136 was built in the 1960's and last overlaid in 1990. Due to its age and WYDOT's current funding limitations there is concern about maintaining its condition. With increased heavy truck traffic WYDOT may have to impose a weight restriction to maintain its integrity. Tables 4.8-3 and 4.8-5 would also have to be revised if the route along WYO 136 is used for this haul.

On page 2-24 it is mentioned that "...Cameco would contract with road maintenance crews to provide passage." I am assuming that you are referring to snow removal on the roads off of the state highway system. WYDOT provides all maintenance on the state highway system and Cameco will have to abide by all road restrictions and closures. WYDOT does have an Authorized Travel program which may allow passage through some closed areas based on the discretion of the local maintenance crews and the Highway Patrol. The application can be obtained on the WYDOT web site or by calling WYDOT Public Affairs Office at 307-777-4375.

In the Transportation of Materials section on page 4.8-6 you state "WYDOT will respond immediately to hazardous materials accidents..." While it is true that WYDOT will respond we would like to clarify that our personnel do not have the training or materials to properly mitigate this type of spill. Cameco and its hauling contractor should provide the personnel, materials and equipment to respond to these types of incidents and will be responsible for the efforts and costs required to mitigate a hazardous spill.

If you have questions or we can be of further assistance in your planning efforts, please do not hesitate to contact me at 307-568-3424.

Sincerely



Lyle K. Lamb, P.E.  
District Traffic Engineer  
WYDOT – Basin



CC: File  
Shelby Carlson P.E., District Engineer, Basin



## WYOMING GAME AND FISH DEPARTMENT

5400 Bishop Blvd. Cheyenne, WY 82006

Phone: (307) 777-4600 Fax: (307) 777-4699

Web site: <http://wgfd.wyo.gov>

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ED MIGNERY  
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January 30, 2013

WER 8435.03  
Bureau of Land Management  
Lander Field Office  
Draft Environmental Impact Statement  
Gas Hills In Situ Recovery Uranium Project  
Power Resources Inc. dba Cameco Resources  
Fremont and Natrona Counties

Bureau of Land Management  
Lander Field Office  
Attention: Kristin Yannone  
1335 Main Street  
Lander, WY 82520

Dear Ms. Yannone:

The staff of the Wyoming Game and Fish Department (WGFD) has reviewed the Draft Environmental Impact Statement (DEIS) for the Gas Hills In Situ Recovery Uranium Project for Power Resources Inc. dba Cameco Resources in Fremont and Natrona Counties. We offer the following comments for your consideration.

### **General Comments**

Throughout the document, the BLM refers to both the existing Lander RMP (1987) and the unsigned, draft Lander RMP (2011) to support statements and management actions. It is the understanding of the WGFD that management actions are limited to the guidelines of the existing RMP, and any additional requirements may be considered mitigation measures.

It is noted throughout the document there has been significant disturbance in the past within and surrounding the Gas Hills Project Area (GHPA). The combination of past and projected disturbance, including the proposed project, impacts a significant amount of wildlife habitat in the area. Impacts from disturbance are consistently downplayed in the DEIS by repeated statements regarding past and future reclamation efforts, which have not been substantiated as "successful". Despite repeated statements regarding habitat reclamation, no quantitative data is presented in the document detailing any success at re-establishing native plant communities from decades old reclamation work. In fact, casual examination of reclamation efforts in the area suggests past efforts have not been successful at re-establishing native plant communities. If the BLM has data showing the successful re-establishment of native plant communities, it should be

presented in the DEIS to add credibility to statements made regarding interim and final reclamation in the Proposed Action Alternative and enhanced reclamation in the Resource Protection Alternative (RPA). If quantitative data regarding vegetation cover and plant species composition does not exist for previous reclamation efforts in the area, the WGFD believes the BLM should not analyze those efforts as having been successful and should not project future successful reclamation until demonstrated.

In summary, the WGFD does not believe the BLM has adequately supported claims of successful reclamation efforts in the area, and is therefore concerned wildlife habitat loss as a result of this project is underestimated; or at least, the longevity of the impact is underestimated. The WGFD further believes additional vegetation changes associated with the proposed project will result in significant cumulative impacts to wildlife habitat in the area when combined with past and projected disturbance. Unless documentation is included in the DEIS substantiating the successful reclamation of native shrub communities, the WGFD believes the only way to minimize impacts from the proposed project is to minimize the acres of disturbance. Thus, the WGFD believes the RPA will have far fewer impacts to wildlife than the Proposed Action Alternative.

With regard to aquatic wildlife, the DEIS has adequately addressed our concerns to minimize soil erosion, water quality/quantity impacts, and direct impacts to wetlands and riparian habitats.

## **Specific Comments**

### *2.1.2 Existing Disturbance (pg. 2-3)*

Approximately 1,300 acres in the project area has previously been disturbed. It is stated the majority of disturbed areas have re-established vegetation and generally have a diverse species composition. The WGFD believes these statements regarding the success of past reclamation are inadequate given the extent the project claims to minimize future disturbance through reclamation efforts. Further, the document indicates planning for this project has been ongoing since at least the early 1990s, and the BLM should have much more detailed, quantitative data regarding past reclamation efforts. Of the 900 acres stated to be reclaimed and re-vegetated, the WGFD recommends detailing the ground cover percentage, species composition, percent forb cover, and percent shrub cover. Additionally, the document should describe how the vegetation statistics on the re-vegetated areas compare with undisturbed areas.

#### *2.1.2.1 Historic Mining, Exploration Drilling (pg. 2-4)*

The document states reclamation at exploratory drilling sites occurs within 1 year and that 12 sites were plugged and abandoned in 2008. The document should detail how the reclaimed vegetation at these sites compares to undisturbed areas.

### *2.3 Proposed Action (pg. 2-6)*

Under "Final Project Reclamation and Decommissioning" the document states disturbed areas outside mine unit boundaries will be reclaimed. Again, in the last paragraph on the page the

document states that, “disturbed areas will be reclaimed to the pre-mining land use.” These statements lack credibility because the document has not detailed instances of past reclamation success in the area. Moreover, “pre-mining” land use is not described.

*2.3.6 Final Project Reclamation and Decommissioning (pg. 2-26, 27)*

This section should provide more detail regarding what constitutes final vegetation reclamation, including credible documentation that reclamation goals can be met based on quantifiable success of past reclamation efforts. Additionally, with the foresight that the GHPA contains a large percentage of soils with limited reclamation potential (described further in the document), the proponent’s proposed action should include information on steps that will be taken if reclamation fails.

*2.3.8 Existing Monitoring Plans, Post-operational Vegetation Monitoring (pg. 2-30)*

In general, this section lacks detail. Given the extensive planning time for this project, a vegetation monitoring protocol should be well defined. The Proposed Action Alternative does not mention a vegetation monitoring plan to be implemented during operations/production, which should include weed monitoring and prevention across the GHPA.

The Proposed Action Alternative proposes the use of a Comparison Area (COMA) for determining re-vegetation success, but does not indicate that one has been established. Additionally, the criteria for success states that total vegetation cover after reclamation must be at least equal to total vegetation cover on the area prior to mining. This statement should specify which period of mining, since the GHPA is in a historic mining area, or before mining in general.

*2.3.8 Existing Monitoring Plans, Wildlife Monitoring (pg. 2-31)*

The Proposed Action Alternative discusses a Wildlife Monitoring Plan prepared in coordination with the WGFD. Planning and monitoring activity for renewed mining efforts in the Gas Hills area has been ongoing since at least the early 1990s. The WGFD requested but has not received an updated monitoring plan specific to the current Proposed Action.

*2.3.9 Applicant-committed Environmental Protection Measures, Operation (pg. 2-34)*

This section states fencing will prevent wildlife from accessing evaporation ponds, but is not clear on what type of wildlife the effort will target to exclude and does not support the statement with a credible citation that such exclusion can be achieved.

This section states Cameco will monitor waterfowl activity at the evaporation ponds and will implement certain actions to exclude waterfowl if necessary. Further in the document (pg. 3.17.1.2) it is noted that, “Common waterfowl species that may occur within the study area year-round depending on the availability of open water include Canada goose, mallard, green winged teal, northern pintail, gadwall, and American widgeon... These species distributions are limited to the ponds and wetland/riparian habitats found within the study area.” The assumption should be waterfowl will attempt to access evaporation ponds given the scarcity of open water in the area.

The Proposed Action Alternative should include more detail regarding exclusionary practices and documentation of effectiveness.

#### *2.3.9 Applicant-committed Environmental Protection Measures, Reclamation (2-35)*

This section states “the seed mixture used would be comparable to mixes used on other reclamation mines in the area...”, however no documentation of reclamation success has been presented in the document. Additionally, the document again states the reclamation goal will be to return land to conditions able to sustain pre-disturbance use. This statement implies wildlife habitat will be comparable to pre-disturbance, but no credible, quantifiable data has been presented to support claims of successful past reclamation. Specifically, success in reclaiming forb and shrub communities should be demonstrated.

#### *2.4 Resource Protection Alternative (pg. 2-36)*

A stated purpose of this alternative is to reduce impacts of the Proposed Action Alternative mining activities to wildlife; however, the RPA does not discuss or analyze any seasonal timing restrictions or buffers to protect sensitive species during construction phases (see comments under 2.5.2). Additionally, the RPA discusses a reduction in the amount of heavy truck traffic as a result of additional on-site processing. Cameco’s transportation plan indicates that the majority of workers will come from either Riverton or Casper and will work regular weekday 12 hour shifts. As was included in our April 2012 comments, we recommend consideration for providing bus transportation for employees to and from central locations (i.e., Casper and Riverton) to further reduce traffic and associated dust, noise, and wildlife mortality impacts, especially given the number and length of daily travelled, unpaved roads.

#### *2.4.5 Reduced Number of Evaporation Ponds (pg. 2-40)*

The RPA states evaporation ponds will be flagged or netted as necessary to prevent waterfowl access. The WGFD recommends that, unless the BLM has documentation that flagging is successful at excluding waterfowl, evaporation ponds should be required to have netting installed and maintained. Further in the document (pg. 3.17.1.2) it is noted that, “Common waterfowl species that may occur within the study area year-round depending on the availability of open water include Canada goose, mallard, green winged teal, northern pintail, gadwall, and American widgeon...These species distributions are limited to the ponds and wetland/riparian habitats found within the study area.” As stated previously, it should be assumed that waterfowl will attempt to access evaporation ponds given the scarcity of open water in the area.

#### *2.4.7.1 Reclamation Success Criteria (pg. 2-43, 44)*

This section discusses the disturbance caused by past mining activity and the goal of the RPA to return the site to its ecological potential or to historic conditions without a clear description of those conditions. Additionally, the document states Cameco would be required to submit a noxious weed plan. Given the long-term extent of the planning for this project, the WGFD believes the BLM should require a detailed noxious weed plan prior to commencement of the project, which would encompass GHPA-wide monitoring and prevention, treatment, and control

measures to be implemented at the commencement of construction, and ongoing through final reclamation.

#### *2.5.2 Seasonal Operation (2-45)*

The document states the BLM has eliminated from further consideration an alternative that would limit mine unit operations during wildlife timing limitation stipulations (TLS). As previously noted, no TLS have been included in any of the three existing alternatives, in particular the RPA. The stated reason for TLS exclusion is regarding the nature of ISR operations, which requires constant underground pressure created by the injection wells to maintain flows towards the production wells. This phase of the mining process is considered "production" and the WGFD does not disagree with the exclusion of TLS during this process. However, the WGFD does recommend the BLM analyze TLS (including appropriate buffers) during the "construction" phase of each mine unit that has not been previously disturbed. As stated in the DEIS, construction includes delineation drilling; installation of injection, production, and monitoring wells; pipelines; header houses; and roads. Specifically, the RPA should consider TLS and other protections for identified species of concern that are likely to occur or are known to occur in the GHPA:

- Non-core area sage-grouse leks, nesting, and early brood rearing habitat within 2mi of the GHPA. Core area noise guidelines for identified core area leks within 4mi of the GHPA. Sage-grouse are classified as a federal candidate species, as well as a BLM sensitive species (pg. 3.17-6).
- Other sagebrush-dependent avian species known to occur or likely to occur in the GHPA based on the presence of suitable habitat, including brewer's sparrow, loggerhead shrike, sage sparrow, and sage thrasher. Identified as BLM sensitive species (pg. 3.17-9).
- Mountain plover mapped habitat in the GHPA. Identified as a BLM sensitive species (pg. 3.17-9).
- Ferruginous hawk suitable nesting and foraging habitat in the GHPA. Identified as a BLM sensitive species (pg. 3.17-6).
- Burrowing owl suitable habitat in the GHPA. Identified as a BLM sensitive species (pg. 3.17-6).
- Townsend's big-eared bat and spotted bat foraging and roosting habitat in the GHPA. Identified as BLM sensitive species in the GHPA (pg. 3.17-6).
- White-tailed prairie dog active colonies in the GHPA. Identified as a BLM sensitive species (pg. 3.17-4).
- Northern leopard frog suitable habitat in the GHPA. Identified as a BLM sensitive species (pg. 3.17-11).
- Great Basin spadefoot suitable habitat in the GHPA. Identified as a BLM sensitive species (pg. 3.17-11).

*2.6 Comparison of Alternatives, Table 2-4 Summary of Surface Disturbance for the Alternatives (pg. 2-47)*

This table describes the Carol Shop Facility as disturbing 27 acres under the No Action Alternative, and 0 acres under both the Proposed Action Alternative and the RPA. However, both the Proposed Action Alternative and the RPA will involve maintenance and upgrade of the Carol Shop for use during mining operations until decommissioning and final reclamation ensue. The disturbance associated with the facility should be 27 acres for both of these alternatives.

*2.6 Comparison of Alternatives, Table 2-5 Comparison of Impacts (pg. 2-51)*

Under "Vegetation", both the column on the Proposed Action Alternative and the RPA state it would take 3-5 years to re-establish shrub-dominated vegetation communities. The WGFD disagrees with this assessment. Other sections of the document claim up to 20 years to re-establish shrub species. Appropriate data should be presented if the BLM has documented success at re-establishing shrub-dominated communities in this area in the short-term.

*3.4.3.1 Special Management Area (pg. 3.4-3)*

This section states that according the draft Lander RMP (2011), the GHPA is a designated development area (DDA). Until a record of decision is signed, the GHPA should be managed according to the existing Lander RMP (1987).

*3.9 Recreation (pg. 3.9-1,3,4,5)*

This section is missing information on the Sweetwater Rocks mule deer hunt area, which encompasses a small area of the southern portion of the GHPA. This section uses both "pronghorn" and "antelope", and we recommend one term is used consistently throughout. Additionally, figures 3.9-2 and 3.9-3 do not depict mule deer or pronghorn hunt area bounds.

*3.17.2.2 Birds, Greater Sage-grouse (pg. 3.17-7)*

According to WGFD lek data, there are 21 lek sites within 11 miles of the GHPA, all classified as occupied. There are 4 occupied leks within 4 miles of the GHPA:

1. Puddle Springs (data captured in DEIS)
2. West Canyon Creek (data captured in DEIS)
3. Black Mountain (discovered in 2012; peak male count 18; Greater South Pass core area)
4. Leighi Point (discovered in 2012; peak male count 18; non-core area)

Leks discovered in 2012 (i.e., Black Mountain and Leighi Point) should be included in the Affected Environment description (Table 3.17-1 describing leks within 2 miles of the GHPA) and the impacts analyses. TLS protections for these leks should be included and analyzed as part of the RPA.

Footnote "a" under Table 3.17-1 refers to the title of the table "Activity Status of Greater Sage-grouse Leks Located within 2 Miles of the GHPA." The footnote states, "that a 2 mile buffer of occupied leks is required for leks outside of core area" but this section does not describe or clarify what is the purpose of the buffer, what seasonal use stipulations should be considered, or when the stipulations should be applied. This section should discuss the 2 mile buffer around

non-core area, occupied sage-grouse leks as intended to protect breeding, nesting, and brood rearing habitat from March 15 – June 30 during construction activities. Additionally, since the GHPA is in a sage-grouse non-core area (12 acres of the GHPA falls within the Greater South Pass core area); there are 4 known, occupied leks within 2 miles of the GHPA and proposed mine units containing habitat not previously disturbed by past mining activity (an occupied, core area lek exists within 2 miles of the boundary and proposed mine units); and the GHPA contains suitable sage-grouse habitat where birds have been consistently documented, the WGFD feels the BLM should include in the RPA and in the impacts analyses a description and discussion of non-core area TLS for construction activity and core area noise guidelines for construction/production activities to minimize the proposed project impacts on sage-grouse. Again, a stated purpose of the RPA is to reduce impacts of the Proposed Action Alternative mining activities to wildlife.

#### *4.11.4 Irreversible and Irrecoverable Impacts (pg. 4.11-10)*

This section of the soils impacts analysis states that no irreversible impacts would be anticipated; however, the Proposed Action Alternative describes 182 acres of disturbance in soils with limited reclamation potential (LRP). Statements made concerning the successful reclamation of these soils seem unfounded without documentation that such reclamation can be achieved.

#### *4.11.5 Relationship between Local Short-term Uses and Long-term Productivity*

This section states, "...implementation of reclamation measures would restore the long-term productivity of affected soils after the Project was reclaimed, assuming regular monitoring for effectiveness demonstrates successful reclamation." Again, without evidence that successful reclamation can be achieved, particularly on LRP soils, this statement does not present a credible assumption.

#### *4.13 Vegetation (pg. 4.13-1)*

This section presents conflicting information on whether or not the loss of shrub-dominated communities as a result of mining operations is a short-term or long-term impact. For example, "Surface disturbance activities would result in the conversion of woody vegetation cover types to grass/forb-dominated vegetation in the short term." Given that shrub-dominated communities may take upwards of 20 years to become re-established, if at all, the WGFD believes the BLM should analyze the loss of this vegetation community as a long-term impact and detail the potential consequences of long-term shrub loss to shrub-dependent wildlife species.

