Environment Assessment

AML PROJECT 16B 1-II

Bullrush Pit & North Spoils/George Highwall

(WY102745NCA & WY000428NCA)

Fremont County, Wyoming

WY-050-EA 11-102

May 2011

BLM

Lander Field Office, Wind River/Bighorn Basin District, Wyoming

The BLM's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

WY-050-EA 11-102

ENVIRONMENTAL ASSESSMENT

AML PROJECT 16B 1-II Bullrush Pit & North Spoils/George Highwall

(WY102745NCA & WY000428NCA)

Fremont County, Wyoming

Prepared by
U.S. Department of the Interior
Bureau of Land Management, Lander Field Office

In Cooperation with
Abandoned Mine Land Program of the
Wyoming Department of Environmental Quality

(May 2011)

Chapter 1

Purpose and Need

1 INTRODUCTION

The Wyoming Department of Environmental Quality, Abandoned Mine Land Division (AML) proposes to reclaim heavily disturbed abandoned mine lands at two adjacent mine sites located approximately 60 miles southeast of Riverton in Fremont County. AML Project 16B 1-II, Bullrush Pit and North Spoils/George Highwall Reclamation would reduce highwalls and reclaim disturbed areas back to native vegetation. The Bullrush and North Spoils site is in portions of Sections 29 and 32, Township 33 North, Range 90 West. The George Highwall area is located in the Sections 29 and 30, Township 33 North, Range 90 West. 123 acres are BLM managed lands and 57 acres are private.

These two abandoned uranium mines represent a portion of the extensive areas within the Gas Hills Mining District which were disturbed by mining starting in the 1950s, and continuing into the 1980s, and were subsequently left unreclaimed. In addition to these two mines, there are other abandoned mines in the Gas Hills, which, in addition to causing environmental degradation over hundreds of acres, have left numerous hazards to public health and safety. Both project sites have remaining highwalls that pose a danger to the recreational public, ranchers, livestock, and wildlife. These highwalls are unmarked and unprotected, and are from one to two hundred feet tall with sheer drops, and unstable edges.

The project is located largely on public lands administered by the Bureau of Land Management, Lander Field Office (BLM). A portion of the Bullrush area (approximately one-third) is owned by American Nuclear. The sites are adjacent to and/or surrounded by previous reclamation areas that were constructed by AML or mine companies.

1.1 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action is to remediate hazards associated with abandoned uranium mine pits by reducing highwalls, filling old mine pits, reestablish drainage in impaired drainages, and restore wildlife habitat by reestablishing native vegetation communities. The need for the action is the BLM's obligations under FLPMA and other federal laws and policies to evaluate proposals for actions on federally managed lands and to address solutions to health and human safety issues.

1.2 CONFORMANCE WITH BLM LAND USE PLAN

The proposed action conforms to the Record of Decision and Approved Resource Management Plan (RMP) for the Gas Hills Management Unit dated June 1987. This plan is under revision with expected completion in 2012. The decisions in the Lander RMP provide general management direction and allocation of uses and resources on the public lands in the area.

Abandoned mine lands were not addressed specifically in the RMP. The proposed action is consistent with the decisions for the management of cultural and historic resources, hazardous materials and waste management, recreation, off-road vehicle use, and watershed management. In addition, the proposed action falls within alternatives analyzed in the RMP revision.

1.3 SCOPING

Scoping is an important part of the analysis of a proposed action in accordance with the NEPA. BLM conducted internal scoping in a meeting with WDEQ. In addition, the WDEQ issued a public notice in the Sunday, April 10, 2011 issue of the Casper Star Tribune, the most widely distributed paper in the state, detailing the project and opening a 30 day public comment period. A copy of the notice is attached below on page 17 of the attachments. No comments were received.

Chapter 2

Description of Alternatives

2 INTRODUCTION

The project under review is an abandoned mine land restoration and reclamation project that is intended to reduce and remove hazards to human health and safety as well as risk to livestock and wildlife, and to restore the natural environment on lands presently denuded of vegetation and in a hazardous condition. The areas proposed for this reclamation action are on public lands open to the general public. These sites have dangerous highwalls, hazardous flooded pits, and degraded, unproductive soils that cannot support vegetation. Additionally, there are impaired watercourses, and an unstable mine waste dumps (spoils).

2.1 PROPOSED ACTION

The proposed project is to remediate hazards associated with abandoned uranium mine pits by reducing highwalls, filling old mine pits, reestablish drainage in impaired drainages, and restore wildlife habitat by reestablishing native vegetation communities.

The Bullrush Pit is comprised of unstable and eroding highwalls surrounding a devegetated open pit mine that was abandoned without any attempt at reclamation. The North Spoils is an eroding, unstable, degraded mine waste area with acid-forming spoils, and no vegetation. The George Highwall is a remnant from an adjacent open pit mine which was reclaimed in the 1980s without reduction of the dangerous highwalls along one side of the pit.

Figure 1 shows the general project area. Figure 2 shows the extent of disturbance on an aerial photo. Photos 1-3 show features of the two sites. The primary landowner of the affected land is the BLM, however one- third is privately owned by American Nuclear.

The proposed project at the Bullrush Pit and North Spoils will be a cut and fill operation that will reduce the highwalls, bury the mine waste and a small ore stockpile, and to reestablish drainage. The spoil will be excavated and transported to the base of the highwall, this will build up the old pit floor, and the rim of the highwall will be graded down to blend with the final fill in the pit. The floor of this pit is well above natural groundwater, and no special handling of the mine spoil is proposed. During construction, the contouring designed using natural-regrade technology will reconnect a drainage that was severed by the mining activity. This design emulates natural topography by establishing stream sinuosity and multiple sub-drainages within the reclamation area. The majority of the Bullrush area is mining-disturbed ground, with the exception of two separate 10-acre areas that will be disturbed during reconstruction of the drainage at the Bullrush and North Spoils area and reclaimed after reconstruction. One of the 10-acre areas is located on BLM land, and the second is located on American Nuclear land.

At these sites, there is no topsoil to be salvaged, so available plant growth medium is limited. There are a few topsoil stockpiles that AML has obtained during other work in the Gas Hills, as well as some small stockpiles from the mine area that will be utilized on site. During construction, any soil that appears suitable to support plant growth will be salvaged and saved for application as “coversoil” to help finish the final surface for revegetation.

The Bullrush Pit itself will not be joined into the reconstructed drainage at this site because of existing claims. Because there are potential ore reserves beneath the abandoned pit, the reclamation plan allows for future extraction by not fully backfilling the old pit. AML has worked with the claimant to design a reclamation plan that does not preclude future mining, and which will leave appropriate topography for ore extraction and haulage.

The George Highwall will entail a cut and fill operation that will use a combination of cutting back the crest of the highwall, and backfilling against its base to achieve a more gradual slope in that area. The entire George Highwall area was previously disturbed by past mining activities, and was subsequently reclaimed according to past standards. The remnant highwall is considered by BLM and AML to be a danger to the general public, and its elimination will alleviate this hazard. The plan for this highwall is a simple slope reduction that will ultimately blend into the existing reclamation that surrounds the work area. After salvaging topsoil from the excavation areas, material will be excavated from the high points on the western side of the old pit and used as backfill against the highwall to achieve the desired slope reduction. Upon completion of the slope reduction the area will blend into the existing topography.

At the conclusion of work in both areas, all available topsoil or coversoil (soil that will support plant growth) will be spread over the final grades, and this will be reclaimed to native rangeland vegetation.

Both the Bullrush Pit and, the old George Pit bottom may have remaining ore reserves and there are claims on the site. The AML design will not preclude the ability of future mining to easily reach these potential reserves.

Work will be limited to an approximate 90 day season from August 1 through October time frame with the end of season being determined by weather. The entire project is likely to take approximately 5-6 years.

Pure live seed (PLS) will be used where possible as PLS is not often available for forb.

For drill seeding* as follows:

Western wheatgrass (Rosana)	4 lbs PLS/a
Slender wheatgrass (Pryor)	2 lbs PLS/a
Bluebunch wheatgrass (Secar)	4 lbs PLS/a
Indian ricegrass (Nezpar)	2 lbs PLS/a
Green needlegrass (Lodorm)	2 lbs PLS/a
Winterfat	1 lbs PLS/a
Wyoming big sagebrush	½ lb PLS/a
American vetch	2 lb PLS/a
Rocky Mtn. penstemon (Bandera)	0.3 lb PLS/a
Prairie clover (purple for moderate to heavy soils or white for sandy soils)	0.25 PLS/a

*Double the amount if seed is to be broadcast.

2.2 NO ACTION

The No-Action Alternative is to do nothing to remove the hazards or clean up the environmental degradation at these sites. Under this alternative, the proposed reclamation action would be denied, and the potential of public injury accidents at the sites would be unabated. Threats to public health and safety, as well as environmental degradation would continue.

Chapter 3

Affected Environment

3 INTRODUCTION AND GENERAL SETTING

The project location is in the Gas Hills Uranium District, which was extensively mined starting in the 1950s, and continuing into the early 1980s. Mining conducted in the vicinity was in the form of very large open pits and underground mines, often at the same location. Large tracts of mined land in this area remain unreclaimed, but the AML Program has been systematically reclaiming large tracts since 1988, and some mine companies are continuing to reclaim bonded acreages in the locale. The remaining native areas that were not open pit mined are sagebrush-grassland hills with sandstone and shale outcrops. Extensive areas of reclaimed acreage now occur where previous uranium mining was conducted.

The Bullrush area has over 2,200 linear feet of unguarded 100-foot high highwall, and more than 220 acres of dangerous spoil piles. The George area has an unguarded highwall of 1,304 linear feet. The highwalls are accessible both top and bottom by two-track roads, and being on public lands, access is not restricted. In some areas, wall failures have eroded the highwall lip toward the edge of these roads, creating a very hazardous condition. The recreational use of these federal lands is year-round and often heavy, increasing the risk of accidents associated with the crumbling highwalls. The spoils are composed of acid-forming material, which makes them unsuitable for plant growth. The spoils and pit blocked and captured a natural drainage. Portions of the spoils are steep and eroded, making them dangerous to off-road vehicle operators. The area is used year round by recreationalists.

3.1 AFFECTED RESOURCES

3.1.1 Historic and Cultural Resources

With the exception of approximately 20 acres at the Bullrush work area, the work zones in these project areas were completely disturbed by prior mining activity. The areas of work encompass a large spoil pile and open pits. There are no remaining historical or cultural resources to be affected. Copies of correspondence with the State Historic Preservation Officer and the BLM on cultural resources are provided in Appendix A. The entire Gas Hills area is being considered to determine National Register eligibility as a historic mining district.

3.1.2 Hydrology

The project site is located in the headwaters areas of Dry Coyote Creek and Willow Springs Draw. Hydrologic characteristics of these sites are typical of a semiarid climate, and the local drainages are ephemeral to intermittent. Moderate to steep slopes, erosive soils, and sparse vegetative cover characterizes the native drainage basins in this area. These drainage basin characteristics result in high runoff and sediment yield potential. The natural drainage at the Bullrush site was severed, and no longer acts as a normal drainage. The George work site is a closed basin that is the remains of an open pit mine.

3.1.3 Vegetation

The native vegetation within undisturbed areas of the project vicinity, typical of native sagebrush plant communities, is scant, but dominated by sagebrush. The spoil pile and pit bottom of the Bullrush site are largely devegetated, with some weed species occuring. The George area is reclamation vegetation except for on the face of the highwall.

No plant species currently listed, or proposed/petitioned for listing, as threatened or endangered (T&E) were observed during surveys of the project area and none are expected. Although surveys have not been completed for Wyoming BLM Sensitive plant species, the Wyoming Natural Diversity Database (WYNDD) probability models indicate a moderate probability that Owl Creek Miner's Candle could occur in the project area. It is unlikely that this species actually occurs on the project site; since the site is disturbed and very few native plant species currently exist.

3.1.4 Wildlife Resources

No wildlife species currently listed, or proposed/petitioned for listing, as threatened or endangered under the Endangered Species Act (ESA) were observed during surveys of the project area. Additionally, no sign (i.e., droppings, tracks) or critical habitats for those species were present. Potential habitat for any listed species at this location is unlikely.

Several Wyoming BLM Sensitive wildlife species occur within or adjacent to the project area. These species include raptors and sagebrush obligate songbirds. Raptors frequent the area and some species nest on the abandoned mine high walls. Some raptor species use the area for nesting and foraging territory. In March 2011, a pair of prairie falcons was observed in the vicinity of the George Highwall. On the April 21, 2011 survey, no prairie falcons were observed, but an active red-tailed hawk nest pictured below, was documented at the George Highwall.

An immature ferruginous hawk was observed in the area of the Bullrush work site; however this was a single individual and no raptor nests were observed in the vicinity. An American kestrel was observed hunting in the general vicinity of the proposed work. No sage grouse, or sage grouse sign were observed in the area, though there is a record of an active sage grouse lek in undisturbed habitat within approximately 0.8 miles of the Bullrush Pit.

BLM listed Sensitive songbirds including sage thrasher, loggerhead shrike, sage sparrow, and Brewer's sparrow are known to occupy adjacent habitats and use the project area for foraging of insects.

The project area is not within greater sage-grouse Core Area because of the extent of disturbance from early mining. Most of the reclaimed areas have been denuded of vegetation and none of the project area has adequate vegetation to support greater sage grouse. Suitable habitat exists adjacent to the project area and greater sage-grouse Core Area is designated less than 1 mile from the site.

Wildlife observed within the immediate vicinity of the sites over time included coyote, red fox, pronghorn, mule deer, desert cottontail rabbit, white-tailed jackrabbit, horned lark, ferruginous hawk, black-billed magpie, western meadowlark, common raven, American kestrel, red-tailed hawk, golden eagle, prairie falcon, and feral horses.

For additional information, please see Mountain West Environmental Services, 2002. Resource Evaluation Survey for AML Project 16M the Sagebrush Tablestakes Pit Project. Survey conducted on May 15, 2002 by Robert Dorn and the attached environmental report and T&E clearances.

3.1.5 Invasive Non-Native Species

Black henbane is found in the project area and adjoining properties. WDEQ AML is treating the existing problem. Additional information regarding INNS is found in the attached environmental report.

3.1.6 Soils

The U.S. Department of Agriculture soil survey of the area shows that soils in the project area are predominantly Forell-Poposhia-Blazon soils which are all generally loamy. Because of the low precipitation and short growing season these soils are most suitable to support rangeland and wildlife habitat. Soils at the sites are highly disturbed and considerably mixed as a result of mining and subsequent reclamation activities. No prime or unique soils are present in the project areas.

3.1.7 Recreational Resource Values

The project vicinity is a mix of BLM public lands and mine-owned lands, all of which are at some stage of reclamation. Areas between mine pits and spoil piles are largely undisturbed native ground. Sufficient wildlife populations exist in the area to attract considerable hunting pressure, and other recreational uses including OHVs, rock hounds and others.