##### *4.13.2.1 Vegetation (pg. 4.13-2, 5)*

This section presents the same conflicting statement as mentioned above. Additionally, Table 4.13-2 describes a seed mix to be used under the Proposed Action Alternative for interim and final reclamation. The reclamation seed mix contains big sage and antelope bitterbrush. The DEIS states that reclamation efforts to re-establish shrubs of similar stature as compared to undisturbed sites would require up to 20 years. The citation for this statement is the record of decision for the BLM Casper Field Office RMP. Documentation that sagebrush dominated vegetation communities can be successfully re-established in 20 years should be specific to the

Gas Hills area. With decades of reclamation activity in the Gas Hills area, such data should be available. If no such data has been collected and given the previous discussion about LRP soils, the BLM may consider analyzing the loss of shrub communities in the GHPA as permanent or irreversible impact.

*4.17.2.1 Terrestrial Wildlife, Big Game Species (pg. 4.17-2)*

The impacts analysis for this section should include potential exposure to toxic waste water and local populations experiencing higher levels of hunting and poaching pressure due to improved access, as is analyzed in the Small Game Species section.

*4.17.2.4 Special Status Wildlife Species, Greater Sage-grouse, Table 4.17-1 Greater Sage-grouse Habitat Potentially Impacted by the Project under the Proposed Action (pg. 4.17-7)*

This table identifies 421.6 acres of short-term surface disturbance acres in non-core area nesting habitat. Given that the lifecycle of a sage-grouse is highly dependent on sagebrush vegetation, and that sagebrush communities in the GHPA may take 20 years or more to become re-established after disturbance, the WGFD believes that all disturbance acres in sage-grouse habitat should be considered a long-term loss. Additionally, footnote "c" states that core areas are designated by the WGFD. Wyoming's core population area strategy and the delineated core areas were established by the Governor's Sage-Grouse Implementation Team (SGIT) and approved by the Governor.

*4.17.3.4 Special Status Wildlife Species, Greater Sage-grouse, Table 4.17-2 Greater Sage-grouse Habitat Potentially Impacted by the Project under the Proposed Action (pg. 4.17-15)*

This table identifies 260.3 acres of short-term surface disturbance acres in non-core area nesting habitat. Given that the lifecycle of a sage-grouse is highly dependent on sagebrush vegetation, and that sagebrush communities in the GHPA may take 20 years or more to become re-established after disturbance, the WGFD believes that all disturbance acres in sage-grouse habitat should be considered a long-term loss. Additionally, footnote "c" states that core areas are designated by the WGFD. Wyoming's core population area strategy and the delineated core areas were established by the Governor's Sage-Grouse Implementation Team (SGIT) and approved by the Governor.

*5.4 Land Use & Table 5-1 Cumulative Impact Study Area (pg. 5-5, 11)*

The table lists "Land Use" as a resource and states no impacts are anticipated from the project, thus a cumulative impacts analysis is not needed. The description of land use includes land ownership, special management areas, special designation areas, mineral development, grazing, and recreation. However, Chapter 2 of the DEIS describes "pre-mining land use" as livestock grazing and wildlife habitat (pg. 2-27). The return and support of these two land uses is essentially the bar that Cameco's final reclamation must achieve. Discussion and use of the term "land use" should be consistent and clear and should include wildlife habitat.

*5.9 Recreation (pg. 5-15)*

Ms. Kristin Yannone  
January 30, 2013  
Page 9 - WER 8435.03

The cumulative impacts analysis discloses that the quality of recreational experience in the GHPA and immediate surrounding area within 2 miles of the GHPA (i.e., the CISA) may be reduced as a result of noise and activity. However, on the previous page (5.6 Noise), the document states, "The Project is not anticipated to result in noise impacts. Therefore, it is not necessary to analyze cumulative impacts from noise." Chapter 4 discussed potential direct impacts on resources as a result of a projected 25 years of noise-generating activity in the GHPA. These analyses seem contradictory.

*5.13 Vegetation (pg. 5-16)*

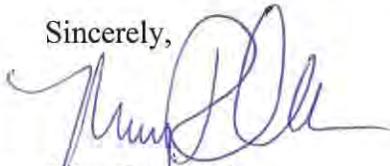
The analysis states, "The additional impacts to vegetation as a result of the Proposed Action Alternative or RPA would be long-term during the life of the Project, but would be reclaimed at the end of the Project." The WGFD believes this analysis is misleading and downplays the loss of shrubland habitat. The DEIS has established the loss of shrub-dominated vegetation communities in the GHPA is a long-term impact in itself. Thus, the long-term impacts to vegetation would not cease upon the ending of the project, but would extend 20 or more years into the future until the shrub-dominated communities have been re-established, if reclamation efforts prove to be successful.

The analysis states, "As several of the past projects are in reclamation, many of these impacts would be reduced as these historic mines are successfully reclaimed." Again, the assumption that successful reclamation can occur in the GHPA has not been substantiated. The DEIS previously described some past reclamation efforts as having resulted in monotypic grassland communities, which would not reduce vegetation impacts for shrub-dependent species in the GHPA.

Finally, the document states shrub-dominated communities would take 10 to 15 years to re-establish. This statement is different than the claimed 20 years in Chapter 4 and also different from the claimed 3 to 5 years in Chapter 2, Table 2-5. None of the shrub re-establishment timelines are supported by adequate citations or data from past reclamation efforts in the Gas Hills area.

Thank you for the opportunity to review this draft. If you have any questions or concerns, please contact Greg Anderson, North Lander Wildlife Biologist, at (307) 332-2688, or Amanda Withroder, Staff Biologist, at (307) 473-3436.

Sincerely,



John Emmerich  
Deputy Director

JE/mf/gb

Ms. Kristin Yannone  
January 30, 2013  
Page 10 - WER 8435.03

cc: USFWS  
Greg Anderson – WGFD, Lander Region  
Daryl Lutz – WGFD, Lander Region  
Kevin Johnson – WGFD, Lander Region  
Rebecca Fitzgerald – Office of Governor Mead

MATTHEW H. MEAD  
GOVERNOR



STATE CAPITOL  
CHEYENNE, WY 82002

## Office of the Governor

January 31, 2013

Bureau of Land Management  
Gas Hills Uranium Project  
Attention: Kristen Yannone  
1335 Main Street  
Lander, WY 82520

Re: Gas Hills Uranium Project Draft Environmental Impact Statement

Dear Ms. Yannone,

Thank you for the opportunity to comment on the Bureau of Land Management Gas Hills Uranium Project Draft Environmental Impact Statement (DEIS). Cameco's Gas Hills project will be located in Fremont and Natrona Counties and is expected to create 184 positions with an average salary of \$80,000 per year. The project will be a satellite operation to the existing Smith Ranch-Highland facility in Converse County. The economic impacts to the region and development of an important energy resource are significant.

The sage-grouse discussion in the DEIS does not adequately address development in non sage-grouse core areas. Only 12 acres of the 8,500 project acres are within core habitat. The lack of specificity leaves little direction or certainty for the project. I ask you specifically reference Governor's Executive Order 2011-5 on Sage-Grouse Core Area Protection.

The access road is still being discussed between the counties and Cameco, and I support BLM's requirement for on-site storage of raw materials in the event of road closures.

I ask that the Record of Decision for this project conform to the permit-to-mine under consideration by the Department of Environmental Quality Land Quality Division.

If you need clarification or I can be of assistance please contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "Matthew H. Mead".

Matthew H. Mead  
Governor

MHM:mdm

cc: The Honorable Michael Enzi, U.S. Senate  
The Honorable John Barrasso, U.S. Senate  
The Honorable Cynthia Lummis, U.S. House of Representatives  
State Director Don Simpson, Bureau of Land Management

## Graber, Steve

---

**From:** Dufresne, Doree  
**Sent:** Friday, February 01, 2013 8:35 AM  
**To:** Graber, Steve  
**Cc:** Gregory, Dan  
**Subject:** FW: Gas Hills EIS  
**Attachments:** Gas Hills PDEIS comment form\_1\_30\_13\_DEQ.xlsx

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Should be really easy to bracket ☺

**From:** [tsunderl@blm.gov](mailto:tsunderl@blm.gov) [<mailto:tsunderl@blm.gov>] **On Behalf Of** Gas\_Hills\_Uranium\_EIS, BLM\_WY  
**Sent:** Friday, February 01, 2013 7:55 AM  
**To:** Gregory, Dan; Dufresne, Doree  
**Subject:** Fwd: Gas Hills EIS

Attached are comments from the WDEQ- Air Quality Division

----- Forwarded message -----

**From:** **Ken Rairigh** <[ken.rairigh@wyo.gov](mailto:ken.rairigh@wyo.gov)>  
**Date:** Thu, Jan 31, 2013 at 3:16 PM  
**Subject:** Gas Hills EIS  
**To:** [gas\\_hills\\_uranium\\_eis\\_wy@blm.gov](mailto:gas_hills_uranium_eis_wy@blm.gov)  
**Cc:** Brian Hall <[brian.hall@wyo.gov](mailto:brian.hall@wyo.gov)>, Brian Lovett <[brian.lovett@wyo.gov](mailto:brian.lovett@wyo.gov)>

Hi Kristin,

The State of Wyoming Department of Environmental Quality - Air Quality Division appreciates the opportunity to review and comment on the Gas Hills Uranium Project Draft EIS. Attached are the WDEQ-AQD's comments regarding air quality related content within the document. Feel free to contact myself or Brian Hall with any questions.

File = Gas Hills PDEIS comment form\_1\_30\_13\_DEQ.xlsx

**Ken Rairigh, P.E.**

Air Quality Engineer

Phone: (307) 777-6188

FAX: (307) 777-5616

email: [Ken.Rairigh@wyo.gov](mailto:Ken.Rairigh@wyo.gov) **Please note new e-mail effective May 2, 2011**

Wyoming DEQ-Air Quality Division

122 West 25th Street

Herschler Bldg 2-East

Cheyenne, WY 82002

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# Department of Environmental Quality

*To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.*



Matthew H. Mead, Governor

Todd Parfitt, Director

January 30, 2013

Bureau of Land Management  
Attn: Kristin Yannone  
1335 Main Street  
Lander, WY 82520-0589

RE: Draft EIS for the Gas Hills In-Situ Recovery Uranium Project

Dear Ms. Yannone,

Thank you for the opportunity to supply comments on the Draft EIS for the Gas Hills In-Situ Recovery Uranium Project. This letter provides comments from the Wyoming Department of Environmental Quality - Water Quality Division (WQD) related to the protection of groundwater and surface water quality.

The Proposed Action generally protects water quality though required constraints, monitoring and implementation of BMPs; however, the WQD prefers the Resource Protection Alternative (RPA) because of the significantly reduced surface disturbance, use of closed loop drilling techniques, required proof of interim reclamation success, and reclamation of existing surface disturbances. Because of limited soils, and the cold and dry climate in the Gas Hills, reclamation is extremely expensive and time consuming. Because the RPA reduces the amount of surface disturbance by about 40%, reclamation costs for the producer should be reduced similarly.

### Specific Comments

Page 2-25, Section 2.3.5.1 Methodology:

Sampling wells only on a monthly basis during groundwater restoration, and only for conductivity, chloride and uranium appears to underestimate the frequency of monitoring and the number of analyzed parameters. It is our understanding that sampling for many more parameters occurs on a more frequent basis so the operator can better manage the reinjection fluid. Please contact Cameco and the WDEQ Land Quality Division for specifics on groundwater restoration, and include those in the Final EIS.

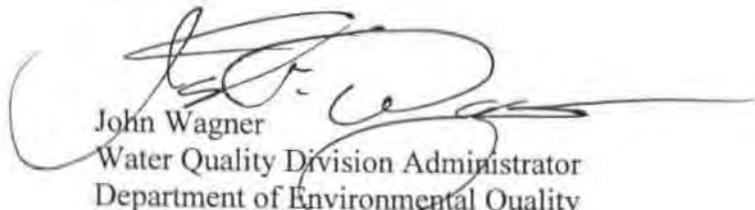
Construction Timing Constraints, global comment:

In many sections of the document, where construction timing constraints for the RPA are discussed, the language states that construction within a unit cannot begin until reclamation of another unit has been achieved; this gives the impression that final, not interim, reclamation is required prior to construction within the next unit. The entire document should be checked and corrected where necessary to clarify that successful *interim* reclamation in one unit is the prerequisite for construction in the next unit.



Please do not hesitate to contact WQD's NEPA Coordinator, Mark Conrad at 307-777-5802 for any clarification of these comments.

Sincerely,



John Wagner  
Water Quality Division Administrator  
Department of Environmental Quality

JFW/MAC/rm/13-0078

cc:

Todd Parfitt, WDEQ Director  
Brian Lovett, ADM  
Kevin Frederick, WQD  
David Waterstreet, WQD  
Mark Moxley, LQD Lander  
Rebekah Fitzgerald, Governor's Planning Office, Herschler Bldg, 2nd Floor, East Wing

# Popo Agie Conservation District

221 South 2nd, Lander, WY 82520  
Phone: 307-332-3114 FAX: 307-332-3855



January 22, 2013

Ms. Kristin Yannone  
Project Manager  
Bureau of Land Management  
1335 Main Street  
Lander, WY 82520

Dear Ms. Yannone:

On behalf of the Popo Agie Conservation District Board of Supervisors below are comments pertaining to the Draft Environmental Impact Statement (DEIS) for the Gas Hills In-Situ Recovery (ISR) Uranium Project by the Lander Field Office of the Bureau of Land Management.

PACD is governed by five locally elected officials whom are charged specifically, pursuant to §§ 11-16-101 *et seq.*, to the conservation and enhancement of our natural resources, to promote ranching and farming operations and protect the tax base.

PACD offers the following comments on the DEIS:

2.3.9 Applicant-committed Environmental Protection Measures, p. 2-36, 2<sup>nd</sup> bullet

“In those areas where there were few or no noxious weeds prior to being affected by the ISR operations, Cameco would control and minimize the introduction of noxious weeds into the revegetated areas for at least 5 years after the initial seeding had taken place.”

PACD recommends Cameco and the BLM control and minimize the introduction of noxious weeds in all of the areas affected by ISR operations, not just in those areas that had few noxious weeds to begin with.

Thank you for providing us the opportunity to comment.

Sincerely,

*Jeri Trebelcock*

Jeri Trebelcock  
Executive Director

Cc: PACD Board of Supervisors



## Wyoming Outdoor Council

wyomingoutdoorcouncil.org

444 East 800 North  
Logan, UT 84321

t & f: 435.752.2111

e: bruce@wyomingoutdoorcouncil.org



January 29, 2013

Bureau of Land Management  
Lander Field Office  
Attn: Kristin Yannone  
1335 Main Street  
Lander, WY 82520

### **Re: Comments on the Draft Environmental Impact Statement for the Gas Hills In-Situ Recovery Uranium Project**

Dear Ms. Yannone:

Please accept these comments from the Wyoming Outdoor Council regarding the Draft Environmental Impact Statement (DEIS) for the Gas Hills In-Situ Uranium Recovery Project (hereinafter, the "Gas Hills Project"). The Wyoming Outdoor Council is Wyoming's oldest statewide environmental advocacy group, and has been working for over forty-five years to protect Wyoming's public lands, environmental quality, and quality of life.

The Wyoming Outdoor Council supports adoption of the Resource Protection Alternative (RPA) as the preferred alternative for this project. The RPA would allow uranium mining to proceed pursuant to existing mining rights; however, this alternative would do a far better job of preventing unnecessary and undue degradation of the natural environment than would Cameco's Proposed Action. The Proposed Action would lead to the disturbance of 1,315 acres, or 15 percent of the Gas Hills Project Area (GHPA), whereas the RPA would lead to the disturbance of only 783 acres, or 9 percent of the GHPA. This is a dramatic difference in the level of environmental disturbance, yet this lesser level of disturbance could be achieved while still permitting mining. Under these circumstances, the RPA should be selected by the Bureau of Land Management (BLM) as the preferred alternative for this project.

The RPA would include a number of important environmental protections. These would include provisions for annual development planning, construction timing constraints, the use of closed-loop drilling systems, a disturbance offset for the additional satellite facility, a reduced number of evaporation ponds, the use of additional onsite processing so as to reduce the number of truck trips, enhanced reclamation standards, and requirements for burial of power lines. The

construction timing constraints are probably most significant, as they would require that before new mine units could be constructed interim reclamation at previously developed units would have to be shown to have achieved significant progress towards meeting reclamation success criteria. Reducing the number of evaporation ponds by the use of deep injection wells will also be beneficial so long as there is assurance these deep disposal wells have no “communication” with culinary sources of water (or potential culinary sources), either on the surface or subsurface; and providing for the use of closed-loop drilling systems is an additional beneficial provision that will help protect water quality.

For these reasons the RPA is far more likely to prevent unnecessary or undue degradation of the public lands, as the Federal Land Policy and Management Act requires. 42 U.S.C. § 1732(b). Therefore, the RPA should be selected as the preferred alternative in the final environmental impact statement. The value of adopting this alternative is emphasized by the widespread occurrence of limited reclamation potential soils that occur in the project area. Gas Hills Draft Environmental Impact Statement at 3.11-4 (Fig. 3.11-12).

Selection of the RPA as the preferred alternative would also be in alignment with BLM’s “hard rock” mining regulations. Providing for the standards specified in the RPA as conditions in the Record of Decision for this project will help ensure that unnecessary or undue degradation is prevented, as required by regulation. 43 C.F.R. §§ 3809.5, 3809.401(a). This alternative best meets the performance standards specified at 43 C.F.R. § 3809.420, so it clearly should be selected as the preferred alternative over the Proposed Action. In contrast, due to the high level of surface disturbance associated with the Proposed Action—it would disturb almost twice as much land as the RPA—it clearly has a greater level of unnecessary or undue disturbance associated with it than does the RPA. Given that mining could still successfully occur under the terms of the RPA, its terms clearly provide for improved compliance with the BLM’s performance standards, whereas the Proposed Action could lead to violations related to sequencing of operations, mitigation, providing for concurrent reclamation, access routes, handling of mining wastes, reclamation, protection of water quality, and reduction of solid waste, among other provisions. *See* 43 C.F.R. § 3809.420 (making these and other provisions). Accordingly, the RPA should be selected as the preferred alternative.

Thank you for considering these brief comments from the Wyoming Outdoor Council, and please keep us informed as this project proceeds.