3.1.8 Air Quality

Local air quality is typical of a rural rangeland setting. Large tracts of barren ground can contribute large amounts of fugitive dust into the ambient air when strong winds are present. Use of the existing two-track roads also contributes sediment to the air.

Both the No Action Alternative and the Proposed Action would be reasonable expected to result in less than 25,000 metric tons of CO2-equivalent greenhouse gas (GHG) emissions on an annual basis. This is, the indicator for when a quantitative or qualitative assessment may be meaningful as identified in Council on Environmental Quality's February 18, 2010 memorandum *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions.*

3.1.9 Climate Change

The climate of the Gas Hills area is low precipitation with most precipitation coming in the winter as snow or in the spring. While it is not possible to identify how future changes in climate will impact specific areas, most projections of climate changes for areas in Wyoming in the lower precipitation zones such as the project area will be more precipitation occurring as snow with earlier spring runoffs. Temperatures are expected to be higher although different models predict different levels of temperature increases. Within the short to long-term, it is unlikely that changing climate will be at a level that will impact vegetation or wildlife. However, storms are expected to increase in severity with more precipitation coming in more intense storms (BLM, 2009).

3.1.10 Noise

The noise level in the area is typical of rural rangeland. Some heavy construction equipment is periodically active in the vicinity during ongoing reclamation efforts at nearby sites.

3.1.11 Topography

Terrain in the vicinity of the project varies from nearly level to steep hills on natural terrain, and includes remnant vertical highwalls where mine pits are unreclaimed. Elevations at the sites range between 6,300 and 6,600 feet.

3.1.12 Socioeconomic

The project is situated in rural rangeland at considerable distance from any economic or population center. There is new uranium exploration in the area, and some mine permitting is in process at some locations within the general area, including evaluation and planning around the proposed work area.

3.1.13 Special Areas

No special areas are located near the proposed reclamation site including no waterways suitable for inclusion in the Wild and Scenic River System. No portion of the proposed project area is

located in an existing or proposed ACEC or within the viewshed of an historic trail. The area does not contain wilderness characteristics and is not within the viewshed of lands with wilderness characteristics.

3.1.14 Visual Resources

The current visual resource management class for this area is Class IV and this management is continued in all alternatives in the proposed RMP revision. The project area is located in an area of low sensitivity but is highly visible to users of the County Road. The site is highly degraded with industrial use that contrasts with the undisturbed surrounding areas.

Chapter 4

Environmental Impacts

4 DIRECT AND INDIRECT IMPACTS

Direct and indirect impacts from the alternatives are those impacts that are the result of the proposed action. Direct impacts are those that occur in the immediate time frame of the proposed action; indirect impacts are those that occur at a later time but still the result of the proposed action. Cumulative impacts, which are discussed below, are those impacts that are the result of other actions (whether authorized by the BLM or others) which are evaluated to determine if, when considered with the direct and indirect impacts of the project, would change the effect of the project impacts.

4.1 PROPOSED ACTION

4.1.1 Historic and Cultural Resources including Paleontological Resources

The work areas are within extensive acreages of disturbed ground surface. No cultural or paleontological resources within the project area have been documented, and no impacts to cultural resources are anticipated from the Proposed Action. There is, however, a nearby prehistoric site that will require avoidance and monitoring. The site is to be protected by a 200-foot buffer zone. The BLM stipulation states that AML shall provide an archeologist with a current BLM Cultural Resources Use Permit to monitor reclamation activities at the specific location. The archeologist is to notify BLM prior to the commencement of work, and to ensure that the cultural resource is not affected by the construction. Should the archeological monitor determine there may be an effect, or if a discovery of new material is made, the work at that location is to be suspended until BLM can determine appropriate measures for protection or mitigation. Because of the keep out zone and the identified mitigation for any new discoveries, the proposed action will have no adverse impacts to cultural or paleontological resources.

4.1.2 Hydrology

Drainage patterns in this semiarid work area will be maintained as required to protect ongoing reclamation during and after construction of this project. In the Proposed Action, the Coyote Creek drainage would be restored and rehabilitated. This should improve drainage, and the quality of the water available in the vicinity, both beneficial impacts. The slope stabilization, natural-regrade topography, and revegetation with native species will beneficially impact water for use by wildlife and livestock. Short-term temporary adverse impacts to surface waters will be controlled and mitigated through standard construction stormwater control methods, as necessary, through use of a Wyoming Pollutant Discharge Elimination System (WYPDES) stormwater permit and on-site best management practices. The short term adverse impacts from the proposed action are expected to be negligible. Long-term impacts are anticipated to be very beneficial. The Day Loma Pit is not part of the natural hydrologic system of the area so its reclamation will not impact hydrologic resources.

4.1.3 Vegetation

No vegetation species currently listed or proposed/petitioned for listing under ESA or as Wyoming BLM Sensitive Species will be affected by this action. The vegetation in the project area will receive minimal adverse impact associated with construction activities, while long-term impacts are anticipated to be entirely beneficial where soil exists to support vegetation. This beneficial impact is likely to be minimal because of limited amounts of soil are available. However, existing vegetation surrounding the project area is likely to be beneficial impacted as erosion is reduced and sedimentation is suppressed. Vegetation downstream of the ephemeral drainages will be beneficially impacted as natural drainage is restored. Adverse impacts from activities associated with the proposed action are expected to be short-term and negligible and substantially outweighed by the long-term benefits from the Proposed Action.

4.1.4 Invasive Non-Native Species

Soil disturbance during site construction would increase the susceptibility of the area to support INNS and noxious weeds. However, this is a short-term potential adverse impact that will be managed through BMPs and continued spraying and treatment. See additional information in the Environmental Report attached hereto. Only native plant species will be used in revegetation. Following construction, the site will be revegetated using broadcast or drill seeding methods, as appropriate, for the weed-free native seed mixture. Prompt revegetation will minimize the potential for invasive plants and noxious weeds to become established on the site. Following successful reclamation and revegetation, the vegetative production of these sites is expected to increase from levels prior to construction since much of the current area is void of vegetation. The reclaimed area will be less susceptible to the spread of INNS than barren soil.

Revegetation success will be monitored for a period of three growing seasons. If establishment success is unsatisfactory, or if noxious weed species become a problem, the situation will be evaluated and such problems will be addressed as appropriate (e.g., reseeding or application of acceptable weed control methods). Any weed control would be compliant with the standard BLM stipulations for weed control on public lands. These stipulations list acceptable herbicides, and require submittal of a Pesticide Use Plan to BLM prior to implementation.

4.1.5 Wetlands

No wetlands occur in the project areas.

4.1.6 Wildlife Resources

No wildlife species currently listed or proposed/petitioned for listing as threatened or endangered under ESA will be affected by this action. More common wildlife species are expected to avoid the construction areas, but displacement will likely last until activity ceases following reclamation.. There will be an increase in wildlife mortalities from increased traffic use associated with the construction activities but these are expected to be minimal. The project area will be fenced to limit conflict with wildlife and construction travel will be required to follow posted speed limits.

Although an active red-tailed hawk nest was found to be present at the George Highwall in April 2011, the planned construction schedule will avoid impacts by starting at that site after July 31. The area is not in a Sage Grouse Core Area, however, there is an active sage grouse lek reported within two miles of the work areas. AML will therefore avoid starting construction on these sites until after July 1. Additionally, the reclamation seed mixture is designed to provide preferred elements of sage grouse habitat.

Wildlife will benefit from the long-term improvement in water quality associated with the reduction of erosion and sedimentation.