Sincerely,



Bruce Pendery



## Graber, Steve

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**From:** Gregory, Dan  
**Sent:** Thursday, December 20, 2012 9:33 AM  
**To:** Graber, Steve  
**Subject:** FW: Gas Hills EIS

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Dan Gregory  
970.530.3519

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**From:** BLM\_WY\_Gas\_Hills\_Uranium\_EIS [[mailto:BLM\\_WY\\_Gas\\_Hills\\_Uranium\\_EIS@blm.gov](mailto:BLM_WY_Gas_Hills_Uranium_EIS@blm.gov)]  
**Sent:** Tuesday, December 18, 2012 2:48 PM  
**To:** Ginger Bennett  
**Cc:** Dufresne, Doree; Gregory, Dan  
**Subject:** RE: Gas Hills EIS

This is to acknowledge that your comment has been received. Thank you for your interest. Comments to the DEIS will be addressed in the final EIS.

---

**From:** Ginger Bennett [<mailto:ginger@goresengineers.com>]  
**Sent:** Friday, December 14, 2012 1:47 PM  
**To:** BLM\_WY\_Gas\_Hills\_Uranium\_EIS  
**Subject:** Gas Hills EIS

Please allow this project to move forward quickly. According to your document, Fremont County had a 7.0% unemployment rate in 2011 (table 3.10-4) Historically, Fremont County has had a higher unemployment rate than much of the nation. Allowing this project to move forward would provide much needed jobs for Fremont County. It will also provide an increase in the average household income for Fremont County, as some of those unemployed workers will be able to have income and decrease the percent of the population in poverty by providing jobs.

*Ginger Bennett*  
*Riverton, Wyoming*  
*(307) 856-2444*  
*(307) 856-0171 (Fax)*

## Dufresne, Doree

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**From:** BLM\_WY\_Gas\_Hills\_Uranium\_EIS <BLM\_WY\_Gas\_Hills\_Uranium\_EIS@blm.gov>  
**Sent:** Friday, November 30, 2012 10:20 AM  
**To:** Jim Gores  
**Cc:** Dufresne, Doree  
**Subject:** RE: Cameco Resources Gas Hills In-Situ Recovery Uranium Project.

This email confirms that your comment has been received.

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**From:** Jim Gores [<mailto:gores@wyoming.com>]  
**Sent:** Monday, November 19, 2012 4:45 PM  
**To:** BLM\_WY\_Gas\_Hills\_Uranium\_EIS  
**Subject:** Cameco Resources Gas Hills In-Situ Recovery Uranium Project.

Gentlemen,

I would offer that I find no know adverse environmental impacts associated with Cameco Resource's proposed Gas Hills in-situ uranium project. The proposed technology is well proven and has, to my knowledge, allowed the extraction of a valuable energy resource with no documented degradation of groundwater resources. The proposed project area has experienced significant disturbance as a result of past open pit uranium mining operations and subsequent abandoned mine land reclamation.

The safeguards proposed by Cameco are, in my opinion, adequate to safeguard the area's environmental resources. The company's use of the existing Carol Shop as a processing plant will reduce impacts that would otherwise certainly occur in building a new building at some alternate location. It makes use of a facility that might otherwise degrade into an abandoned building and a visual blight. In all, the project will provide improvement of the natural environment while providing significant socioeconomic benefits to the human environment through the energy resources obtained and the employment provided.

I encourage your approval of this worthy project.

Sincerely,  
Jim Gores

505 Northridge  
Riverton, WY 82501  
Phone: 856-6479

Comments Concerning the Gas Hills In-Situ Uranium Recovery Project

December 12, 2012

Contact: Jonathan Buscher  
8035 S Kalispell Way  
Englewood, Colorado 80112

Telephone: 303-386-5838  
Email: [jbuscher@msudenver.edu](mailto:jbuscher@msudenver.edu)

I am a senior at Metropolitan State University of Denver. Though I have no real experience in the field extracting uranium from the ground I have taken a course where we talked about issues in conservation biology as well as having experience working for a nonprofit organization dealing in conservation type work the last three years. My work ranged from fire mitigation and forest thinning in the around the state of Colorado, attempting to restore the South Platte River Watershed, to working with the US Fish and Wildlife at the Rocky Mountain Arsenal National Wildlife Refuge as well as the Rocky Flats National Wildlife Refuge where I learned a lot about radiation and what has been done to reclaim the areas. From the knowledge obtained from my class and my work in the conservation field, I can make a competent comment in regards to the uranium mining in the Gas Hills.

Within the state of Wyoming, mining is a huge part of many people's everyday lives. Over time, Mined goods such as oil, gas, coal, trona, soda ash, and uranium have contributed to the state's economy for many years. The market is what allows for the continuation of mining. During the 1950s through the 1980s there was a steady market for uranium thanks to the United States government. As the demand for uranium dropped, so did the price. With a declined market plants were shut down. Since oil prices are so high right now it makes sense to explore alternatives and uranium could be that choice. The use of uranium would benefit the economy because it would provide the country to become more self reliant rather than relying on foreign oil. Uranium is abundant in the Gas Hills and one pound of uranium is equivalent to 5.9 billion barrels of fuel oil or 1.9 billion tons of coal (Detweiler & Yu 2001). The provided EIS gives Cameco's proposed action, an alternative plan, and a no action plan. Reopening a uranium mine facility in the Gas Hills of Wyoming would be a good thing for the economy and if proper safety restrictions are set in place the surrounding environment could also flourish.

If the 'No Action Alternative Plan' is to take effect, then the current environment would improve. The company Cameco would be responsible for the demolition and removal of the Carol Shop Facility as well as a portion of the roads within the Gas Hills area. With the removal of the infrastructure, forty acres and topsoil will be reclaimed to those once disturbed areas. Even though five acres of the land each year would be unreclaimed due to exploration-related activities, they will eventually be reclaimed within that calendar year. With the reclamation of the land in the Gas Hills district, native species will be able to return to their original habitat and thrive off the land without risk of radiation due to plant operations.

The area already consists of 1,300 acres of disturbed land due to mining for uranium during the 1950 through the 1980s. Since then vegetation has been seen on 900 of those acres. Standing infrastructure disturbs approximately 131 acres of land and the plan would be to reuse the already existing Carol Shop Facility along with other standing infrastructure. In using existing power lines and roads, only improvements will need to be done in order to maintain safety for workers and the environment. Improved power lines would allow minimizing potential electrocution of raptors. Since this area is a pre-existing facility less land will have to be disturbed in order to get things on way towards working order. As stated in the draft evaporation ponds would be built with high safety precautions to ensure livestock and wildlife cannot access the area. The collected topsoil from the ponds would be stored accordingly to get rid of any threat of contamination. In some way water will be used throughout the uranium extraction and in getting that water the mines will establish wells within the area. These wells would use the water table below the ground in everyday operations. As of late there have been many issues with the water table in neighboring states where there is not enough water for farmers and ranchers to use as much as has been used in previous years. With the mine accessing this water it

will provide less water for those ranchers and farmers. Within the proposed mining area there are a total of five mines. Under the proposed plan all five mines would be improved and worked on for the first fifteen years of the project. The total project lifetime is expected to be about twenty-five years, after which the infrastructure will be decommissioned and the land would be reclaimed. Total there is construction disturbance measuring at 1,315 acres and surface disturbance measuring at about 633 acres.

The proposed alternative plan would be the best plan for the mining of uranium in the Gas Hills. Though this method does follow the proposed action plan there are many different alternatives which make this more appealing and better for the environment. The plant would still operate in the same number of years but not all the mines would start operations at the same time. Mines would operate two at a time with Unit 1 and Unit 2 open. As soon as Unit 1 was reclaimed then Unit 3 construction would begin. Not only would the mud pits be eliminated but they would be replaced by closed loop drilling, minimizing greenhouse gasses and surface disturbances. The use of closed loop drilling systems will allow for control and containment of hazardous chemicals and drill cuttings without being disposed of in a mud pit (Pendery 2010). When it comes to the mining of uranium other hazards could come to life such as radon. Radon is found in uranium and can pose disastrous affects to the surrounding environment. One of the higher uranium emissions is radon which accounts for approximately 80% of the collective effective dose equivalent which can negatively affect the biological diversity in the area as well as pose a threat of exposure to people living in the area (Xie et al. 2012). With the addition of a closed loop potential radiation levels emitted from uranium can be diminished. Reduction in evaporation ponds is another change within the alternative plan. Instead of having evaporation ponds as primary means for disposing wastewater they would be replaced by deep disposal wells and instead be used more as backup to the wells. Yet another advantage to this plan is the change in how the uranium is transported. The method to be used in the alternative plan would be to transport yellowcake slurry which has a higher concentration of uranium than the ion-exchange method, resulting in fewer truckloads of material.

In the long run, reopening the Gas Hills facility for Uranium mining would be a good thing. The state of Wyoming has one of the largest uranium ore deposits in the country and much of that is in the Gas Hills area. The opening of the plant would benefit the state economy and provide jobs for many people for many years. The EIS describes the three outlined plans and the methods to harvest the uranium as well as possible concerns for the environment. Out of all three methods the alternative plan is the best choice because of its outlined plan in obtaining the uranium.

## References

- Detweiler G., and Xiaohong Yu. 2001. Wyoming Mining Industry: An in-depth Analysis. Wyoming Department of Employment, Research & Planning. Available from <http://wydoe.state.wy.us/lmi/0498/0498a2.htm> (accessed December 2012).
- Pendery, B. 2010 BLM's Retained Rights: How Requiring Environmental Protection Fulfills Oil and Gas Lease Obligations. *Environmental Law*. 40.2.
- Xie, D., Wang H., and Kearfott, K. 2012. Modeling and experimental validation of the dispersion of Rn-222 released from uranium mine ventilation shaft. *Atmospheric Environment* (60):453-459.

Comment Date: December 14, 2012

Gas Hills Uranium Project Draft EIS

Name: [REDACTED]

City: [REDACTED]

State: CO

Zip: 80002

Country: USA

Email: [REDACTED]

Privacy Preference: Please withhold personal identifying information from public review

Thank you for allowing me to make comments in response to the Gas Hills Uranium Project. [REDACTED]

[REDACTED] Having studied coursework in general biology, zoology (both invertebrate and vertebrate), genetics, botany, organic chemistry, animal behavior, and conservation biology, I am familiar with concepts of how land developments can negatively impact wildlife populations, habitat, and biodiversity as a whole. I propose moving forward with this project under action of the Resource Protection Alternative discussed. I understand that the “No Action Alternative” would have no future, additional impacts on the environment within the Gas Hills development area; however, I believe that the BLM has a duty to uphold its mission to promote multi-use of the land, including recreational, agricultural, and mining activities.

To begin, the Proposed Action plan addresses the needs of Cameco’s request for approval to extract uranium through operations, which suggest a potential of having significantly greater impacts to existing natural resources, compared to the alternate specifics mentioned in the Resource Protection Alternative, which afford better protection of resources and potentially limit impacts to a certain degree. The Proposed Action plan proposes higher levels of noise and surface disturbance, the use of above-ground power lines, more retention ponds which can become toxic, and longer reclamation turnaround times.

The Resource Protection Alternative decreases surface disturbance by more than 50%, and as a result, decreases noise disturbance, public road access, and destruction of habitat. Having less noise disturbance creates a natural buffer zone between development areas and areas utilized by certain wildlife species, such as active nest sites for raptors, or winter range for pronghorn and deer. Limiting public road access reduces opportunities for poaching activity as well as noise disturbance. Less surface development also means a reduction of habitat loss (increased food resources) and a less likely chance of destroying burrowing species such as prairie dogs, rabbits, and mice, all of which play a role in sustaining populations of predators such as raptors, coyotes, foxes, and bobcats. Another benefit of limiting development is shortening the amount of time it takes to reclaim areas back to their natural setting. Short-term reclamation times mean bringing back vegetation and habitat, which in turn, brings back species who utilize that particular resource faster.

Burying power lines underground will also be beneficial to protecting birds from perching on wires and being electrocuted, especially in areas where raptors and species of special concern can be found. With this alternative, the company eliminates the risk of having to mitigate for species killed by above-ground power lines - a win-win for all parties involved.

One of the negative aspects of this project, which both action plans share, is the need for having "evaporation ponds," which can hold toxic waste water and have the potential of causing death to any wildlife using the water. Both propose fencing around the ponds in an effort to keep species out of harm's way, however, this is difficult to do when trying to prevent burrowing species and birds from getting past the fence. It is inevitable that such species will be negatively impacted by this, however, the Resource Protection Alternative permits fewer of these ponds in the project, thus decreasing the statistical probability of having as many or more deaths caused by consuming the toxic water.

The last benefit to operating under the Resource Protection Alternative is constructing a "closed loop drilling system." This is opposed to drilling traditional well-like pits in the ground which can turn into mud and provide an excellent habitat for mosquitoes. Having more of these "mud pits" and more evaporation ponds allows for a higher risk of transmission of the

West Nile virus (WNV) from mosquitoes to birds. This type of closed drilling system does not require development of such pits, nor does it require as many evaporation ponds; this ultimately benefits the wildlife in the area by decreasing their chances of consuming toxic waste water and becoming infected with WNV.

In order to reduce the overall environmental impacts this project is facing, I strongly suggest implementing the Resource Protection Alternative because it takes into account the intrinsic value natural resources hold and recognizes that we have a duty to develop in a responsible, sustainable way. Thank you again for taking time to review this comment.

**From:** [BLM\\_WY\\_Gas\\_Hills\\_Uranium\\_EIS](#)  
**To:** [Dufresne, Doree](#); [Gregory, Dan](#)  
**Subject:** FW: Cameco DEIS air qaul comment  
**Date:** Thursday, December 20, 2012 10:05:32 AM  
**Attachments:** [Suggested Comments on Gas Hills Draft EIS.docx](#)

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Here is the attachment from Strathmore's comments.

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**From:** Tom Ochsner [mailto:[tom.ochsner@gmail.com](mailto:tom.ochsner@gmail.com)]  
**Sent:** Tuesday, December 18, 2012 9:09 AM  
**To:** BLM\_WY\_Gas\_Hills\_Uranium\_EIS  
**Cc:** Ronn Smith  
**Subject:** Cameco DEIS air qaul comment

Dear Kristin Yannone,

Ronn Smith with IML/Sheridan has been retained by Strathmore (STM) to perform air quality modeling for our Gas Hills mine and uranium recovery facility. In preparation for the STM air quality modeling effort, Ronn recently reviewed the Cameco DEIS document available from the BLM's website. Ronn has asked if I could facilitate forwarding his comment concerning the air quality model found in the aforementioned document.

Please find Ronn Smith comment concerning Cameco DEIS/air quality model attached herein. Thank you for your time and attention to this matter, and let me know if I can be of further assistance.

*Thomas Ochsner*

Sr. Mine Engineer  
Strathmore Resources (US) Ltd.  
2420 Watt Court  
Riverton, Wy 82501  
Office: (307) 856-8080  
Fax: -8084  
Cell: (307) 851-6428

## Suggested Comments on Gas Hills Draft EIS, Air Quality Sections

The following comments are confined to estimates of fugitive dust emissions from general construction activities, which appear to be significantly understated in the Draft EIS.

1. Appendix E of the Draft EIS cites the method for estimating non-traffic-related fugitive dust. Section 4.1 of Appendix E states, "A generally accepted method of estimating fugitive dust emissions is to use a typical construction project. The average daily fugitive dust emissions for a typical construction project are estimated to be 1.2 tons PM<sub>10</sub> per acre per month for construction activities (USEPA 1985)." Several issues are raised by this statement.
  - First, the citation is incorrect; this method comes from a 1995 EPA document incorporated into AP-42, Section 13.2.3.3.
  - Second and more importantly, had this method been applied correctly, the maximum annual PM<sub>10</sub> emissions would be far greater than 9.0 tons per year (tpy) as listed in Appendix E, Table 3-2. To illustrate, the project schedule in Figure 2-3, Section 2 of the Draft EIS, and the acreages listed in Table 2-1, Section 2 of the Draft EIS imply that total construction disturbance in the summer of year 3 is 521 acres. If construction only occurred during June and July, total PM<sub>10</sub> emissions would be 521 acres X 2 months X 1.2 tons/acre/month = 1,250 tons for the year – far from the 9.0 tpy represented in the document.
2. Appendix E, Table 3-1 shows a PM<sub>10</sub> emission rate of 1.82E-11 g/sec/m<sup>2</sup>. Even if the 9.0 tpy of PM<sub>10</sub> emissions in Table 3-2 were correct, this equates to a much higher emission rate intensity. For example, spreading 9.0 tpy uniformly over 521 acres would yield an average emission rate of 1.23E-07 g/sec/m<sup>2</sup> – nearly four orders of magnitude higher. Since this emission rate is input to the SCREEN3 model to predict impacts, those impacts would be artificially low. This may explain the predicted, highest 24-hour impact (0.8 µg/m<sup>3</sup> in Table 4-2 of Appendix E). This error further compounds the understatement of emissions from general construction activities. An experienced modeler would expect predicted 24-hour PM<sub>10</sub> impacts from construction activities to be much higher than 0.8 µg/m<sup>3</sup> at model receptors placed along the project boundary.
3. A footnote to Table 4-3 in Appendix E states, "Emission estimates do not include commuter vehicle emissions." In most ISR projects, commuter traffic constitutes the single largest source of fugitive dust from unpaved roads. This component should be included in the analysis to make the results more representative.
4. Appendix E appears to be internally inconsistent. Table 4-5 of Appendix E summarizes total project emissions for all criteria pollutants. It shows estimated annual PM emissions of 9.0 tpy. This is the same figure presented for PM<sub>10</sub> in Table 3-2 of Appendix E, which does not include engine combustion or road dust contributions. Appendix E, Table 3-5 shows total engine PM emissions of 15 tpy. Road dust emission totals are not listed; the document only shows the formulas used to obtain these totals and their modeled impacts on ambient PM<sub>10</sub> concentrations. Logically, however, the total PM<sub>10</sub> emissions can be no less than 24 tpy.

The suggested solution to these problems is to present sufficient detail to enable the reader to verify the calculation of emission rates from the project schedule, equipment activity levels, and disturbed acreage. Even when properly applied, EPA frowns upon using the cited method for calculating fugitive dust emissions from construction related activity for specific projects. Section 13.2.3.3 of AP-42 states,

“It is strongly recommended that when emissions are to be estimated for a particular construction site, the construction process be broken down into component operations.” Had this procedure been followed, the calculation errors might have been avoided.

The mistakes in the Draft EIS could establish a false reference that might jeopardize the ability of future projects in the region to obtain regulatory approval. If the fugitive dust emissions of those future projects are calculated correctly, they may appear large by comparison to the proposed Gas Hills project. ISR projects in other regions of Wyoming have estimated much higher annual fugitive PM<sub>10</sub> emissions than the Gas Hills Draft EIS (for example, 136 tons/year at the Nichols Ranch ISR Project and 203 tpy at the Ross ISR Project).

**From:** [tsunderl@blm.gov](mailto:tsunderl@blm.gov) on behalf of [Gas Hills Uranium EIS, BLM WY](#)  
**To:** [Gregory, Dan](#); [Dufresne, Doree](#); [Kristin Yannone](#)  
**Subject:** Fwd: Gas Hills ISR Project Comments  
**Date:** Thursday, January 31, 2013 7:10:15 AM

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----- Forwarded message -----

**From:** **Jazmyn McDonald** <[jzmc@wyoming.com](mailto:jzmc@wyoming.com)>  
**Date:** Wed, Jan 30, 2013 at 7:34 PM  
**Subject:** Gas Hills ISR Project Comments  
**To:** [gas\\_hills\\_uranium\\_eis\\_wy@blm.gov](mailto:gas_hills_uranium_eis_wy@blm.gov)

Bureau of Land Management  
Attn: Kristin Yannone  
1335 Main Street  
Lander, WY 82520-0589

ATTN: KRISTIN YANNONE,

I am taking advantage of this opportunity to make a few last minute comments on the proposed CAMECO project in the Gas Hills.

For the last four years, I have conducted an annual Breeding Bird Survey for the USGS that takes a census starting from the junction of Posion Spider road with N Dry Creek Rd (Natrona County 321); so I have camped and counted within two miles of the GHPA numerous times.

Therefore I'd like to urge BLM to choose the RESOURCE PROTECTION ALTERNATIVE for these reasons:

1) as Table 2-5 points out on pg 2-50 under Population, Employment and Income: the largest number of jobs (166) would be created under that option.

2) and again with reference to Table 2-5, page 2-53, under the RPA approximately 733 acres of habitat would be disturbed; and as posited on page 2-29 under Noise, there would be less noise disturbance due to fewer heavy truck trips across the area. Having spent time in this spot, I can assure you that the visual and auditory impact of even one vehicle carries for several miles. Given that it is an increasingly established fact that these kinds of disturbances do interfere not only with the feeding and general security of the local bird and wildlife populations, but also with their ability to communicate (by snort or song or alarm thump), it seems that the RPA would be a win / win for both the operators and the wildlife.

3) And finally, I'd just like to say that I have observed eleven of the 17 Migratory Bird Species listed in Appendix D as birds 'potentially' occurring in the area; so at least that many Species of Conservation Concern (most particularly the Great Sage Grouse) actually do occur in the GHPA.

Recognizing that you and your team have put a lot of hard work into this,  
thank you for your consideration of these comments.

Jazmyn McDonald

PO Box 1808  
Lander WY 82520  
307.332.3455



January 29, 2013

Kristen Yannone  
Bureau of Land Management  
Lander Field Office  
1335 Main Street  
Lander, WY 82520

Comments on Draft Environmental Impact Statement for the Gas Hills  
In-Situ Recovery Uranium Project

**CAMECO RESOURCES**

**Project Development**  
550 N. Poplar Street  
Suite 100  
Casper, WY  
82601 USA

Tel: (307) 237 - 2128  
Fax: (307) 237 - 2142

[www.cameco.com](http://www.cameco.com)

Dear Mrs. Yannone:

Cameco Resources (Cameco) is writing to provide you with its comments on the Gas Hills Draft Environmental Impact Statement (DEIS). Cameco appreciates the hard work that the BLM has put into the preparation of the DEIS. There are, however, a number of issues that Cameco believes should be clarified, altered or amended in the preparation of the Final EIS (FEIS). This comment letter will discuss several of those issues. Where appropriate, Cameco has suggested changes to some of the language in the DEIS, with an explanation of why it believes those changes are necessary. Cameco views this letter as the first step in a process of developing an FIES that will fully satisfy both the BLM's legal responsibilities and Cameco's commercial objectives.

### **Introduction and Overview**

As the BLM is aware, the U.S. Nuclear Regulatory Commission (NRC) has already reviewed Cameco's proposed Gas Hills In-situ Recovery (ISR) Uranium Project (the Project) in connection with Cameco's request for a Source Materials License and Radioactive By-Products Material License. The BLM served as a cooperating agency in the preparation of NRC's Environmental Assessment (EA). In addition to receiving licenses from NRC, the Project is subject to regulatory review and approval by several Wyoming state agencies, including the Department of Environmental Quality (WDEQ), the Game and Fish Department (WGFD) and the Department of Transportation (WYDOT). Cameco has been diligently navigating this regulatory landscape for more than a decade.

The DEIS explains that the BLM is responding to Cameco's request for approval of its Plan of Operations (PoO) for the Project. DEIS at 1-3. Under applicable laws, "the BLM has the obligation to allow and encourage claim holders" like Cameco "to develop their claims, subject to restrictions to ensure this development will not cause *undue* or *unnecessary* degradation of public lands." *Id.* (emphasis added). The DEIS suggests two strategies for fulfilling this legal

**NUCLEAR.** *The Clean Air Energy.*

obligation while avoiding undue or unnecessary degradation of public lands—a “Resource Protection Alternative” (RPA) and a series of mitigation measures. Cameco supports efforts to prevent unnecessary environmental harm similar to many of the proposals advanced in the DEIS. Unfortunately, several aspects of both the RPA and the DEIS’s mitigation measures are severely flawed.

To begin with, a number of the proposals in the RPA, and several of the proposed mitigation measures, would impose unwieldy administrative burdens on Cameco without corresponding environmental benefits. Cameco is already obligated to make numerous submissions to state agencies, including an annual report required by the Wyoming Environmental Quality Act W.S. 35-11-411. The additional paperwork suggested in several parts of the RPA and in several mitigation measures would be redundant of these submissions. More problematic, such new and unnecessary reporting requirements would threaten project timing by adding layers of bureaucracy. Because the timing of the Project is essential to its economic viability, Cameco cannot support the inclusion of extra administrative hurdles as part of the DEIS.

In addition, several proposals in the RPA and several proposed mitigation measures would add significant costs to Cameco. In some cases, these costs would be enough to threaten the Project’s economic viability. If degradation cannot be prevented without threatening the overall Project, then that degradation does not qualify as “undue or unnecessary” under applicable regulations. Put differently, the alternative ultimately approved by the BLM should not be so costly that Cameco must reconsider its Project, because that would contravene the BLM’s obligation to “allow and encourage” the development of mining claims.

More broadly, the DEIS does not always clearly identify the environmental harms that the RPA and mitigation measures are designed to protect against, much less explain how the RPA and mitigation measures would prevent those harms. The DEIS rightly observes that is the Project “located in an area of historic uranium mining development.” DEIS at 1-1. This past development, which has occurred in cycles since the 1950s, has permanently altered the landscape in the Gas Hills area. The BLM’s responsibility to prevent undue or unnecessary degradation of the current landscape does not extend to requirements designed to improve existing (pre-Project) environmental conditions. Unless Cameco’s Project will cause a specific and identifiable environmental effect, there is no need for an RPA provision or a mitigation measure.

All of these concerns are set forth more specifically below. Cameco wants to work with the BLM as it prepares an FEIS for the Project that will protect the environment while ensuring that the Project remains economically viable and technically feasible.

## **Purpose and Need**

The first chapter of the DEIS includes a brief description of “the purpose and need for the BLM action related to the Project.” Specifically, the DEIS states that “[t]he purpose of the BLM action related to the Gas Hills Project is to respond to Cameco’s request for approval of the PoO to extract uranium from valid existing mining claims . . . .” DEIS at 1-3. The DEIS goes on to explain that the need for this BLM action “is established by the BLM’s responsibility under the

laws and regulations regarding the availability of locatable minerals on federal lands, including uranium . . . .” *Id.*

Although the DEIS acknowledges that “the BLM has the obligation to allow and encourage claim holders to develop their claims” (*id.*), it does not include any discussion of Cameco’s purposes or needs. Such a discussion is fully appropriate as a complement to the agency’s statement of its own purpose and need. Indeed, the Tenth Circuit Court of Appeals has recently noted that “where a private party’s proposal triggers a project, the agency may give substantial weight to the goals and objectives of that private actor.” *BioDiversity Conservation Alliance v. Bureau of Land Mgm’t*, 608 F.3d 709, 715 (10th Cir. 2010).

Cameco believes that a brief discussion of its “goals and objectives” in developing the Project would provide invaluable context for the reader of the DEIS, and would better frame the agency decisions discussed in section 1.3. Accordingly, Cameco proposes adding the following language after the last paragraph in Section 1.2:

In conducting its NEPA review of the PoO, the BLM also gives substantial weight to Cameco’s goals and objectives. As noted above, Cameco intends to develop the uranium deposits in the Gas Hills Project Area using an ISR process. Cameco’s PoO envisions five different mine units, constructed and operated in phases over the course of approximately twenty-five years (including time for final project reclamation and decommissioning). Cameco’s PoO is intended to ensure the Project’s economic viability in light of applicable reclamation requirements.

### **Resource Protection Alternative**

The DEIS includes detailed discussion of a “Resource Protection Alternative” (RPA), which the BLM states “was developed to respond to public and agency input collected during the scoping process.” DEIS at 2-36.

Although the DEIS indicates that the RPA “would utilize the same processes and take place over the same time period” as Cameco’s proposed action (*id.*), Cameco has identified several aspects of the RPA that would threaten the proposed timing of the project. Furthermore, while the DEIS’s discussion indicates that the RPA is intended to reduce the Project’s environmental effects, many of the provisions of the RPA are either already included in Cameco’s plans, or already required by law.

Cameco supports project-appropriate, economically and technically feasible changes to its PoO that will reduce the Project’s environmental effects. Unfortunately, as discussed in more detail below, Cameco believes that many of the changes proposed as part of the RPA are unnecessary, impractical, infeasible, or not appropriately tailored to the Project. Cameco therefore recommends that the BLM either revise the RPA to address the concerns described below, or reject the RPA as inconsistent with the Project’s purpose and need. A summary of these recommendations can be found in Appendix 1.1 at the end of this letter.

## **1. Annual Development Planning**

Section 2.4.1 of the DEIS proposes that Cameco prepare an annual development plan prior to initiating surface disturbance. As described in the RPA, this annual development plan would include a topsoil management plan intended to limit surface disturbance.

As an initial matter, Cameco believes that submission of a topsoil management plan would not result in any substantially different environmental consequences than the Proposed Action Alternative. By meeting the requirements of the PoO, the Wyoming Department of Environmental Quality Land Quality Division (WDEQ-LQD) permit, and the Surface Water Pollution Prevention Plan (SWPPP), by training its employees and contractors, and by participating in the LQD and BLM inspections of the project area, Cameco will protect important topsoil resources will and minimize erosion. Moreover, Cameco is *already* required to submit an annual report to the WDEQ Land Quality Division on or before August 7 of each year pursuant to Wyoming Environmental Quality Act W.S. 35-11-411. The BLM will receive a copy of this annual report.

The following are requirements under this reporting format:

### **G. New Disturbance during the Reporting Period Past Year**

- 1. List the depth and volume of topsoil and subsoil salvaged and stockpiled. Show all stockpiles both short term and long term on a map. Include the topsoil pile identification number, and protection measures employed and show the location on a map.**
- 2. List the volume of overburden removed and stockpiled. Include the location, overburden stockpile identification number, and protection measures employed.**
- 3. Describe new buildings constructed, location, purpose, and square footage.**
- 4. Describe new ponds constructed including location, purpose, size, capacity, and disturbance acreage.**
- 5. List new drill holes including the total number, location, depth of each hole, Hole ID #, method of abandonment and status of abandonment.**
- 6. New roads and utilities such as pipelines and power lines shown on a map and total acres disturbed indicated.**
- 7. Other.**

The additional requirement in the RPA that, prior to any surface disturbing activity, Cameco flag and survey all areas of disturbance, including 2-track access routes, and that it further require mechanized equipment to remain within the flagged areas is impractical, and still would not result in substantially different consequences than the Proposed Action Alternative. Flags posted around 2-track access routes would be impractical because the flags would be subject to harsh weather and wind, which would leave them prone to being blown and scattered around the mining areas. Cameco proposes instead to mark the entrance to well fields with signs advising

traffic to stay on established 2-tract access routes. In addition, Cameco employees are trained to follow the mine site transportation policy of “one way in, one way out” to minimize disturbance.

Finally, the DEIS proposes that Cameco designate reclamation coordinators to observe surface disturbing activities and ensure proper topsoil protection measures are being taken. This modification, like the other changes required by the annual development plan, would not result in environmental consequences substantially different than the Proposed Action Alternative. Cameco has already agreed that all mine unit construction and operations personnel, including contractors, will be instructed on the importance of topsoil and vegetation resource conservation and management prior to starting work at their respective jobs. Acceptable work practices that will conserve and protect these resources will be outlined in a Standard Operating Procedure. The designation of separate reclamation coordinators is thus an expense that is not needed to ensure protection of topsoil.

For all of these reasons, Cameco disagrees with the DEIS’s estimate that annual planning would reduce surface disturbance by 50 percent, and cross-country travel effects by 30 percent. (The DEIS does not explain how these quantitative conclusions were reached, beyond reference to “an analysis” of Figures 2-6, 2-7 and A-1. If Figures 2-6, 2-7 and A-1 need to be adjusted to reflect the discussion above, Cameco would be happy to provide such updated figures.)

Beyond the fact that an annual development plan would not offer significant environmental benefits, the requirement proposed in the RPA would place additional, unreasonable administrative burdens and expenses on Cameco. The Project already requires Cameco to interact with numerous regulators on a consistent basis. Adding another annual requirement would almost certainly require a longer administrative process, which would upset the timing of the Project as a whole. Since the Project’s economic viability depends on its ability to remain on schedule, this additional, redundant planning process is completely impracticable. Thus, if the Annual Development Planning requirements are not dropped from the RPA, that alternative will fail to meet Cameco’s objectives for the Project.

## **2. Construction Timing Constraints**

Section 2.4.2 of the DEIS proposes “construction timing constraints” that would not allow construction of Mine Unit 3 until interim reclamation on Mine Unit 1 “has been shown to make significant progress toward meeting reclamation success criteria.” Similar constraints would be imposed on construction of Mine Unit 4, which would not begin until Mine Unit 2 interim reclamation is successful, and Mine Unit 5, the construction of which would be postponed until Mine Unit 3 interim reclamation has been demonstrated to be successful.

As an initial matter, the meaning and intent of the construction timing requirements in Section 2.4.2 are ambiguous, and at a minimum need to be clarified before they can be included in the Final Environmental Impact Statement (FEIS). The description of the constraints initially states that “the BLM would not allow construction of Mine Unit 3 until interim reclamation on Mine Unit 1 has been shown to make *significant progress* toward meeting reclamation success criteria”; a subsequent sentence, however, states that “construction of Mine Unit 4 would not begin until Mine Unit 2 interim reclamation *is successful*.” DEIS at 2-39 (emphases added). Adding to the uncertainty, the DEIS states, without further explanation, that “[r]eclamation

success would be based on a quantitative demonstration that vegetation establishment on reclaimed areas was trending toward criteria set forth in Appendix E.” *Id.* Assuming that these phrases are all intended to refer to the same benchmarks, the description in the DEIS leaves it completely uncertain what “quantitative” level of “progress” would allow construction on a new mine unit, and makes no effort to precisely define what would qualify “interim reclamation” efforts as “successful.” That degree of uncertainty makes it impossible for Cameco to reasonably plan its investments in the Project.

From a technical standpoint, BLM’s proposal in the EIS is unrealistic and unsupported in that it is based on an artificially established vegetation density (80% Ground Cover) and diversity (65% of the total plant species must be from major grasses, forbs and shrubs and no invasive species present. Currently Gas Hill’s reclamation practices have established the use of Comparison Areas (COMA) which address species (density/diversity and invasive species) based on what is actually out there. Upon DEQ Permit update approval, Cameco will likely be subject to something similar for vegetation bond release. Interim reclamation will be adequate ground cover and erosion stabilization. It is unrealistic to establish a criterion that is more stringent than what site conditions dictate i.e. what is naturally present under baseline.

However, in reality the proposed Cameco mine units range from badlands (significantly less than 80% cover), high prairie, already disturbed lands (with invasive species) and lands that have been reclaimed by past mining practices and/or the Wyoming AML. This latter zone has existing reclaimed disturbances which clearly do not meet the BLM requirements of successful interim reclamation. Not only did previous operators and AML not use the same seed mix as BLM requires- hence existing ground may not have 65% of the total plant species from major grasses, forbs and shrubs, but more importantly invasive weeds are present. Cameco has committed to a weed control program, but given the unlimited source of invasive weed seeds, cannot guarantee the annual success of this program. Furthermore, interim reclamation should be to establish groundcover and stabilize erosion, It would be unreasonable to establish a criterion for reclamation that does not consider the baseline conditions.

Successful revegetation in the Gas Hills is not only dependent on Cameco’s revegetation practices which are carefully addressed in the DEQ/LQD permit and the BLM Plan of Operations, but more importantly site conditions like soil depth, soil quality, microclimate conditions (aspect, elevation and protection from wind) and timing. The availability of moisture varies not only annually but even locally. Whereas a convection cell may drop ½ inch or rain in the West Gas Hills, there may be no moisture in the East Gas Hills. Storm intensity will affect the success of revegetation within a mine unit. Should a major event destroy a revegetation effort, Cameco has committed to reseed and revegetate the disturbed area at the next available seeding window. This need to reseed will adversely affect the timing of revegetation success and the BLM EIS RPA proposal does not adequately address these site conditions beyond Cameco’s control.