In the short-term, negligible adverse impacts to wildlife from the proposed action, primarily from disruption caused by construction, will occur. This temporary impact will be offset by the long-term beneficial impacts from improved vegetation, reduction of erosion and fugitive dust, and improved water quality in surrounding areas. Improvement to the project area itself will have beneficial impacts.

4.1.7 Soils

No prime or unique farmland values exist in the project area, therefore, these will not be affected. Standard construction erosion controls will be used to conserve soils. While construction will disturb soil, only limited disturbance will occur on previously undisturbed soils. The long-term impacts of the Proposed Action to soils will be beneficial as erosion will be controlled either through recontouring or revegetation. If the projected increase in storm severity with changing climate occurs, control of surface water will be increasingly imporant.

4.1.8 Recreational Resource Values

Recreational resources in the project area are limited due to mining effects, but are expected to be improved by this action. Unsafe mined landforms will be reconfigured, and esthetics will improve. Once the nearby mine lands are fully reclaimed, this site will provide a safer and more appealing area for recreation. Improvements to the vegetation and hydrology will increase the use of the area by wildlife which will beneficially impact wildlife based recreation such as hunting and birding.

4.1.9 Air Quality

Impacts to local air quality from the proposed action are expected to be negligible. Construction trucks and worker transportation vehicles would emit GHG and particulate matter. Fugitive dust will be controlled by standard methods and BMPs. Fugitive dust from these sites should ultimately be reduced by revegetation of the presently barren areas. Construction crews would be required to commute in carpools to the extent feasible.

4.1.10 Noise

Impacts to noise levels from the proposed action are expected to be temporary although occurring through-out the project and will not cause long-term effects.

4.1.11 Visual Resources

In time, the Proposed Action will result in beneficial impacts to the visual resources by re-establishing a more natural contour and re-vegetating barren soil and preventing the spread of degraded conditions to undisturbed areas. The short-term construction activity will neither benefit nor adversely impact visual resources.

4.1.12 Socioeconomic

Short-term socioeconomic impacts are anticipated from the Proposed Action by reason of the construction expenditures. The contract bids have not been received but the total financial commitment of the proponent is in the millions of dollars. A substantial portion of the construction cost will be spent in the local community. These expenditures are small in comparison to the total economy but will benefit employment in the construction industry and supporting trades and suppliers.

The Proposed Action will not adversely impact existing mining claimants in the area. The potential mining interests of the claimants will be preserved by the reclamation design. The reclamation would not impair the ability of a claimant to develop a mine plan in or around the reclaimed area as it is designed. Restoration of vegetation at the conclusion of the project is expected to restore grazing in the area for the grazing lessee although this beneficial impact will be minimal.

4.2 NO ACTION ALTERNATIVE

4.2.1 Historic and Cultural Resources

No impacts to historic and cultural resources are anticipated from the No-Action Alternative. However, continued degradation of the highwalls could damage unknown or undiscovered cultural resources. In addition, continued fugitive dust from the barren soils could on a long-term basis adversely impact cultural resources outside of the project area.

4.2.2 Hydrology

The No-Action Alternative would not repair the impaired drainage, and would allow sedimentation from loose mine spoils to continue to migrate into drainages with both short and long-term adverse impacts.

4.2.3 Vegetation

The No-Action Alternative would not reestablish a robust native plant community as is ultimately anticipated to be the long-term effect of the proposed reclamation. The lack of vegetation would continue to allow erosion of mine spoils, and impacts to drainages. Fugitive dust would continue to degrade vegetation resources. No rangeland for wildlife and livestock would be reestablished and vegetation resources would be adversely impacted by acid-forming soil migration into otherwise productive areas. The difference between the No-Action

Alternative and the Proposed Action is marginal as there is only limited amount of soil to support vegetation.

4.2.4 Invasive Non-Native Species

There would be no additional soil disturbance under the No-Action Alternative so that there would be no increase in areas that would be vulnerable to the spread of INNS. However, the ground that is currently barren would be at risk of INNS spread to the extent that the soil could support vegetation. Annual treatments would be utilized as they are currently being done with modest beneficial impacts to reducing INNS.

4.2.5 Fish and Wildlife Resources

The No-Action Alternative would not restore wildlife habitat, but would instead leave unvegetated areas within the abandoned mine sites. There would be no adverse impacts from wildlife and vehicle conflicts associated with increased traffic to the proposed project area.

4.2.6 Soils

The No-Action Alternative would allow soils to continue to erode, and would allow acid-forming soils to continue to migrate into otherwise productive areas. Without the landform stabilization and revegetation, soils would continue to be lost to water and wind erosion and would continue to be vulnerable to INNS spread. If project increases in storm severity occur, damage to ephemeral drainages is likely to increase as well if current management continues.

4.2.7 Recreational Resource Values

Under the No-Action Alternative, human health and safety hazards would continue to present a threat to the recreational public using this area. Without reduction of these highwalls and removal of the dangerous spoil piles, the hazards to the public would remain.

4.2.8 Air Quality

Impacts to local air quality from the No-Action Alternative would be the continued generation of fugitive dust from unvegetated and mine spoil piles. There would be no emission of GHG or particulates associated with construction vehicles. Travel to the site by crews and delivery trucks would not occur so there would be no air quality short-term adverse impacts.

4.2.9 Noise

The No-Action Alternative is not expected to alter noise levels.

4.2.10 Socioeconomic

The No-Action Alternative is not expected to produce economic impacts. While over time, non-disturbed soils and vegetation may be adversely impacted as discussed above, these are likely to

have minimal adverse economic impacts. There would be no economic benefit associated with the construction that would result from the Proposed Action. The No-Action Alternative would not alleviate the human health and safety hazards present at the proposed reclamation area.

4.3 CUMULATIVE IMPACTS

4.3.1 Required Analysis

The NEPA requires an assessment of the potential cumulative impacts of the proposed project. Cumulative impacts evaluate the incremental impact of actions under each alternative when added to other past, present and reasonably foreseeable future activities. Cumulative impacts can result from individually minor, but collectively significant actions occurring over a period of time.

The CEQ regulations do not require that cumulative impacts to all resources be analyzed. Instead, the CEQ indicates that the cumulative impact analysis should focus on meaningful impacts. In light of the extent of existing disturbance, an analysis of cumulative impacts to the vegetation in the area is predictive of the impacts to wildlife, livestock grazing, visual resources, and recreation (hunting). Impacts to vegetation (both beneficial and adverse) will determine the degree to which erosion occurs, loss of soil, and degradation of water resources.

4.3.2 Cumulative Impacts Analysis Area

The cumulative impacts analysis area (CIAA) for analysis of past, present and reasonably foreseeable future activities is the portion of the Gas Hills uranium development that was excluded from the greater sage-grouse Core Area (Figure 1). This CIAA was chosen for analysis for cumulative impacts because the Core Area Implementation Team determined that the disturbed areas were not suitable for greater sage-grouse habitat but that area within Core Area was important habitat for supporting grouse populations. The edge between the severely disturbed CIAA and Core Area is more blurred on the ground than the boundary depicted in Figure 1 but is determined in part by the change in geology associated with Beaver Rim.

This CIAA is appropriate for analysis because the vegetation (or lack thereof) within the CIAA is typical of the project area. Identifying potential impacts to Core-Area vegetation would provide no additional insight in evaluating the cumulative effects on the project area.