Setting aside the uncertainty it creates, the provision’s imposition of new construction timing constraints of any kind is both unnecessary and infeasible. Under its Wyoming Department of Environmental Quality’s Land Quality Division permit and its PoO, Cameco has already committed to timely interim reclamation, which will occur as soon as each mine unit is developed. Moreover, requiring Cameco to cease construction of a new mine unit could lead to a

temporary shut-down of the mining facilities, resulting in significant economic hardship and an unplanned extension of the Project schedule. This sort of threat to the Project's viability would be completely inconsistent with Cameco's objectives for the Project, with the DEIS's assertion that the RPA would not change the Project's timing or processes, and with the BLM's obligation to encourage the development of mining claims.

For all of these reasons, either the discussion of Construction Timing Constraints should be removed from the RPA, or the RPA should be rejected as inconsistent with Cameco's purpose and need for the Project.

### **3. Closed Loop Drilling System**

Section 2.4.3 of the DEIS proposes to require the use of closed loop drilling mud systems instead of excavated mud pits for the management of drilling fluids and cuttings. Under this aspect of the RPA, the mud pit and associated topsoil and subsoil piles in the Proposed Action Alternative would be eliminated and replaced with aboveground tanks and interconnected hoses that would contain all drilling fluids and cuttings.

A closed loop drilling system is both unnecessary and technically and economically infeasible for the Project.

To begin with, although closed loop drilling systems have proven beneficial for much larger oil and gas drilling operations, its use for ISR drilling would not be as useful for a number of reasons. The DEIS provides no evidence that use of a closed loop drilling system in the Project would result in significantly different environmental consequences than the Proposed Action Alternative beyond a reduction in surface disturbance.

In fact, the vegetation disturbance impacts associated with the portable mud pits included in the Proposed Action Alternative would be no greater than the impacts associated with a centrally located closed loop pit. Additionally, the need for longer hoses from a centrally located closed loop pit to well locations increases the risk of spills and leaks and increases surface disturbance as the hoses are moved between wells. The disposal of drilling mud and cuttings at a centralized closed loop pit could require more than one trip per day from each well, thereby increasing on site traffic and associated impacts, including increased potential for accidents. In light of these considerations, Cameco does not believe that a closed loop system would reduce surface disturbance.

The DEIS further asserts that use of closed loop drilling systems could increase drilling rates, thereby reducing the time required to drill a well, reducing water use during drilling, enabling the recycling of water and drilling mud between wells, and facilitating improved reclamation by eliminating excavation of subsoils. Again, the DEIS does not provide evidence to support its conclusion that closed loop drilling systems are faster than the proposed drilling method; nor does the DEIS take into consideration the additional time necessary to transport or dispose of waste water under the closed loop proposal. For these reasons, Cameco does not believe that a closed loop system would increase drilling rates.

It is also vital to recognize that use of a closed loop drilling system would significantly increase costs. Specialized equipment would be required for the system, and, during cold weather conditions, keeping fluids in the additional above ground equipment such as tanks and hoses from freezing would increase drilling time and fuel costs. Given the lack of environmental benefits discussed above, an alternative that required such a significant expenditure would be inconsistent with the Project's purpose and need. Therefore, the closed loop drilling system should either be eliminated from the RPA, or the RPA should be rejected in its entirety.

#### **4. Disturbance Offset for Additional Satellite Facility**

Section 2.4.4 of the DEIS proposes to require the reclamation of existing unreclaimed or poorly reclaimed surface disturbance in the Gas Hills Project Area to offset surface disturbance associated with construction and operation of an additional satellite facility.<sup>1</sup>

Cameco is already required to reclaim the surface that is disturbed as a result of the Project, including any additional satellite facilities. The requirements of Section 2.4.4 seem to require *additional* reclamation of locations that would not be affected by the Project. This sort of "double reclamation" greatly increases the burdens on Cameco, especially given the open-ended language in the DEIS.

Requiring Cameco to reclaim areas that it is not responsible for disturbing creates significant cost and schedule uncertainty for the Project. It is impossible to know how much time and effort would be required to implement the type of "offset" reclamation contemplated in the DEIS. Because maintaining the Project's timing and cost are both essential to maintaining the Project's overall viability, Cameco cannot accept the proposal in Section 2.4.4. Accordingly, the disturbance offsets for possible additional satellite facilities contained in that section should be eliminated from the RPA. If the requirements of Section 2.4.4 were not eliminated, the entire RPA would have to be rejected as inconsistent with the Project's purpose and need.

#### **5. Reduced Number of Evaporation Ponds**

Section 2.4.5 of the DEIS provides that the number of evaporation ponds would be reduced during operations and that the primary method of wastewater disposal would be injection into deep disposal wells.

While Cameco agrees that use of deep disposal wells is the preferred solution for wastewater disposal at the Project, the technical feasibility of such wells is dependent on specific geologic conditions at the site. The evaluation and permitting of potential deep disposal well sites

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<sup>1</sup> Note that under Section 2.3.1.1 of the DEIS, the proposed satellite facilities would be centrally located buildings containing equipment for preparing ISR solutions, as well as the ion-exchange equipment for "**capturing**" uranium and other materials from water used in the ISR process. Cameco proposes to use the existing Carol Shop facility for the first satellite facility to be developed for the Project. The existing building would be upgraded to house the central water treatment facility, ion-exchange columns, associated equipment and piping, offices, and maintenance facilities. One additional satellite facility would be constructed to house additional ion-exchange, resin loading and unloading, and future reverse osmosis (RO) capacity located at either of 2 possible satellite locations, as shown in Figure 2-4. While Cameco may decide not to build the additional satellite facility, the BLM has assumed Cameco would construct 1 additional facility at 1 of the 2 possible locations.

requires an analysis of the geologic conditions to ascertain if the receiver formation not only meets the stringent regulatory requirements but is also able to accept a significant amount of water. Currently, the permitting with the Wyoming Department of Environmental Quality, Water Quality Division of the two test wells is an ongoing project. Even the successful permitting of the disposal wells does not guarantee that the capacity of the geologic formations will be sufficient to meet the disposal needs for the Project.

Cameco currently does not have the data required to evaluate the quality of the receiver formation to conclude that enough disposal capacity exists to limit the project to two evaporation ponds. The evaluation of data on the quality of test wells will allow Cameco to understand the expected capacity of the wells and factor that capacity into the overall production and restoration plans. Only then will Cameco be able to commit to a diminished pond capacity at the operation.

In light of these factors, Cameco recommends that the first paragraph of Section 2.4.5 be stated as follows:

.....Two test wells have been drilled and perforated as of January 2012, and results have been incorporated to the Class I Permit Application for the Gas Hills wells #1 and #2. This Class I Permit Application will be submitted to the WDEQ for their evaluation during the first quarter of 2013 and is expected to be approved before year end. If deep disposal wells meet all regulatory requirements and are determined to be technically feasible, disposal wells would be completed and equipped at 2 of the 3 test well locations to receive wastewater for disposal. This would enable the construction of a reduced number of evaporation ponds which would be installed as back-up to the deep disposal wells. With this clarification, Section 2.4.5 is acceptable to Cameco.

## **6. Additional On-site Processing**

Section 2.4.6 of the DEIS proposes additional on-site processing, which would produce yellowcake slurry. According to the DEIS, the resulting slurry from the precipitation circuit would be transferred to a storage vessel, allowing the uranium to settle and consolidate by gravity. The precipitated and thickened yellowcake slurry would then be sent to a filter press for washing to remove soluble contaminants and then de-watered prior to transport to the Smith Ranch-Highland facility. The dewatered yellowcake slurry would be placed into USDOT approved containers and transported in exclusive-use USDOT authorized transport vehicles.

Cameco Resources is unique concerning existing facilities. It has drying and packaging facilities fully capable of receiving resin from its mines and toll milling customers throughout the region. Cameco has developed their planning based on shipping loaded resins from some of Cameco's remote sites to its central processing facilities at Smith Ranch and Highland Ranch. The facilities consist of a resin receiving stations, elution, precipitation, and drying circuits. Satellite facilities typically are limited in capacity to loading and transferring resins to a main plant for additional processing.

Ultimately, the decision whether to expand a satellite to process uranium into a slurry form is most appropriately left to Cameco based on its evaluation of economic and technical feasibility. Transportation costs, the projected life of mine, the pounds of uranium available to mining, and the market value of the finished product would all have to be evaluated as part of a determination

regarding the practicability of adding slurry capabilities to the Project. Cameco accordingly recommends that the FEIS acknowledge the possibility that Cameco may conduct additional on-site processing in the future, if conditions warrant.

For these reasons, Cameco recommends the following changes to the first paragraph of Section 2.4.6:

In this alternative, Cameco would have the option to conduct further processing of the ion-exchange resin at the Gas Hills facility to produce yellowcake slurry, which would then be transported to the Smith Ranch-Highland facility. Because the uranium concentration in yellowcake slurry is higher than in ion-exchange resin, the advantage of this alternative would be the transportation of fewer loads of material to the Smith Ranch-Highland facility. ~~Due to this advantage, the BLM is analyzing this additional processing step as part of the RPA to enable comparison of the environmental impacts of slurry transportation with those of resin transportation under the Proposed Action.~~

## **7. Enhanced Reclamation Goals and Timing**

Section 2.4.7 of the DEIS proposes to “require prompt reclamation of disturbed areas and the use of reclamation goals appropriate to the site’s ecological potential,” including post-mining landscape closer to historic conditions, rather than re-establishment of current conditions, which may have been degraded by historic mining and grazing activities.

Inclusion of this modification is unnecessary, as Cameco has already committed to contemporaneous reclamation through its Operation Plan and Reclamation Plan, as approved by the Wyoming Department of Environmental Quality and through its PoO, which provides that “[f]ollowing the completion of any construction activity (six months to one year), the disturbed areas surrounding the facility, individual wells, pipelines, and roads will be reclaimed. This process is referred to as ‘contemporaneous reclamation,’ meaning that large disturbed areas will be reclaimed before new areas are disturbed”.

Because Cameco’s existing plans and commitments are consistent with the proposed requirements of the RPA in Section 2.4.7, Cameco recommends against including this Section in the FEIS. The redundant requirements would not reduce environmental effects, but they could add to administrative burdens.

## **8. Burial of New Power Lines**

Section 2.4.8 of the DEIS proposes to require that new power lines constructed to supply Project components with electricity be buried within road right-of-ways rather than being constructed overhead. The DEIS concludes that this modification would reduce potential electrocution and collision impacts to migrating and foraging migratory bird species, and would eliminate new perches for raptor and corvid species, thus reducing the potential for predation on greater sage-grouse.

There are two distinct applications for high voltage power lines, which include power ‘distribution’ and power ‘transmission’. The application for power transmission is to move large

amounts of energy over considerable distances while minimizing losses. Consideration is given to the transmission from one location to another without interruption or dissemination to other places. The application of power distribution is used primarily to lower the voltage to something useable by the end user and suitable to disseminate where required for its safe use.

Transmission of power is accomplished by boosting voltages and lowering the current which aides in reducing the losses due to resistance to power flow in a conductor. Power lines with voltages equal to or greater than 69,000 volts are referred to as “transmission” voltages, while power lines with voltages less than 69,000 volts are referred to as “distribution” voltages. For application at the Gas Hill facility, it is the intent to utilize the existing overhead power transmission (69,000 kV) line and reduce it to a nominal distribution voltage of 24,900 volts.

Distribution of power will occur over several miles and at several undetermined locations (at the time of application) for which the system voltage will be reduced to something useable. An underground power distribution system requires that the power lines be terminated at a predetermined location, whereas an overhead distribution line does not. A splice can be added to continue the overhead power run. A predetermined location may not be the best location(s) suitable for future distribution to various header house applications among several distances.

The overhead power distribution line is capable of being ‘hot-tapped’ without interruption of power to the line at virtually any place among the distribution line. This allows the mine unit design to be maximized without knowledge of the location of the source of power. In this application, power will need to be distributed to a variety of ‘header houses’. These header houses will be placed strategically throughout a mine unit to maximize the recovery of the ore deposit. The location of the header houses has not been determined and should be considered a ‘work in progress’ at the time of this application.

Safety should be a consideration of power distribution. The first safety precaution when performing maintenance activities is that the line should be visually grounded prior to commencement of any work activity. This practice has lent itself well to the safety of qualified electrical workers. Visual grounding of a direct buried power distribution system is not easily achieved. Along with the electrical safety of working a high voltage power system, there should be other considerations such as physical limitations. For a buried or underground electrical system, there exist confined spaces as well as oxygen deprived environments to consider which potentially expose workers to these hazards.

In cases where distribution line burial is not an option, overhead lines would be constructed to current standards using publications such as those from the (rural utility specification – RUS-1782F-803 & Avian Protection Plan). This would include cross-arm and transformer design. This design would minimize potential mortality due to electrocution.

This proposed requirement of the RPA is technically and economically infeasible. Installation cost estimations differ widely among industry experts, but the installation cost in several published documents offer anywhere from 5-to-10 times greater than (Entergy, 1998-2012) the cost of an overhead power distribution system. Additional protective relaying would have to be employed to protect direct burial cable from ground faults. To emphasize the cost difference, a \$500,000 overhead, high voltage distribution system could cost \$5 million for underground

distribution. This alone could seriously jeopardize the economic viability of the Gas Hills Project Area development, and thus contravene the purpose and need for the Project.

Cameco proposes instead to limit overhead lines to the high voltage portion of the total system, including the line from the power company terminus to the main substation at the Carol Shop, and from the main transformer to each pole mount and pad mound transformer for individual service areas. All of the distribution of power in the wellfields (tertiary power), such as to a production well (extraction well), is proposed to be buried. This is done to minimize obstructions to wellfield service activities. This is relatively low voltage applications, at or below 440 Volt, 3 phase power as compared to plus 20,000 volts for the primary and secondary power distribution.

The proposed distribution lines would be placed in or adjacent to the access road right-of-way to help minimize habitat impacts where possible. To prevent the electrocution of raptors, the primary and secondary distribution lines and power poles would be built to the latest approved methods. Tertiary distribution lines would be buried where practical in order to minimize risks to raptors and large birds. In addition, to discourage roosting by raptors and corvids (and, in turn, increased predation of Greater sage-grouse), appropriate anti-perching and anti-roosting devices would be placed on power poles and crossarms where conductor separation cannot be achieved and covering or reframing is impractical, perch guards (triangles) with optional perches may be used for large perching bird protection. To implement this proposal, Cameco recommends the following changes to Section 2.4.8:

Approximately 21 miles of new power lines are anticipated to be constructed to supply Project components with electricity. Under this alternative, all of the distribution power in the well fields would be buried new power lines would be buried within road ROWs rather than be constructed overhead. ~~However, burial of new power lines would have no impact on construction or operational disturbance, but would~~To reduce potential electrocution and collision impacts to migrating and foraging migratory bird species, and ~~would to~~ eliminate new perches for raptor and corvid species, thus reducing the potential for predation on greater sage-grouse, overhead power lines would employ anti-perching and anti-roosting devices.

## 9. Conclusions

Cameco does not object to the concept of a resource protection alternative, in principle. As explained above, there are several aspects of the RPA described in the DEIS that are technically or economically infeasible. Where appropriate, Cameco has suggested changes that would make the RPA acceptable, including the elimination of Sections 2.4.1, 2.4.2, 2.4.3 and 2.4.7. If the BLM decides not to make these changes, Cameco believes that the RPA should be rejected as inconsistent with Cameco's goals and objectives.

## Mitigation

The discussion of mitigation measures in Chapter 4 of the DEIS includes a number of provisions that require comment based on their technical or economic feasibility, or their perceived

environmental benefits. Outlined below are Cameco's proposed changes to the proposed mitigation measures identified in the DEIS. A summary of these changes can be found in Appendix 1.2 at the end of this letter.

## 1. Cultural Resources and Native American Concerns

As the DEIS recognizes, Section 106 of the National Historic Preservation Act (NHPA) "requires that federal agencies consider the potential effect of an undertaking on historic properties and provide the Advisory Council on Historic Preservation with an opportunity to comment." DEIS at 4.2-2. The DEIS further notes that the relevant parties have developed a Programmatic Agreement (PA) to satisfy Section 106. *Id.* at 4.2-3. Cameco's position is that all present and future concerns about the Project's potential effects on cultural resources should be resolved through the Section 106 process and, more specifically, through the processes set forth in the PA. The DEIS does not suggest otherwise. Cameco anticipates, however, that it will be necessary to continue working with the BLM in connection with the PA while the NEPA process is separately brought to a conclusion.

The DEIS contains two proposed mitigation measures directed at protection of cultural resources, including training and consultation requirements.

As noted, Cameco is already party to a PA among the Wyoming State Historic Preservation Officer, U.S. Nuclear Regulatory Commission, U.S. Department of the Interior Bureau of Land Management regarding the Gas Hills Uranium Recovery Project (the PA). Under the PA, if avoidance is not feasible, the historic properties would be treated in accordance with a historic properties treatment plan.

Moreover, in Cameco's experience, mandatory training for all contractors and construction personnel is not necessary to prevent unauthorized collecting of archaeological materials. Rather than providing mandatory trainings, Cameco proposes to educate all relevant employees regarding the significance of cultural resources and the federal regulations that protect them. Contractors, consultants, and others would be notified of the federal regulations.

Given the provisions of the PA and Cameco's experience in this area, it recommends the following changes to mitigation measures CR-1 and CR-2:

**CR-1:** To minimize unauthorized collecting of archaeological material or vandalism to known archaeological sites, Cameco will educate all applicable employees of the significance of cultural resources and the federal regulations intended to protect them. ~~Others, including contractors would be notified of and their contractors, and all construction personnel, would attend mandatory training and be educated on the significance of cultural resources and~~ the relevant federal regulations intended to protect them.

**CR-2:** Consistent with the PA, if any sites of religious or cultural significance to Native American tribes cannot be avoided by the recommended distance, mitigation measures would be developed in consultation with interested tribes and incorporated into a historic properties treatment plan. ~~Native American sites including, but not limited to, rock art, cairns (rock piles), and stone circles would~~

~~be avoided by a minimum of 0.25 mile unless closer activities are approved through completion of consultation with the affected tribes and written permission is given by the BLM Authorized Officer.~~

## 2. Geology

Section 4.2 proposes one mitigation measure intended to address the engineering of slopes steeper than a 25% grade.

Cameco has no intention of employing major construction on grades greater than 25%. It is possible, however, that well installation could occur within slopes of this magnitude. Cameco does not think that the additional measure of engineered design is a necessary component for wellfield installation. By understanding the historical aspects of landslides within the area, and educating the construction crews and Cameco's employees of the potential hazard, Cameco can avoid the potential for a landslide.

Cameco is committed to the following recommendations as defined by the United States Geological Survey (USGS): "The hazard from landslides would be reduced by avoiding construction on steep slopes and existing landslides, or by stabilizing the slopes. Stability increases when ground water is prevented from rising in the landslide mass by (1) covering the landslide with an impermeable membrane, (2) directing surface water away from the landslide, (3) draining ground water away from the landslide, and (4) minimizing surface irrigation. Slope stability is also increased when a retaining structure and/ or the weight of a soil/rock berm are placed at the toe of the landslide or when mass is removed from the top of the slope". (USGS, 2004). A Standard Operating Procedure (SOP) will be put in place to meet this requirement.

Cameco recommends the following changes to mitigation measure GEO-1:

~~**GEO-1:** Where surface disturbance is proposed for locations with slopes greater than 25 percent, an engineering plan would be submitted for review by the AO prior to the initiation of surface disturbing activities. The plan would include engineering drawings, geotechnical studies, drainage design, cut and fill estimates, and final reclamation contours to demonstrate mitigation of mass movement potential. Cameco has no plans to implement any major construction on slopes greater than 25%; however, well installation could occur in areas where there are slopes at this grade. The hazard from landslides would be reduced by avoiding construction on steep slopes and existing landslides, or by stabilizing the slopes. Stability increases when ground water is prevented from rising in the landslide mass by (1) covering the landslide with an impermeable membrane, (2) directing surface water away from the landslide, (3) draining ground water away from the landslide, and (4) minimizing surface irrigation. Slope stability is also increased when a retaining structure and/ or the weight of a soil/rock berm are placed at the toe of the landslide or when mass is removed from the top of the slope. A Standard Operating Procedure will be adopted to meet this requirement.~~

## 3. Livestock Grazing

4. Section 4.5 proposes three mitigation measures to mitigate Project-related impacts to livestock grazing resources. Cameco proposes that these mitigation measures be modified, as outlined below to further clarify the livestock grazing mitigation measures in Section 4.3. Cameco acknowledges the proposed mitigation measures in GRA-3 and agrees that the proposed language is reasonable in light of the proposed changes to GRA-1 and GRA-2.
5. **GRA-1:** Cameco would coordinate annually or more often when necessary with affected livestock operators to discuss: 1) problems, if any, encountered during the past grazing season; 2) agreed-upon corrective actions, if applicable; and 3) planned development and operations during the next grazing season. This meeting would need to occur on a date early enough to allow grazing permittees sufficient time to make decisions and allocate their resources for the upcoming grazing season.
6. **GRA-2:** Prior to construction of each mine unit, surveys would be conducted to identify active existing range improvements. Based on the results of these surveys, surface facilities would be located, to the extent practical, 200 meters a reasonable distance from existing range improvements, as agreed to by the grazing permittee or landowner, as appropriate. If avoidance is not feasible, range improvements would be relocated to an alternate location per the BLM guidance. Alternate locations would be approved by the grazing permittee for public lands or the landowner for private lands.
7. **GRA-3:** Damage to livestock and range improvements identified during surveys would be reported as quickly as possible to the BLM and affected livestock operators and corrective action would be taken.

## 8. Paleontological Resources

Section 4.5 of the DEIS contains several mitigation measures designed to address paleontological resources in the Project area. Each of these is discussed in turn below.

### a. PAL-1

Cameco does not feel it is necessary to train all personnel about the types of fossils they could encounter. Rather, Cameco would propose to train the onsite geologists and project managers on the types of fossils that could be encountered within the Gas Hills Permit boundary during mine facility construction. A Standard Operating Procedure would be put into place to cover the specific handling and requirements of paleontological resources. Cameco employs a number of geologists who would best be utilized for identifying any such resources.

Cameco does not feel it is necessary to train all personnel about the types of fossils they could encounter. Rather, Cameco would propose to train the on-site geologists and project managers on the types of fossils that could be encountered within the Gas Hills Permit boundary during mine facility construction. A Standard Operating Procedure would be put into place to cover the specific handling and requirements of paleontological resources. Cameco employs a number of geologists who would best be utilized for identifying any such resources.

**PAL-1:** ~~Construction and drilling personnel~~ Cameco's onsite geologists and project managers would be instructed about the types of fossils they could encounter and the steps to follow if fossils were uncovered during mine facility construction. Instructions would stress the nonrenewable nature of paleontological resources and that collection or excavation of fossil materials from federal land without a federal permit is illegal.

b. PAL-2

Cameco completed a Paleontological Resource Survey through contract with Arcadis U.S., Inc. for the Gas Hills Uranium Project. Paleontological surveys were conducted from July 11, 2011 through August 4, 2011. The investigation was carried out in accordance with policies and regulations implemented by the Paleontological Resources Preservation Act, the National Environmental Policy Act, and the Federal Land Policy and Management Act. The resource survey was completed to locate, identify, document, and mitigate potential impacts to paleontological resources that could be affected through construction and development activities.

During the survey 25 new fossil locations were discovered and three locations were identified as previously recorded. Of these 28 identified locations, very few would be adversely affected by the Project. Based on the findings of the Survey, Cameco believes that each location should be addressed on a case-by-case basis.

Cameco is committed to stopping work immediately if fossils are uncovered during construction or mud pit excavation. (This is a standard practice at all of Cameco's mining sites.) The findings would be assessed by the onsite geologist. If the findings are determined to be significant, mitigation methods would be commenced. Mitigation could include consultation with a certified paleontologist, additional field surveys and possible salvage of any paleontological resources. A Standard Operating Procedure would be put into place to cover the specific handling and requirements of paleontological resources.

For the reasons outlined above, Cameco recommends the following changes to mitigation measure PAL-2:

**PAL-2:** If suspected fossil materials were uncovered during construction or mud pit excavation, work would stop immediately and the findings would be evaluated by an onsite geologist to determine their significance. If the findings were determined to be significant, to allow the AO to assess the situation and determine if additional mitigation measures would be undertaken ~~before further construction or operations could continue.~~ Mitigation could include consultation with a certified paleontologist, additional field surveys and possible salvage of any paleontological resources. A standard operating procedure would be put into place to cover the specific handling and requirements of paleontological resources.

c. PAL-3

In areas identified in the Paleontological Resource Survey, Cameco would commit to mitigation methods if avoidance is not possible. Mitigation could include consultation with a certified

paleontologist, monitoring during ground disturbing operations, and salvage of any paleontological resources. Cameco will work directly with BLM to create a monitoring plan for identified areas. A notice will be given to BLM at least 30 days prior to beginning activity within these known areas so that Cameco and BLM can work together to mitigate possible disturbance.

In areas that have not been identified in the Paleontological Resource Survey, Cameco staff will be advised to spot check excavated material for bedrock disturbance. Cameco has a standard policy that if any cultural resources, fossils or remains are found during the excavation process that work would immediately cease at that location and the proper personnel would be notified. This language will be added to a Standard Operating Procedure for inclusion. If the findings are determined to be significant, mitigation methods would be commenced. Mitigation could include consultation with a certified paleontologist, additional field surveys and possible salvage of any paleontological resources.

Accordingly, Cameco proposes the following changes to mitigation measure PAL-3:

**PAL-3:** During construction and installation of wellfields and related facilities in areas that have not been identified in the Paleontological Resource Survey, spot checks of spoil piles would be conducted by ~~a qualified paleontological resources monitor~~ Cameco employees. Spot check inspection would involve visually examining any excavated material for bedrock disturbed during excavation. Where bedrock was identified, it would be visually inspected for fossils of any kind. Where no bedrock was identified, no additional inspection would be recommended. If spot checking indicated the presence of important fossils, mitigation methods would be commenced. Mitigation could include consultation with a certified paleontologist, additional field surveys and possible salvage of any paleontological resources. ~~a representative sample of these fossils would be collected and the data (including standard geologic descriptions) recorded for each locality. In addition, the BLM would require monitoring of certain high potential areas during active construction (not just spot checks).~~

d. PAL-4

Cameco agrees that removal of any specimens would not occur without the permission of the landowner, where applicable. According to the *Guidelines for Assessment and Mitigation of Potential Impacts to Paleontological Resources* (United States Department of the Interior, 2008), Cameco has already assessed the possible effects to significant paleontological resources for direct and indirect effects. Under the guidelines, Cameco has completed field surveys and potential fossil yield classification (PFYC) as requested. Cameco is aware of the potential for finding fossil remains during excavation of certain areas within the Gas Hills Project Area, and agrees to monitor those locations if avoidance is not possible. As already noted, Cameco has a standard policy that if any cultural resources, fossils or remains are found during the excavation process, that work would immediately cease at that location and the proper personnel would be notified. This language will be added to a Standard Operating Procedure for inclusion. If the findings are determined to be significant, mitigation methods would be commenced. Mitigation could include consultation with a certified paleontologist, additional field surveys and possible salvage of any paleontological resources.

If salvage is determined to be necessary it is Cameco's understanding according to the Guidelines presented by the BLM that Cameco's responsibility ends after salvage is completed:

*By regulation, after a 3809 plan of operations is approved or where there is no plan, the BLM is responsible for the cost of any investigation and recovery of fossil materials. (United States Department of the Interior, 2008)*

Cameco agrees to salvage of any finds that may be recovered during Cameco's disturbance if avoidance is not possible. After removal of the find it would be handed over to the BLM, or a museum of their choice to be curated. Cameco will not be responsible for specimens to be prepared to the point of identification, identified, and catalogued into the permanent collections of an established institution.

Based on the above, Cameco proposes the following changes to mitigation measure PAL-4:

**PAL4:** Fossil specimens recovered on BLM lands during monitoring or spot inspections considered of scientific value would be curated into the collections of a museum repository acceptable to the BLM. Cameco agrees to salvage finds that may be recovered during Cameco's disturbance if avoidance is not possible. After removal of the find it would be handed over to the BLM, or a museum of their choice to be curated. Cameco will not be responsible for specimens to be prepared to the point of identification, identified, and catalogued into the permanent collections of an established institution. ~~Specimens would be prepared to the point of identification, identified, and catalogued into the permanent collections of an established institution.~~ Specimens would not be taken from private properties except upon permission of the landowner. ~~A final technical report would be prepared and submitted following completion of construction. The final report would be prepared according to BLM standards.~~

e. PAL-5

Cameco does not propose any changes to mitigation measure PAL-5.

## 9. Public Health and Safety

Cameco does not propose any changes to mitigation measure HAZ-1.

## 10. Soils (Construction)

As stated in GEO-1 Cameco has no plans to implement any major construction on slopes greater than 25%, although it is possible that well installation could occur in areas where there are slopes at this grade. Cameco is diligent in their reclamation practices which have been shown in the Gas Hills Project Area and our other operating sites. Further, as stated in Cameco's operation plan, Section 3.1.1, Topsoil Management, Cameco has committed to the following for surface reclamation at a slope greater than 25%:

*Areas with slopes greater than 25% will be mulched with straw mulch crimped at a rate of 2 tons per acre or planted with a temporary cover crop as soon as possible to assist in preventing erosion. Geotextile "mulched matting" and select*

*erosion control products will be utilized on areas where erosion control and vegetation establishment is particularly difficult. Best Management Practices will be utilized to control sediment loss from stripped and or recently topsoiled and seeded areas.*

Cameco accordingly proposes the following changes to mitigation measure SOL-1:

**SOL-1:** ~~As indicated in mitigation measure GEO-1, Cameco has no plans to implement any major construction on slopes greater than 25%; however, well installation could occur in areas where there are slopes at this grade. Areas with slopes greater than 25% will be mulched with straw mulch crimped at a rate of 2 tons per acre or planted with a temporary cover crop as soon as possible to assist in preventing erosion. Geotextile “mulched matting” and select erosion control products will be utilized on areas where erosion control and vegetation establishment is particularly difficult. Best Management Practices will be utilized to control sediment loss from stripped and or recently topsoiled and seeded areas. surface disturbance on slopes over 25 percent would require a site-specific engineering plan. Additionally, a site-specific reclamation plan would be developed and submitted for approval by the AO prior to initiation of surface disturbing activities. The plan would address each of the reclamation requirements detailed in BLM IM No. WY-2009-022 (**Appendix F**).~~

## 11. Soils (Operation)

The monitoring and maintenance of two-track roads used for Project activities will be consistent with Section 3.7 in the Operations Plan of the WDEQ-LQD permit. An example of a maintenance activity for a two-track road in the Operations Plan is as follows: “Mud holes and washouts that may develop in any road, including non-constructed two-track well field roads, will be repaired in a timely manner to prevent topsoil resource damage resulting from vehicles being driven around these damage features onto adjacent land surfaces.”

The operations plan indicates all surface disturbances will be reclaimed in accordance with the WDEQ-LQD approved Reclamation Plan (Section 3.5.1). Cameco recommends modifying mitigation measure SOL-3 to include the processes of scarifying and disking, in order to increase the flexibility when dealing with compacted soil. The increased amount of available options will aid in achieving successful reclamation.

The specific changes that Cameco recommends appear below:

**SOL-2:** ~~The monitoring and maintenance of two-track roads used for Project activities will be consistent with Section 3.7 in the Operations Plan of the Wyoming Department of Environmental Quality permit. Mud holes and washouts that may develop in any road, including non-constructed two-track well field roads, will be repaired in a timely manner to prevent topsoil resource damage resulting from vehicles being driven around these damage features onto adjacent land surfaces. In the event of inclement weather conditions which would cause poor road conditions, unnecessary travel on the two-tracks will be prevented in order to avoid any potential negative impacts to soils. Two-track roads used for Project activities would be monitored quarterly for erosion, braiding, or severe~~

~~rutting. If any of these were noted the appropriate steps would be taken to prevent further degradation (e.g., water bars, gravel, prohibition of traffic on native surface roads during wet periods).~~

**SOL-3:** During interim and final reclamation, compacted areas (typically any area that received repeated traffic or 3 or more passes by heavy equipment) would be decompacted, to the depth of compaction, by subsoiling (method for deep decompaction of soils, using a subsoiler, that does not result in soil mixing), ~~or~~ ripping to the depth of compaction, scarifying, or disking. This would help prepare the seed bed, encourage infiltration and help to prevent accelerated runoff and erosion. Scarification would only be used on shallow soils. This mitigation measure also would apply to decommissioning activities.

## 12. Soils (Decommissioning)

As stated in multiple responses throughout these comments, Cameco has already committed to monitoring soils, vegetation, and weeds. Cameco submits an annual report as required by Wyoming Environmental Quality Act, W.S. 35-11-411. This report is submitted to the Wyoming Department of Environmental Quality Land Quality Division on or before August 7 of each year. Under the requirements of the Wyoming Environmental Quality Act, Cameco's annual report discusses all activity that has occurred throughout the year and all anticipated activity. This report is copied to BLM as a courtesy.

Allowing Cameco to meet its obligations to BLM through the existing reporting obligations will increase efficiency, eliminate unnecessary duplication, and is consistent with Memorandum of Understanding (MOU), No. WY 19 between BLM and the Wyoming Department of Environmental Quality Land Quality Division for the management of Surface Mining and Exploration for Locatable Minerals. MOU No. WY 19 provides that the purpose of the MOU is to:

1. Foster Federal-State coordination of procedures for the prevention of unnecessary or undue degradation as defined in 43 CFR (Code of Federal Regulations) 3809.5 with respect to locatable mineral operations on Public lands and to foster responsible land use with respect to mineral operations on Public lands under existing laws and regulations;
2. Prevent unnecessary administrative delay pursuant to 43 CFR 3809.200;
3. Prevent, to the degree allowed by law, duplication of administration and enforcement of reclamation regulations governing the exploration for, or mining of, minerals locatable under the Federal mining laws described in 43 CFR 3809; and
4. Minimize impacts to and ensure proper reclamation of those lands affected by exploration and/or mining.

Requiring Cameco to submit a separate report to BLM, rather than using the existing state-mandated report would be inconsistent with these goals and would result in an unnecessary duplication of efforts and potential for delays.

Therefore, Cameco recommends the following changes to mitigation measure SOL-4:

**SOL-4:** Cameco would submit its annual report as required by the Wyoming Environmental Quality Act, which covers monitoring of soils, vegetation, and weeds to BLM each year. A monitoring plan would be developed and submitted to the BLM for approval. The plan would address the following:

- ~~Soil erosion/movement;~~
- ~~Vegetation: density, diversity (species composition) and age class (e.g., seeding, mature plant, decadent plant);~~
- ~~Weeds: density, species composition;~~
- ~~Photo reference points;~~
- ~~Compliance with reclamation plan;~~
- ~~Documenting/monitoring protocols;~~
- ~~Timing of monitoring during the year; and~~
- ~~Identification of sites needing additional work or more reclamation activities outlining a site-specific prescription for actions to be implemented, including:~~
  - ~~Re-seeding of areas not attaining reclamation success,~~
  - ~~Soil stabilization,~~
  - ~~Weed control, and~~
  - ~~Mulching/fertilization or other cultural practices.~~

### **13. Vegetation**

Cameco agrees with proposed mitigation measures VEG-1 and VEG-2, so long as the seed mix goes through the proper channels of approval as an alternative to the currently approved seed mix.

### **14. Noxious Weeds and Invasive Species**

Section 3.1.9 of Cameco's Operations Plan states that *"during operations and following surface reclamation, noxious weeds will be controlled by annual spraying, on an as needed basis. This procedure will continue until final bond release is obtained Noxious Weed Control will be performed only by individuals that have appropriate state and BLM pesticide certifications."* As

stated in Section 2.3.8 of the DEIS, Cameco has committed to several post-operational vegetation monitoring steps and will be assessed by the State of Wyoming in concurrence with BLM prior to bond release.

According to the vegetation studies that were completed as a requirement for Cameco's Permit to Mine application, very few noxious weeds were identified in the Gas Hills Project Area. Cameco has committed to controlling and minimizing the introduction of noxious weeds into the re-vegetated areas for at least five years after the initial seeding has occurred. By continuous monitoring of the reclamation efforts, Cameco would be able to control any possibility of noxious weed occurrence. If noxious weeds are identified, Cameco would notify the proper individuals to perform noxious weed control. Cameco believes that prevention, early detection, and rapid response are crucial in dealing with the spread of invasive species.