4.3.3 Past Activities

The past activities within the project area itself are described in the Affected Environment and are depicted in the photographs that are attached. The effect of past activities within the CIAA but outside of the project area known to the BLM are:

Case Number (all WYW)	Type of case (all are 43 CFR)	Type of action	Mineral

168186	3809	Notice	Uranium
168187	3809	Notice	Uranium
159806	3809	Notice	Bentonite
168143	3809	Notice	Bentonite
139562	3715	Occupancy[1]	
167994	3809	Notice	Uranium
140590	3809	Plan	Uranium
168087	3809	Notice	Uranium

The mineral actions identified above include actions on private and state surface with federal minerals. The activities resulted in the disturbance described in the Affected Environment.

4.3.4 Current and Future Activities

Current and future activities that are reasonably certain are the projects identified in the project area are:

Project	Type of disturbance	Project period	Impact to vegetation
Cameco Uranium Mine in situ recovery operation	Intensive disturbance with interim reclamation. Some disturbance at end of project with removal of mine infrastructure	2012-2030	Short and long term adverse
Day Loma AML	Reclamation of existing disturbance. Some minor initial disturbance but long term reclamation.	2011-2016	Very short term adverse; long term beneficial

The Cameco uranium mine will result in adverse impacts to vegetation resources in the short term as extensive drilling occurs on 100' centers or less with removal of vegetation on the well pad and possibly drilling pits. Roads, header houses, and pipelines will be installed. Interim reclamation will be undertaken for soil stability, perhaps enhanced to improve reclamation success and to improve soil resources for long term reclamation. At the conclusion of the mining operations (perhaps by 2030 or later), some addition disturbance will occur to remove buried infrastructure including pipelines. This disturbance will be less extensive than during the installation phase but will be an adverse impact to vegetation. Subsequent reclamation will prioritize restoration of wildlife friendly vegetation appropriate for the ecological site which is a beneficial impact. However, the beneficial impact to vegetation will occur outside of the planning time frame for the Day Loma pit.

The AML reclamation project at the Day Loma area will be a very short term adverse impact to vegetation resources in the CIAA because, like the Day Loma reclamation, a small amount of

[1] Occupancy under 43 CFR 3715 is residence on the public lands for purposes of developing a locatable mineral (mining action under 43 CFR 3809.)

vegetation that was not disturbed during past mining will be removed or crushed. This vegetation is already degraded by the erosion and sedimentation of the disturbed soils and by the leakage of degraded water from past reclamation. The degraded nature of the vegetation to be affected and the minimal quantity result in very minor adverse impacts. Almost immediately, the result of the Day Loma reclamation will have beneficial impacts to vegetation in the CIAA. The beneficial impacts are likely to increase over time as the re-vegetation success increases and more previously disturbed areas are reclaimed. The Day Loma project is expected to have both short term and beneficial impacts to vegetation resources in excess of those associated with the Bullrush project because more soil is available to support re-vegetation efforts.

4.3.5 Other AML Projects

WDEQ has identified a number of projects in Fremont County, some of which may be near or within the CIAA; see WDEQ AML webpage. However, the time frame within which these other AML projects will be conducted has not been identified. Accordingly, the cumulative impacts of AML work being evaluated here are limited to the Bullrush projects. However, it is reasonable to assume that all AML work will have minor, short-term adverse impacts with increasingly larger medium to long-term beneficial impacts, similar to those identified for the Bullrush project.

4.3.6 Summary

4.3.6.1 Proposed Action

The short and long term beneficial impacts to vegetation (after a very minor initial adverse impact) by the proposed action are made more important when considering the cumulative impacts of other actions. The Cameco uranium mine, in particular, will result in adverse consequences to vegetative resources. While much of the area to be disturbed by the Cameco project was disturbed in the past, vegetation has been re-established, albeit not at the biological diversity or plant succession that existed prior to disturbance. The proposed action will help to mitigate the new adverse impacts that will occur to vegetation by reason of the cumulative actions.

Chapter 5

Persons, Groups, and Agencies Consulted

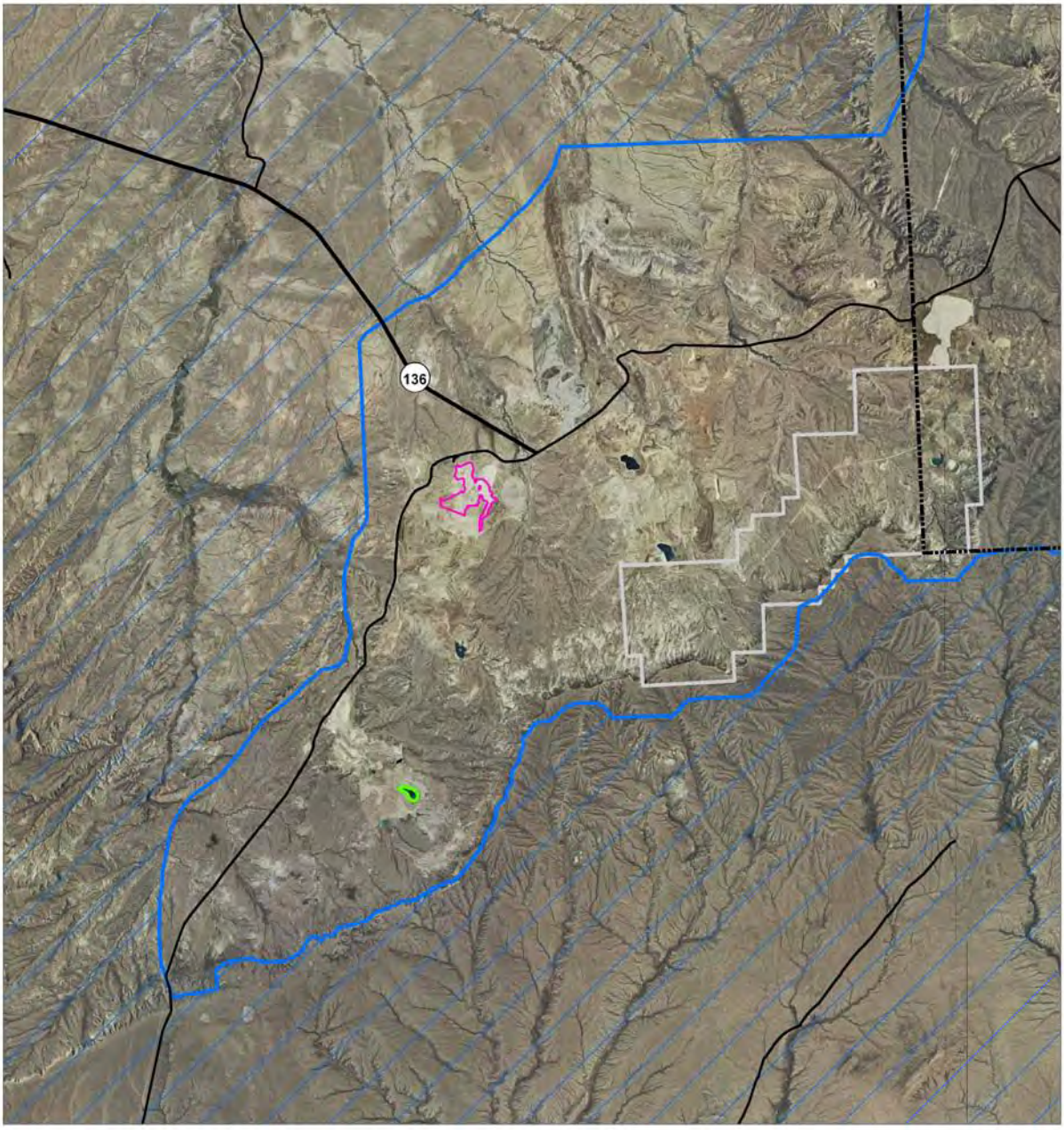
5 PUBLIC INVOLVEMENT

A legal notice was posted in the Casper Star-Tribune to notify the public that AML will undertake reclamation in this area, and to provide an opportunity for public comment on the projects. No comment was received. A copy of the notice is provided in Appendix A.