Cameco does not believe that it is reasonable to require the washing of all vehicles that enter or leave the Gas Hills Project Area. According to an article Cooperative Prevention Systems to Protect Rangelands from the Spread of Invasive Plants written by Kim Goodwin and others, a study to understand the importance of private vehicles as vectors of weed dispersal found that while an average of three seeds per vehicle were carried, "most seeds that dislodge will fail to establish." Moreover, the study concluded that "cleaning vehicles by normal car washing procedures—or at portable wash stations that can be economically expensive—might not entirely remove all the mud, debris, and seeds." (Kim Goodwin, 2012)

Cameco is committed to controlling and minimizing the introduction of noxious weeds including cheatgrass from invading the Gas Hills Project Area. Control measures for monitoring invasive species have been incorporated into Cameco's Operating Plan and Plan of Operations as required by the State of Wyoming and BLM.

For the reasons articulated above, Cameco recommends the following changes to mitigation measure NOX-1, and the complete deletion of mitigation measure NOX-2:

~~**NOX-1: Development of a noxious weed management plan that includes pre-construction surveys, education of construction and operation personnel during construction and operation activities, the washing of vehicles and equipment before entering and leaving the GHPA, herbicide spraying, and annual monitoring. Survey information collected during pre-construction surveys would include species name, GPS location of weed infestations, percent cover, and approximate size of weed infestations. Control of noxious and invasive species would be consistent with the Vegetation Treatments on Public Lands Administered by the BLM in the Western U.S. (BLM-2007b), and could include chemical, mechanical, and biological methods. Herbicide treatment methods also would be consistent with BLM (2007c) guidance. It is recommended that the Fremont County Weed and Pest be consulted in the development of the noxious weed management plan. Cameco will comply with Operations Plan requirements for noxious weeds. During operations and following surface reclamation, noxious weeds will be controlled by annual spraying, on an as needed basis. This procedure will continue until final bond release is obtained Noxious Weed Control will be performed only by individuals that have appropriate state and BLM pesticide certifications.**~~

## 15. Special Status Plant Species

In 2010, surveys were conducted for persistent sepal yellowcress by Hayden-Wing Associates (HWA). No populations of persistent sepal yellow cress were found in the permit area and according to the Wyoming Natural Diversity Database, there is no known population of persistent sepal yellowcress within 40 miles of the Gas Hills Project Area. Based on the 2010 survey and the fact that the permit area does not contain suitable habitat, additional surveys are not warranted for persistent sepal yellowcress.

In 2010 HWA performed surveys for Rocky Mountain twinpod within the gas Hills permit area. No populations were found within the permit area, although portions on the Beaver Rim's north slope does contain adequate habitat due to its elevation, clay and gravelly soils, and relatively sparsely vegetated slopes. Positive habitat indicators include open silt-clay soils on or near outcrops or ridges with 25-50 degree slopes. Due to the rough terrain and location of potential habitat, Cameco believes that additional surveys are not warranted because Cameco will not be disturbing these areas, which occur on the steep slopes of the Beaver Rim.

Cedar Rim Thistle surveys will be conducted 1 year prior to development of each mine unit and associated access roads within the modeled habitat boundary.

Accordingly, Cameco proposes the following minor changes to mitigation measure SSP-1:

**SSP-1:** Perform pre-construction surveys for ~~persistent sepal yellowcress, Cedar Rim thistle, and Rocky Mountain twinpod in identified habitat (HWA 2011a,b)~~ 1 year prior to development of each mine unit and associated access roads within the modeled habitat boundary. Locations of any populations or individuals ~~of Persistent sepal yellowcress, Cedar Rim thistle or Rocky Mountain twinpod~~ identified during pre-construction surveys would temporarily be flagged during construction. Surface disturbance would not occur within 100 feet of any identified individuals or populations.

## 16. Visual Resources

Cameco does not propose any changes to mitigation measure VRM-1.

## 17. Surface Water Resources

The currently approved Nuclear Regulatory Commission and the WDEQ-LQD fluid spill detection practice includes a catchment basin with a conductivity probe or level transducer for each injection and production well connected to a header house Project Logic Control (PLC).

All injection and production wells will be equipped with a fiberglass, or other comparable material, basin over which the insulated well head cover is placed. The basin will contain spilled or leaked fluids that are detected by a fluid level transducer, or equivalent, located approximately 2" off the bottom of the basin and secured to the well head. The indicator line will be installed in the same trench as the 2-3" fluid pipeline and electrical cable connecting the injection or production wells to the appropriate header house. In the event fluids are detected in the basin a trip alarm would be activate in a header house and documented in the PLC with the well

number(s) of concern. A colored beacon would be activated on the roof of the header house indicating a problem for Well Field Operator to investigate. The source of the alarm would be shut-in and investigated for corrective actions prior to re-start.

All header houses would be similarly equipped with leak detection located in the basement sump and alarms fed to the PLC. The sump pump would activate at a pre-determined fluid level and evacuate fluids to the appropriate satellite. A colored beacon would be activated on the roof of the header house indicating a problem for Well Field Operator to investigate.

In both of the above cases the source of the leak would be determined and corrected prior to re-starting of the well or header house. The evolution of the leak detection equipment has occurred over the past four years and is expected to continue with technological/materials advancements.

Consequently, Cameco recommends the following changes to mitigation measure SWR-1:

**SWR-1:** Cameco will continue to work with the Nuclear Regulatory Commission and Wyoming Department of Environmental Quality to apply spill leak/detector monitoring devices that are acceptable to both agencies. The present accepted NRC and WDEQ-LQD fluid spill detection practice includes a catchment basin with a conductivity probe or level transducer for each injection and production well connected to a header house PLC. ~~would submit details of the proposed types and locations of the mine unit fluid spill detection devices and alarms to the BLM for review and approval.~~

## 18. Groundwater Resources

Cameco believes that BLM has no authority to request mitigation measure GWR-1 because groundwater is managed through the Wyoming Department of Environmental Quality Land Quality Division. The Wyoming Department of Environmental Quality Land Quality Division administers the EPA underground injection control program and regulates the mining activities of the Gas Hills Project Area. A cumulative impacts study was required by the Wyoming Department of Environmental Quality and the Nuclear Regulatory Commission during the permitting process and the license renewal for the Gas Hills Mine. Additionally, the State Engineers Office is in charge of the appropriation of groundwater in the State of Wyoming and is in charge of determining an encroachment on water rights.

Mitigation measure GWR-1 should therefore be removed from the EIS.

## 19. Wild Horses

Cameco does not object to mitigation measure WHS-1, but believes that a posted sign addressing wildlife and livestock would be more comprehensive:

**WHS-1:** Signage would be posted in the GHPA to notify Project personnel that wildlife and livestock wild horses may be encountered along the road.

## 20. Special Status Wildlife Species

The DEIS contains multiple mitigation measures directed at the protection of special status wildlife species, each of which is addressed in turn below.

### 20.8 WFM-1

The Gas Hills Project Area is located primarily outside of sage-grouse core area. Approximately 40 acres of the permit area does fall within core area. There is no planned activity within the portion of the permit area that falls within core area. Cameco will follow and abide by the Sage-grouse Executive Order (SGEO) and address each instance on a case -by -case basis as the project area is located outside of core area. Cameco will work with the WGFD as the lead agency when dealing with sage-grouse issues, as they have the management authority over greater sage-grouse (SGEO 2011-5). Cameco will also work collaboratively with USFWS and BLM to ensure a uniform and consistent application of the SGEO is followed.

Cameco does not feel that the protection measures for breeding migratory birds are warranted. Most of the disturbance would begin before the migratory bird breeding time frame. With the ongoing activity continuing into the breeding bird timeframe, species whose habitat would be affected would relocate to adjacent, undisturbed areas and likely return to their previously occupied habitats after construction ended and suitable habitats were re-established. Birds are mobile and would likely disperse into adjacent areas with an abundance of similar habitat. In general, because only a small percentage of the total Permit Area would be disturbed, migratory bird species are expected to disperse as construction activities continue and approach, minimizing the occurrence of direct mortality. Direct mortality is not expected to have a population-level effect.

Cameco's proposed changes to mitigation measure WFM-2 appear below:

**WFM-1:** Cameco will follow and abide by the Sage-grouse Executive Order (SGEO). Cameco will work with the Wyoming Game and Fish Department as the lead agency when dealing with sage-grouse issues, as they have the management authority over greater sage-grouse. Cameco will also work collaboratively with U.S. Fish and Wildlife Service and BLM to ensure a uniform and consistent application of the SGEO is followed. ~~To protect breeding migratory bird species and greater sage-grouse, surface disturbing activities would be restricted on currently undisturbed lands within the GHPA between May 15 and June 30 for nesting migratory birds and between March 1 and July 15 within 2 miles of an occupied lek for lekking, nesting, and brooding greater sage-grouse. Should removal of habitat be required between these dates, Cameco would coordinate with the BLM and USFWS to conduct breeding migratory bird and greater sage-grouse surveys and implement appropriate mitigation, such as buffer zones around occupied nests, as needed.~~

### 20.9 WFM-2

Cameco commits to conducting annual surveys in suitable habitat to identify active raptor nesting sites prior to construction and to avoid beginning construction in active raptor nest sites

by implementing seasonal protection buffers zones. It is requested that Cameco be allowed to follow the species specific buffer zones already recommended by U.S. Fish and Wildlife Service for raptor nests, as they are the lead contact and regulator of raptor protection. It has been discussed with BLM that depending on the species, mitigation for the nest might be possible by limiting site activity to certain times of day, limiting daily activity duration, limiting noise levels, working in areas not visible from the nest, etc. and will be decided on a case-by case basis alongside BLM.

**WFM-2:** To protect breeding raptor species, Cameco commits to conducting annual surveys in suitable habitat to identify active raptor nesting sites prior to construction and to avoid beginning construction in active raptor nest sites by implementing seasonal protection buffers zones. ~~Cameco would avoid all existing raptor nest sites and surface disturbing activities during the breeding season (February 1 to July 31) within applicable nest protection buffers (i.e., 0.75 mile, unless site-specific, species-specific distances are determined and approved by the BLM (as established by U.S. Fish and Wildlife Service). If construction were to extend into the raptor breeding season, Cameco would conduct aerial and/or pedestrian nesting raptor surveys, as applicable, through areas of suitable habitat to identify active nest sites within the GHPA, prior to construction.~~ Since a number of variables (e.g., nest location, species' sensitivity, breeding, phenology, topographical shielding) would determine the level of impact to a breeding pair, appropriate protection measures, such as seasonal constraints and establishment of buffer areas, would be implemented at active nest sites on a species-specific and site-specific basis, in coordination with the jurisdictional agencies (e.g., BLM or USFWS).

#### 20.10 WFM-3

Section 3.5.9 of Cameco's Operating Plan (Lidstone and Associates, Inc., 2009-2011) discusses the estimated quality of the evaporation pond water in detail. The Storage Ponds would contain produced groundwater and process waters with a near neutral pH and no petroleum-based products would be sent to the Storage Ponds. It is anticipated that the ponds will not attract long term residence of water fowl because they will not contain any food source or shoreline vegetation for hiding or nesting. The amount of freeboard, and water depth maintained for the Storage Ponds should make it difficult for land birds (such as Greater sage-grouse), passerine birds, and wading birds (such as herons) to drink from the Storage Ponds. The location of the Storage Ponds, and associated human activity (including daily checks of the Storage Ponds), is anticipated to reduce the attractiveness of the Storage Ponds to wildlife. Due to implementation of fencing, deterrents, and the control of algae and plankton, the water quality in the Storage Ponds is not expected to pose a risk to birds. There are more attractive water bodies in the area that can provide food and hiding/nesting vegetation; these include small stock ponds and reclaimed open pit mines.

If significant use of the ponds by bird species is noticed, Cameco will consult with the Wyoming Department of Environmental Quality, BLM, the Wyoming Game and Fish Department and the U.S. Fish and Wildlife Service in developing mitigation action plans for the ponds. Such actions may include propane cannons, brightly colored pennants and predator silhouettes/decoys. Due to the size of ponds it would be infeasible and uneconomical to construct netting over the ponds.

Any wildlife mortality would be reported immediately to BLM and the U.S. Fish and Wildlife Service. However, if mortalities or frequent habitation of the Storage Ponds are noted, Cameco will work with the Wyoming Department of Environmental Quality Land Quality Division, the BLM, and U.S. Fish and Wildlife to develop additional protective measures to ensure the protection of birds. The goal of such reporting would be to identify and resolve the problem as quickly as possible.

For the reasons just discussed, Cameco proposes the following changes to mitigation measure WFM-3:

**WFM-3:** To protect bat species and migratory bird species, including raptors and waterfowl, Cameco will monitor storage ponds to ensure ponds are not used by bird species. If significant use is observed, Cameco will consult with the Wyoming Department of Environmental Quality, BLM, the Wyoming Game and Fish Department and the U.S. Fish and Wildlife Service in developing mitigation action plans for the ponds. Such actions may include propane cannons, brightly colored pennants and predator silhouettes/decoys. ~~would install bird exclusion netting over evaporation ponds containing waste water in order to eliminate migratory bird and bat exposure to potentially toxic waste water.~~

#### 20.11 WFM-4

Cameco does not propose any changes to mitigation measure WFM-4.

#### 20.12 SSS-1

Cameco does not propose any changes to mitigation measure SSS-1.

#### 20.13 SSS-2

Cameco does not propose any changes to mitigation measure SSS-2.

#### 20.14 SSS-3

Mountain plover occupancy surveys are being conducted as required under Cameco's current Gas Hills Wildlife Monitoring Plan in designated potential habitat. Cameco will follow the requirements of the Gas Hills Wildlife Monitoring Plan which will be updated as needed. Cameco proposed the following changes to SSS-3. Cameco accordingly proposed the following changes to mitigation measure SSS-3:

**SSS-3:** Cameco will follow the requirements of the Gas Hills Wildlife Monitoring Plan which will be updated as needed. ~~To protect nesting mountain plovers, nest surveys would be conducted if construction were to occur during the breeding season (April 10 to July 10). If a nest is located, a 0.25 mile protection buffer would be implemented around the active nest until the birds fledge from the nest.~~

### **Additional Comments**

During review of the DEIS, Cameco identified several additional comments that Cameco would like addressed.

**1. Chapter 2 (2-29) - 2.3.8 Existing Monitoring Plans:** The DEIS states that the “current drinking water supply well for the Carol Shop facility would be plugged and abandoned due to high radium concentrations. Cameco intends to drill a new supply well for the Carol Shop facility under a separately permitted action, and as permitted by the Wyoming State Engineer’s Office. Currently, Cameco anticipates the water would come from formations below the Wind River Formation, either from the Nugget Sandstone formation, or from a formation within the Chugwater group. Monitoring of the new well would follow the requirements of the permit and the U.S. NRC license stated for the existing drinking water supply well.”

Cameco believes that the Carol Shop well was never used as a drinking water supply well but as an industrial water supply well. It was mainly used to clean the Carol shop pad and trucks and feed the commodity. A chemical analysis of this well water does not show high radium concentration (4.4 pico Curie/l max). If more commercial fresh water is needed during the life of the project Cameco will drill a supply water well and will permit this new well with the adequate State Agency. Cameco does not intend to drill any drinking water supply well. Potable water will be brought in.

**2. Table 3.3-1:** the Cody shale is identified as being part of the stratigraphic column in the GHPA.

The Cody shale does exist in the Wind River Basin, but there is no indication that it exists within the GHPA. The two deep disposal wells that were drilled within the permit boundary did not intersect the Cody shale.

**3. Section 2.3.2.1:** The second paragraph of this section has a sentence that says, “The drilling mud pits would be fenced until the contained fluid has been removed or has evaporated and the pits have been reclaimed.”

Please substitute “backfilled” for “reclaimed” in that sentence; because once the subsoil is pushed back into the pit, the fence is removed. “Reclaimed” implies that the pit has been graded and seeded, which will not be the case when the fence is taken down.

**4. Section 2.3.2.2:** The last paragraph talks about the approximate spacing of the monitor ring wells. They are assuming a distance of 400 feet from the patterns and having a spacing of 400 feet.

Cameco believes that the language needs to be consistent with what is currently stated in the Ops Plan: “The location and spacing of these wells will typically be determined by hydrologic modeling and delineation drilling data.” Assumptions for distance cannot be made, because each mine unit will have different hydrologic properties and potentially different values for the spacing of monitor wells.

**5. Section 2.3.9:** Similar to comments made for Section 2.3.2.1, the first bullet needs to be modified to say that the pits will be “backfilled” and not “reclaimed” when the fencing will be removed.

**6. Section 4.1.5 Water Resources:** Figure 4.15-3: This figure sources Cameco 2009, Figure OP5-5. This is an incorrect representation of the figure which has been modified from the original.

**7. Page 2-40/Reduced Number of Evaporation Ponds:** Cameco would like BLM to clarify Section 2.4.5, second paragraph:

If Cameco is able to dispose of sufficient water without construction of any 1 of the test wells or disposal wells, the amount of disturbance avoided (approximately 2.0 acres per well) would be credited to Cameco and available for other disturbance . . . .

**8. Table 5-1:** The CISAs are of inconsistent scale and BLM fails to justify their selections. For example, the soil resource is limited to the GHPA while the livestock and vegetation CISA are significantly larger, i.e. approximately 14,000 acres. How is this justified? The soils CISA should be increased to at least a similar scale or perhaps larger to reflect the regional character of MLRA.

**9. Section 5.11 Soils:** The section recognizes that soils have been impacted regionally from wildfire, recreation and grazing, among others, but fails to assess the proposed alternative and RPA against a reasonably scaled CISA. Instead, the text artificially compares the proposed project to the RPA without comparing each to the larger regional conditions.

**10. Section 3.11 Soils:** Understanding the character of the MRLA 34 in this region is critical to the assessment. Overall soil types and the presence of disturbance on a regional scale must be added to the assessment. Comparing alternatives to each other within the GHPA fails to assess the GHPA in the context of regional conditions.

**11. Section 3.13 Vegetation:** The study area is artificially limited to the GHPA. The analysis recognizes the livestock grazing as a principal land use but fails to assess its impacts on vegetation on either a regional or GHPA-specific basis. Regional data are not provided.

**12. Section 3.13.2:** Similarly, the study area for noxious weeds is artificially limited. Data as to the pervasiveness of noxious weeds is not provided for areas within the GHPA or on a regional basis. These data are necessary to evaluate project impacts, compare the project to the RPA, and to assess cumulative impacts.

**13. Section 5.13:** The section fails to assess the proposed alternative and RPA against a reasonably scaled CISA. Instead, the text artificially compares the proposed project to the RPA without comparing each to the larger regional conditions.

**14. Section 5.13.1:** The Section fails to include NOX- 1, and fails to assess whether NOX-1 will provide actual benefits in light of grazing as the principal regional land use. Further, no regional data is presented to justify imposition of this costly and time consuming mitigation measure.

### **Air Quality Section Comments**

The following points address comments on the DEIS regarding estimates of fugitive dust emissions and associated impacts from general construction activities. Each comment is reproduced below, followed by a related response.

1. Appendix E of the Draft EIS cites the method for estimating non-traffic-related fugitive dust. Section 4.1 of Appendix E states, “A generally accepted method of estimating fugitive dust emissions is to use a typical construction project. The average daily fugitive dust emissions for a typical construction project are estimated to be 1.2 tons PM10 per acre per month for construction activities (USEPA 1985).” Several issues are raised by this statement.
  - First, the citation is incorrect; this method comes from a 1995 EPA document incorporated into AP-42, Section 13.2.3.3.
  - Second and more importantly, had this method been applied correctly, the maximum annual PM10 emissions would be far greater than 9.0 tons per year (tpy) as listed in Appendix E, Table 3-2. To illustrate, the project schedule in Figure 2-3, Section 2 of the Draft EIS, and the acreages listed in Table 2-1, Section 2 of the Draft EIS imply that total construction disturbance in the summer of year 3 is 521 acres. If construction only occurred during June and July, total PM10 emissions would be  $521 \text{ acres} \times 2 \text{ months} \times 1.2 \text{ tons/acre/month} = 1,250 \text{ tons}$  for the year – far from the 9.0 tpy represented in the document.

The cited method for estimating fugitive dust emissions from a typical construction project comes from Section 13.2.3.3 of EPA’s AP-42, *Compilation of Air Pollution Emission Factors*, Volume I, Fifth Edition (January 1995). This section of AP-42 also states, “It is strongly recommended that when emissions are to be estimated for a particular construction site, the construction process be broken down into component operations.” This method, correctly applied, would lead to unreasonably high emission totals for the proposed action, notwithstanding the understatement of such emissions in the DEIS. Therefore, in accordance with EPA’s recommendation, estimated fugitive PM10 emissions from construction activities for the proposed action have been revised and summarized in Table 1 below. To arrive at total fugitive dust emissions, Table 1 also summarizes fugitive dust emissions from wind erosion and from transportation over the primary, on-site access road. Total fugitive PM10 emissions of 131 tons per year (tpy) are consistent with other ISR projects of similar scale (e.g. Uranerz, Nichols Ranch ISR Project, 136 tpy).

Table1

Fugitive Source Type	PM <sub>10</sub> tpy
Construction Equipment	47.87
Wind Erosion	42.01
Mine Access Road Traffic	41.29
<b>TOTAL FUGITIVE PM<sub>10</sub></b>	<b>131.18</b>

Supporting detail for Table 1 is provided in the tables and accompanying citations at the end of this section.

Table 2 below estimates fugitive PM10 emissions from significant construction equipment, including mobile equipment, backhoes and drill rigs. Equipment fleet sizes and duty cycles are taken from the DEIS. A control efficiency of 50% is assumed for traffic on primary and secondary roads, consistent with the DEIS and standard practice for unpaved roads with periodic water spray application. Non-travel-related emissions apply to near-stationary construction activities (i.e. loading, dumping, drilling, etc.). In those cases where emission factors are provided for total suspended particulates (TSP), PM10 was assumed to be 30% of TSP. This conversion factor has been approved by the Wyoming Department of Environmental Quality for surface mining applications. The result is nearly 48 tons of PM10 emissions in the worst-case year.

Table 3 estimates fugitive PM10 emissions from heavy truck and passenger vehicle traffic accessing the site during a peak year when both the construction and operation phases are ongoing. The maximum number of vehicles is taken from the DEIS. A control efficiency of 50% is assumed for traffic on primary and secondary roads, consistent with the DEIS and standard practice for unpaved roads with periodic water spray application. This results in just over 41 tons of PM10 emissions in the worst-case year.

Table 4 estimates fugitive PM10 emissions from wind erosion on disturbed areas. Since AP-42 provides the emission factor for wind erosion in terms of total suspended particulates (TSP), PM10 was again assumed to be 30% of TSP. The total disturbed area from mine unit construction was calculated based on the mine unit acreage provided in the DEIS and an assumed average of 3 years to develop each mine unit. Table 2-1 of the DEIS shows a maximum total disturbed area of 1,178 acres. Figure 2-3 of the DEIS shows construction activities extending over approximately 15 years. Assuming a uniform rate of mine-unit advancement and next-year surface reclamation (as discussed in the DEIS), this yields 78.53 acres disturbed in a given year. Conservatively, all 290 acres of disturbance from infrastructure development (e.g. roads, pipeline corridors, water diversion and containment structures, etc.) would also be exposed to wind erosion. This leads to a total exposed area of nearly 370 acres, resulting in 42 tons of PM10 emissions in the worst-case year.

- Appendix E, Table 3-1 shows a PM10 emission rate of 1.82E-11 g/sec/m<sup>2</sup>. Even if the 9.0 tpy of PM10 emissions in Table 3-2 were correct, this equates to a much higher emission rate intensity. For example, spreading 9.0 tpy uniformly over 521 acres would yield an average emission rate of 1.23E-07 g/sec/m<sup>2</sup> – nearly four orders of magnitude higher. Since this

emission rate is input to the SCREEN3 model to predict impacts, those impacts would be artificially low. This may explain the predicted, highest 24-hour impact ( $0.8 \mu\text{g}/\text{m}^3$  in Table 4-2 of Appendix E). This error further compounds the understatement of emissions from general construction activities. An experienced modeler would expect predicted 24-hour PM10 impacts from construction activities to be much higher than  $0.8 \mu\text{g}/\text{m}^3$  at model receptors placed along the project boundary.

Table 3-1 of Appendix E is in error, as evidenced by the appearance of identical emission rates for all four scenarios listed in the table. This number is a misprint and does not reflect the emission rates used in modeling.

The comment also references a maximum 24-hour PM10 impact from construction-related fugitive dust, of  $0.8 \mu\text{g}/\text{m}^3$  (Table 4-2 of Appendix E). This number is in error, based on the understatement of construction emissions addressed in the response to Comment #1 above. The corrected emissions of 47.87 tpy (see Table 2 below) would logically lead to a higher contribution from construction activities to the maximum 24-hour PM10 impact predicted by the SCREEN3 model. Without re-running the model, the following procedure is used to infer this level of increase and to revise the total 24-hour impact:

- (1) Table 4.1-6 of the DEIS shows a maximum modeled 24-hour impact from roads, of  $39.9 \mu\text{g}/\text{m}^3$ . Since this impact applies to all project phases, it can be said to result from the 41.29 tpy of transportation-related fugitive PM10 emissions calculated in Table 3 below.
  - (2) The revised, construction-related fugitive PM10 emissions of 47.87 tpy (Table 2 below) can be inferred to have an impact similar in proportion to the transportation impact, resulting in a contribution of  $39.9 \times 47.87/41.29 = 46.3 \mu\text{g}/\text{m}^3$ . This is conservative since emissions from construction activities would tend to be more dispersed than emissions from a single access road, and would therefore have less impact on any given model receptor.
  - (3) The fugitive PM10 emissions from wind erosion of 42.01 tpy (Table 4 below) can likewise be inferred to have a proportionate impact, resulting in a contribution of  $39.9 \times 42.01/41.29 = 40.6 \mu\text{g}/\text{m}^3$ . This is extremely conservative since the transportation emissions would be concentrated along roadways (and therefore near model receptors), whereas wind erosion emissions would be distributed over a much larger area and would therefore have less impact on any given model receptor.
  - (4) Adding impacts from transportation, construction and wind erosion to a background of  $10.2 \mu\text{g}/\text{m}^3$  results in a total of  $39.9 + 46.3 + 40.6 + 10.2 = 137.0 \mu\text{g}/\text{m}^3$ . This is lower than the National Ambient Air Quality Standard (NAAQS) of  $150 \mu\text{g}/\text{m}^3$ . Since the above method of inferring modeled outcomes is conservative, and since the SCREEN3 model itself is conservative, the conclusion that the proposed action will comply with the NAAQS appears reasonable.
3. A footnote to Table 4-3 in Appendix E states, "Emission estimates do not include commuter vehicle emissions." In most ISR projects, commuter traffic constitutes the single largest

source of fugitive dust from unpaved roads. This component should be included in the analysis to make the results more representative.

Table 4-3 applies only to emissions from fuel combustion, not to fugitive dust emissions. Particulate emissions from mobile engine exhaust typically constitute a small fraction of the accompanying fugitive dust emissions. Moreover, gasoline-powered commuter vehicle engines generate far less particulate emissions than larger diesel trucks (which are accounted for in Table 4-3). Therefore, the exclusion of commuter vehicles from this table is inconsequential to the overall project impacts on air particulate concentrations.

4. Appendix E appears to be internally inconsistent. Table 4-5 of Appendix E summarizes total project emissions for all criteria pollutants. It shows estimated annual PM emissions of 9.0 tpy. This is the same figure presented for PM10 in Table 3-2 of Appendix E, which does not include engine combustion or road dust contributions. Appendix E, Table 3-5 shows total engine PM emissions of 15 tpy. Road dust emission totals are not listed; the document only shows the formulas used to obtain these totals and their modeled impacts on ambient PM10 concentrations. Logically, however, the total PM10 emissions can be no less than 24 tpy.

These inconsistencies are addressed in the response to Comment 1 above. The conflicting information is resolved by the revised PM10 emission totals shown in Table 1 above and supported in Tables 2, 3 and 4 below.

**Table 2 – Construction Equipment Fugitive PM<sub>10</sub> Emissions Estimate**

Equipment Item	Weight (tons)	Silt (%)	k	a	b	Travel Hours per Year	Number of Vehicles	Speed (mph)	Vehicle Miles per Year	Control Efficiency	Travel PM <sub>10</sub> tons per year	Non-Travel PM <sub>10</sub> tons per year	Total PM <sub>10</sub> per year
Scraper	59	5.1	1.5	0.9	0.45	466	2	10	9,316	50%	6.18	2.03	8.21
Truck-Mounted Drill Rig	20	5.1	1.5	0.9	0.45	8.69	14	5	608	0%	0.50	0.40	0.89
Water Truck	10	5.1	1.5	0.9	0.45	1000	4	10	40,000	50%	11.94	0.00	11.94
Grader	18	5.1	1.5	0.9	0.45	520	1	10	5,200	50%	2.02	0.00	2.02
Light Duty Trucks	2	5.1	1.5	0.9	0.45	400	8	20	64,000	50%	9.26	0.00	9.26
Heavy Trucks	20	5.1	1.5	0.9	0.45	250	6	15	22,500	50%	9.17	0.00	9.17
Pump Pulling Vehicle	10	5.1	1.5	0.9	0.45	400	2	10	8,000	50%	2.39	0.00	2.39
Backhoe	3									0%	0.00	4.00	4.00
<b>TOTAL EMISSIONS</b>											-	-	<b><u>47.87</u></b>

Sources:

- Unpaved Road Emission Factors: AP-42 Table 13.2.2-2
- Scraper Dump Emission Factor: AP-42 Table 11.9-4
- Backhoe (excavation) Emission Factor: AP-42 Table 11.9-4
- Drill Rig Emission Factor: AP-42 Table 11.9-4
- Silt Content: DEIS Appendix E, Table 3-3

**Table 3 – Transportation Equipment Fugitive PM<sub>10</sub> Emissions Estimate**

Vehicle	Weight (tons)	Silt (%)	k	a	b	Round Trip Distance (miles)	Number of Vehicles	Days per Year	Vehicle Miles per Year	Control Efficiency	PM <sub>10</sub> tons per year
Heavy Trucks	24	5.1	1.5	0.9	0.45	8	29	250	58,000	50%	25.67
Pickups/Cars	2	5.1	1.5	0.9	0.45	8	54	250	108,000	50%	15.62
<b>TOTAL EMISSIONS</b>											<b><u>41.29</u></b>

Sources:

Unpaved Road Emission Factors: AP-42 Table 13.2.2-2

Silt Content: DEIS Appendix E, Table 3-3

**Table 4 – Wind Erosion Fugitive PM<sub>10</sub> Emissions Estimate**

Area Emission Source	Acres Exposed	Tons TSP/acre/year	PM <sub>10</sub> /TSP ratio	Tons PM <sub>10</sub> /yr
Mine Unit Development	78.53	0.38	0.3	8.95
Infrastructure	290	0.38	0.3	33.06
<b>TOTAL WIND EROSION</b>				<b><u>42.01</u></b>

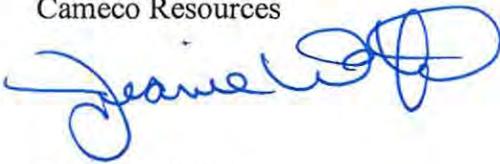
Source:

Industrial Wind Erosion Emission Factor: AP-42 Table 11.9-4

## Conclusion

As discussed at the outset of this letter, Cameco is providing these comments on the DEIS as part of its effort to cooperate in the preparation of the FEIS for the Project. Cameco fully expects further discussion with the BLM on many of the issues discussed in this letter, and looks forward to engaging with the agency as the FEIS is being prepared. As always, Cameco is available to answer any questions that the BLM may have. In that regard, please feel free to contact me at 307-333-7644 or by email at [Jeanie\\_wolford@Cameco.com](mailto:Jeanie_wolford@Cameco.com).

Sincerely,  
Cameco Resources



Jeanie Wolford  
SHEQ

cc: Cheyenne  
SHEQ Drive  
GH 4.17

Appendix 1.1—Recommended Changes to Resource Protection Alternative

Provision of Resource Protection Alternative	Recommendation
Section 2.4.1 Annual Development Planning	Remove from Resource Protection Alternative.
Section 2.4.2 Construction Timing Constraints	Remove from Resource Protection Alternative.
Section 2.4.3 Closed Loop Drilling Systems	Remove from Resource Protection Alternative.
Section 2.4.4 Disturbance Offset for Additional Satellite Facility	Remove from Resource Protection Alternative
Section 2.4.5 Reduced Number of Evaporation Ponds	Modify to make clear that deep disposal wells and a corresponding reduction in the number of evaporation ponds will only be implemented if deep disposal wells are determined to be technically feasible and they meet all applicable regulatory requirements.
Section 2.4.6 Additional On-Site Processing	Modify to make clear that the decision whether to conduct additional on-site processing is left to Cameco, based on economic and technical considerations and to clarify that additional on-site processing will have associated impacts.
Section 2.4.7 Enhanced Reclamation Goals and Timing	Remove from Resource Protection Alternative.
Section 2.4.8 Burial of New Power Lines	Modify to provide for the use of overhead power lines in the high voltage portion of the system coupled with use of anti-perching and anti-roosting devices; distribution power lines in the well fields would be buried.

## Appendix 1.2—Recommended Changes to Mitigation Measures

Mitigation Measure	Recommendation
CR-1	Modify to recognize Cameco's experience in educating its personnel on cultural resource issues.
CR-2	Modify to ensure consistency with Programmatic Agreement.
GEO-1	Replace with recommendations as defined by the United States Geological Survey.
GRA-1	Modify to clarify that coordination to resolve problems need only occur when necessary.
GRA-2	Modify to provide additional flexibility for addressing range improvements.
GRA-3	No changes recommended as long as the recommended modifications to GRA-1 and GRA-2 are adopted.
PAL-1	Modify to specify Cameco personnel who would receive training.
PAL-2	Modify to allow for evaluation of findings by onsite geologists and implementation of appropriate mitigation measures.
PAL-3	Modify to allow spot checks by Cameco employees and implementation of mitigation measures where spot checking indicates the presence of important fossils.
PAL-4	Modify to clarify that Cameco's responsibility for fossils ends after fossils are removed and handed over to BLM or the museum of its choice.
PAL-5	No changes recommended.
HAZ-1	No changes recommended.
SOL-1	Replace with mitigation measures for surface reclamation identified in Cameco's Operation Plan of the Wyoming Department of Environmental Quality permit, Section 3.1.1, Topsoil Management.
SOL-2	Replace with mitigation measures for monitoring and maintenance of two-track roads in Cameco's Operations Plan of the Wyoming Department of Environmental Quality permit.
SOL-3	Modify to increase the flexibility in dealing with compacted soil by including the processes of scarifying and disking.
SOL-4	Replace with obligation for Cameco to submit to BLM its annual report required by the Wyoming Environmental Quality Act.
VEG-1	No changes recommended.
VEG-2	No changes recommended as long as the seed mix goes through the proper channels of approval as an alternative to the currently approved seed mix.
NOX-1	Replace with obligation to comply with Operations Plan requirements for noxious weeds.

<b>Mitigation Measure</b>	<b>Recommendation</b>
NOX-2	Remove from the final Environmental Impact Statement.
SSP-1	Modify to reflect Hayden-Wind Associates surveys concluding that no populations of persistent sepal yellowcress or Rocky Mountain twinpod exist within the Gas Hills Project Area.
VRM-1	No changes recommended.
SWR-1	Replace with obligation to comply with Nuclear Regulatory Commission and Wyoming Department of Environmental Quality fluid spill detection requirements.
GWR-1	Remove from the final Environmental Impact Statement.
WHS-1	Modify to address wildlife and livestock in signage.
WFM-1	Replace with obligation to comply with the Sage-grouse Executive Order.
WFM-2	Replace with obligation that Cameco comply with species specific buffer zones established by the U.S. Fish and Wildlife Service.
WFM-3	Replace with obligation to monitor storage ponds for birds and to establish appropriate mitigation measures if necessary.
WFM-4	No changes recommended.
SSS-1	No changes recommended.
SSS-2	No changes recommended.
SSS-3	Modify to clarify use of mountain plover occupancy surveys to identify designated potential habitat.