5.1 PERSONS, ORGANIZATIONS, AND AGENCIES CONTACTED

The Wyoming Department of Environmental Quality, Abandoned Mine Land Division (AML) prepared this Environmental Assessment. Agency personnel and other professionals involved with preparation of any part of this analysis are listed below as well as personnel contacted in other state and federal agencies during the course of preparing this EA.

Wyoming Department of Environmental Quality		
Alan Edwards	AML Administrator	Cheyenne, WY 82002
Vicky Zimmerman	AML Project Manager, Construction	Lander, WY 82520
Marcia Murdock	AML NEPA Compliance Coordinator	Lander, WY 82520
Assessment and Analysis		
Eddie Batson	BLM Worland Field Office, District Manager	Worland, WY 82401
Kristin Yannone	BLM Lander Field Office, NEPA	Lander, WY 82520
Jon Kaminsky	BLM Lander Field Office, Lands and Geology	Lander, WY 82520
Gina Clingerman	BLM Lander Field Office, Cultural Resources	Lander, WY 82520
Sue Oberlie	BLM Lander Field Office, Wildlife	Lander, WY 82520
Tom Larson	LTA, Inc., Cultural Consultant	Laramie, WY 82072
Harold Hutson	BRS Inc. Engineering	Riverton, WY 82501
Strathmore Minerals Corp.	Mineral Claimant	Riverton, WY 82501



Gas Hills Project Locations

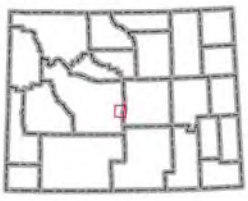
- Highway
- Maintained Road
- Bullrush AML Area
- DayLoma Highwall AML Area
- Greater Sage-Grouse Core Area
- Cameco Permit Area
- Lander Field Office Boundary

N

0 2

Miles

No warranty is made by the Bureau of Land Management (BLM) for use of the data for purposes not intended by BLM.



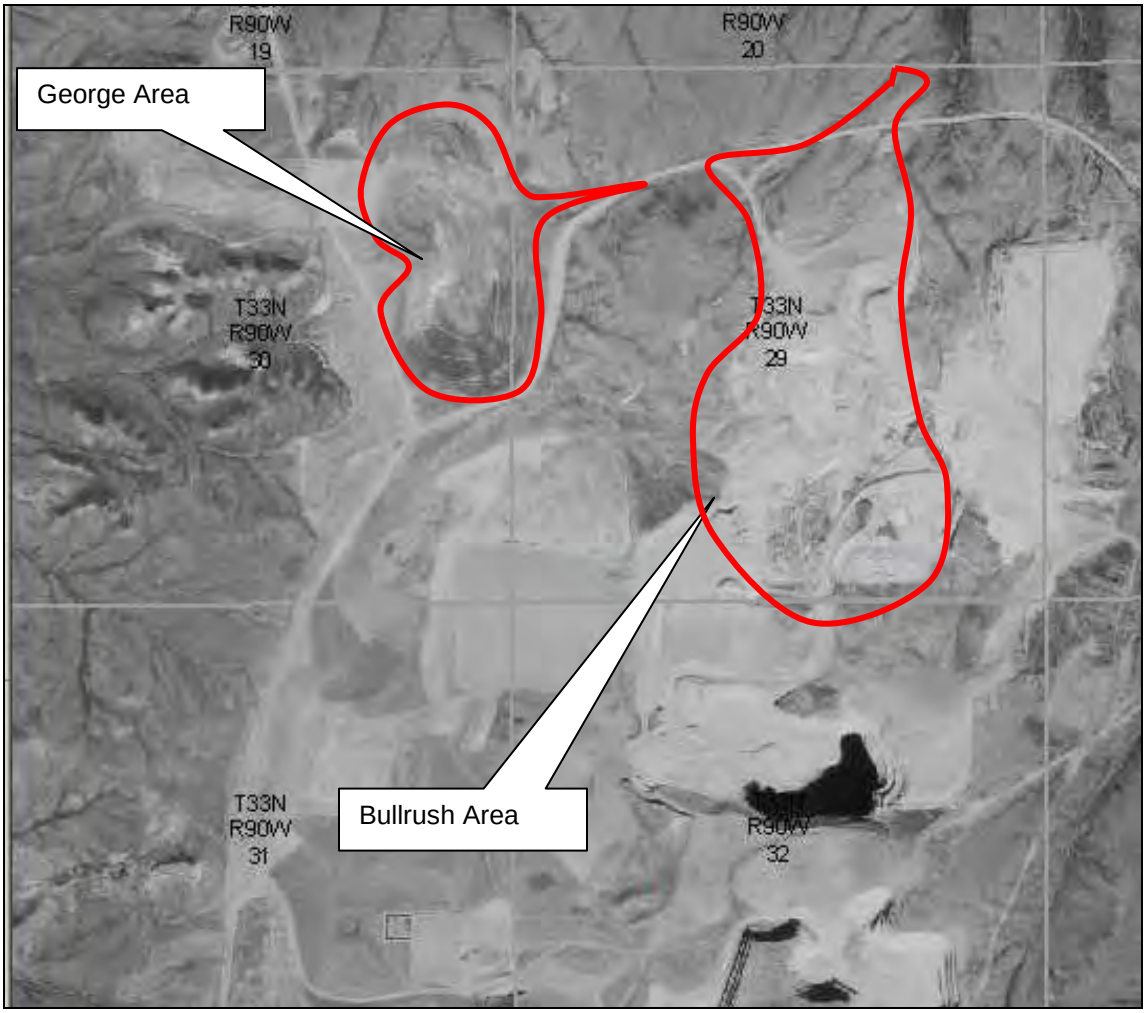


Figure 2. Bullrush and George work areas shown in an aerial photograph ca. 2002.

REPRESENTATIVE PHOTOGRAPHS OF PROPOSED RECLAMATION SITES

Photo 1. North Spoils at Bullrush area.

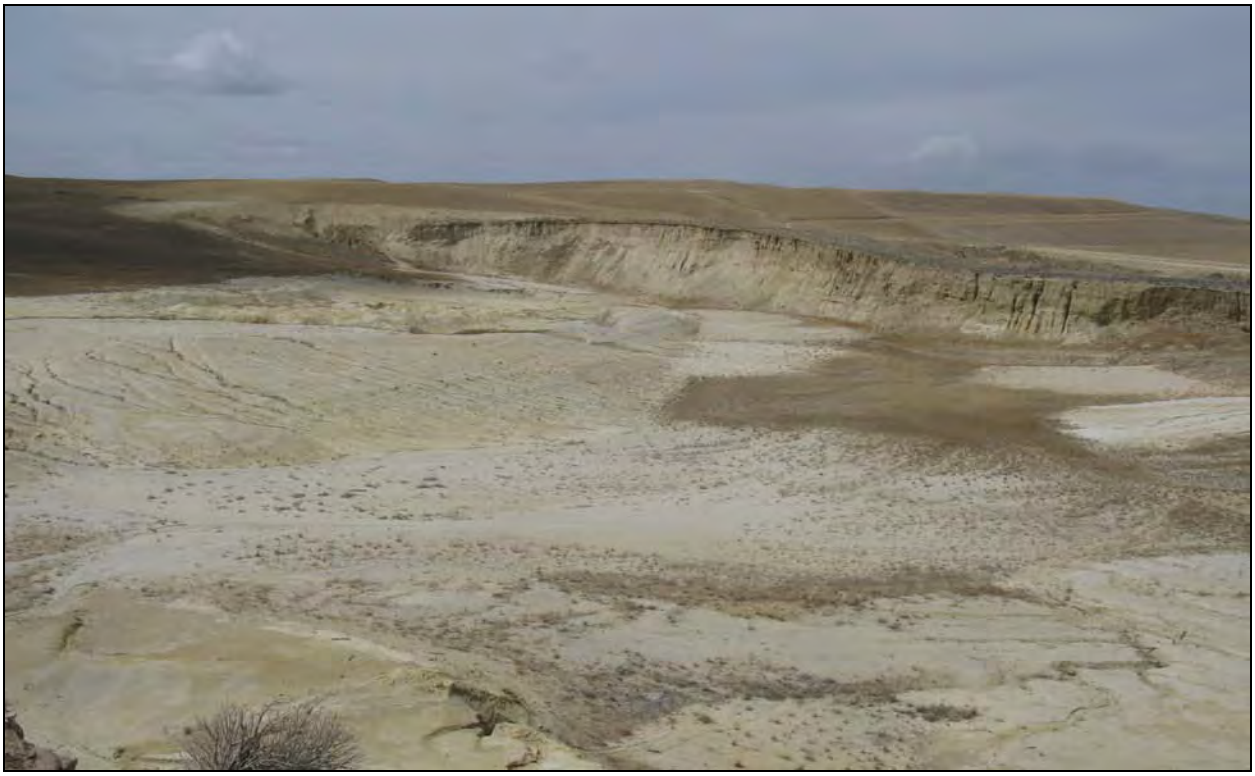


Photo 2. Bullrush pit bottom and one highwall.

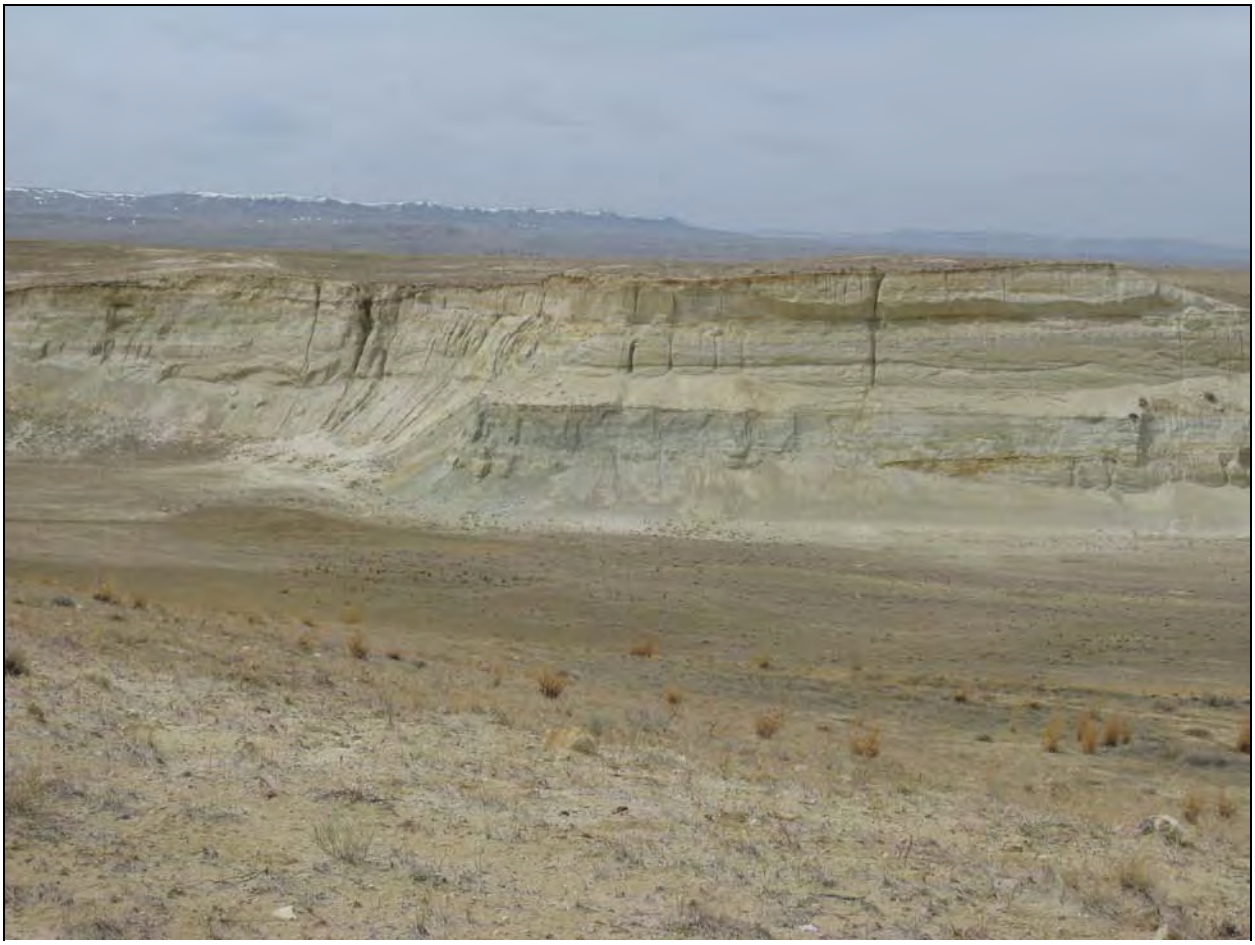


Photo 3. George Highwall showing previously reclaimed pit bottom.

APPENDIX A

NATURAL RESOURCE EVALUATION REPORT

AML Project 16B 1-II Bullrush Pit & North Spoils/George Highwall
6 Threatened and Endangered Species Survey and Natural Resource Evaluation

General Area Description – The work location is in the Gas Hills Uranium District, which was extensively mined starting in the 1950s, and continuing into the early 1980s. Mining conducted in the vicinity was in the form of very large open pits and underground mines, often at the same location. The location of this project had open pits that left significant highwalls, devegetated pit bottoms, and unreclaimed mine spoils. Large tracts of mined land in this area remain unreclaimed, but AML has progressively reclaimed many of the abandoned mine sites, and some mine companies are continuing to reclaim bonded acreages in the locale. The native areas are sagebrush-grassland hills with sandstone and shale outcrops. Extensive areas of reclaimed acreage now occur where previous uranium mining was conducted.

Numerous natural resource surveys have been conducted in the vicinity of this work area over time, starting in 1987, with the most recent in 2001-2002 (MWES 2002), which was conducted for the evaluation of the Sagebrush-Tablestakes reclamation site that is immediately adjacent to the Bullrush site. Information reported here is from combined results of past surveys as well as site specific surveys conducted by Marcia B. Murdock, AML Wildlife Biologist/Botanist on April 21, 2011.

Vegetation – The proposed work areas are largely devoid of vegetation except a few weedy species common in the abandoned mine areas of that vicinity. The majority of the area is mining-disturbed ground, with the exception of two separate 10-acre areas that will be disturbed during reconstruction of the drainage at the Bullrush and North Spoils area.

Vegetation in the surrounding area includes bluebunch wheatgrass (*Elymus spicatus*), needle-and-thread (*Stipa comata*), Sandberg bluegrass (*Poa secunda*), Junegrass (*Koeleria macrantha*), foxtail barley (*Hordeum jubatum*), Indian ricegrass (*Oryzopsis hymenoides*), crested wheatgrass (*Agropyron cristatum*), alkali bluegrass (*Poa juncifolia*), Baltic rush (*Juncus balticus*), sandwort (*Arenaria hookeri*), oval-leaved buckwheat (*Eriogonum ovalifolium*), phlox (*Phlox hoodii*), tansy aster (*Haplopappus nuttallii*), sedum (*Sedum lanceolatum*), nailwort (*Paronychia sessiliflora*), prickly phlox (*Leptodactylon pungens*), goldenweed (*Haplopappus acaulis*), prickly pear (*Opuntia polyacantha*), branched goldenweed (*Haplopappus multicaulis*), curlycup gumweed (*Grindelia squarrosa*), thistle (*Cirsium sp.*), lupine (*Lupinus sp.*), broomrape (*Orobanche sp.*), sweet colver (*Melilotus sp.*), Russian thistle (*Salsola tragus*), dandelion (*Tragopogon dubius*), milkweed (*Asclepias speciosa*), phlox (*Phlox muscoides*), golden pea (*Thermopsis rhombifolia*), wild parsley (*Lomatium sp.*), Easter daisy (*Townsendia sp.*), and ragwort (*Senecio canus*).

Wildlife – Wildlife species observed in the area include common raven (*Corvus corax*), lark bunting (*Calamospiza melanocorys*), horned lark (*Eremophila alpestris*), golden eagle (*Aquila chrysaetos*), red-tailed hawk (*Buteo jamaicensis*), prairie falcon (*Falco mexicanus*), American kestrel (*Falco sparverius*), black-billed magpie (*Pica hudsonius*), ferruginous hawk (*Buteo regalis*), coyote (*Canis latrans*), desert cottontail rabbit (*Sylvilagus audubonii*), mule deer

(*Odocoileus hemionus),* and pronghorn (*Antilocapra americana*). Feral horses also roam the area. Other mammalian species expected in the area include white-tailed jackrabbit (*Lepus townsendii*), red fox (*Vulpes vulpes*), badger (*Taxidea taxus*), and a variety of small mammals.

Wetlands – No wetlands occur in the work areas.

Migratory Birds of High Federal Interest – Some raptor species use the area for nesting and foraging territory. In March 2011, a pair of prairie flacons was observed in the vicinity of the George Highwall. On the April 21, 2011 survey, no prairie flacons were observed, but an active red-tailed hawk nest, was documented at the George Highwall. An immature ferruginous hawk was observed in the area of the Bullrush work site, however this was a single individual and no raptor nests were observed in the vicinity. An American kestrel was observed hunting in the general vicinity of the proposed work. No sage grouse, or sage grouse sign were observed in the area, though there is a record of an active sage grouse lek in undisturbed habitat within approximately 0.8 miles of the Bullrush Pit..

Threatened or Endangered Species – No threatened or endangered species were observed nor are any expected.

Summary and Recommendations – The only wildlife concern identified was the presence of an active red-tailed hawk's nest at the George Highwall. Project construction should be delayed until nesting activity at this site has concluded. BLM stipulations normally recommend temporal avoidance of active raptor nests until July 31. Provided that construction at the Bullrush site is delayed until July 1, no impact on an active sage grouse lek would be anticipated. If the start of construction at the George Highwall is delayed until August 1, any impacts to the red-tailed breeding cycle should be avoided.

Red-tailed hawk nest at George Highwall, April 21, 2011.

Referenced Previous Wildlife Survey Report:

Mountain West Environmental Services. 2002. Resource Evaluation Survey for AML Project 16M the Sagebrush Tablestakes Pit Project. Survey conducted on May 15, 2002 by Robert Dorn.

SHPO CORRESPONDENCE ON CULTURAL RESOURCES

ARTS. PARKS. HISTORY.
Wyoming State Parks & Cultural Resources

State Historic Preservation Office
Barrett Building, 3rd Floor
2301 Central Avenue
Cheyenne, WY 82002
Phone: (307) 777-7697
Fax: (307) 777-6421
http://wyoshpo.state.wy.us

November 30, 2009

Ms. Murdock
AML NEPA Compliance Coordinator
Wyoming Department of Environmental Quality
510 Meadowview Drive
Lander, WY 82520-0000

re: AML Project 16B-1-II, Bullrush Reclamation (SHPO File # 1109LKN010)

Dear Ms. Murdock:

Thank you for consulting with the Wyoming State Historic Preservation Office (SHPO) regarding the above referenced project. We have reviewed the project report and find the documentation meets the Secretary of the Interior's Standards for Archaeology and Historic Preservation (48 FR 44716-42). We concur with your finding that no historic properties, as defined in 36 CFR § 800.16(l)(1), will be affected by the project as planned.

We recommend the Department of Environmental Quality allow the project to proceed in accordance with state and federal laws subject to the following stipulation:

> If any cultural materials are discovered during construction, work in the area shall halt immediately, the federal agency must be contacted, and the materials evaluated by an archaeologist or historian meeting the Secretary of the Interior's Professional Qualification Standards (48 FR 22716, Sept. 1983).

This letter should be retained in your files as documentation of a SHPO concurrence on your finding of no historic properties affected. Please refer to SHPO project #1109LKN010 on any future correspondence regarding this project. If you have any questions, please contact me at 307-777-6179.

Sincerely,

Laura Nowlin

Laura Nowlin
Historic Preservation Specialist

ARTS. PARKS. HISTORY.
Wyoming State Parks & Cultural Resources

State Historic Preservation Office
Barrett Building, 3rd Floor
2301 Central Avenue
Cheyenne, WY 82002
Phone: (307) 777-7697
Fax: (307) 777-6421
http://wyoshpo.state.wy.us

Nov 19, 2009

Marcia Murdock
AML NEPA Compliance Coordinator
Wyoming Department of Environmental Quality
510 Meadowview Drive
Lander, WY 82520

re: Results of a Literature Review for the George Pit Uranium Reclamation Area Project, Fremont County, Wyoming (SHPO File # 1109JRD006)

Dear Ms Murdock:

Thank you for consulting with the Wyoming State Historic Preservation Office (SHPO) regarding the above referenced project. We have reviewed the project report and find the documentation meets the Secretary of the Interior's Standards for Archaeology and Historic Preservation (48 FR 44716-42). We concur with your finding that no historic properties, as defined in 36 CFR § 800.16(l)(1), will be affected by the project as planned.

We recommend the Department of Environmental Quality allow the project to proceed in accordance with state and federal laws subject to the following stipulation:

> If any cultural materials are discovered during construction, work in the area shall halt immediately, the federal agency must be contacted, and the materials evaluated by an archaeologist or historian meeting the Secretary of the Interior's Professional Qualification Standards (48 FR 22716, Sept. 1983).

This letter should be retained in your files as documentation of a SHPO concurrence on your finding of no historic properties affected. Please refer to SHPO project #1109JRD006 on any future correspondence regarding this project. If you have any questions, please contact Joseph Daniele, Archaeologist/Review and Federal Consultation at 307-777-8793.

Sincerely,

Joseph Daniele
Wyoming State Historic Preservation Office

PUBLIC NOTCE

LEGAL NOTICE

The Wyoming Department of Environmental Quality, Abandoned Mine Land Division, is planning to enter and perform work to reclaim abandoned mine lands in Fremont County, Wyoming. The AML program hereby provides public notice of its intent to enter and perform work in Township 33N, Range 90W, Sections 29, 30 & 32.

The abandoned uranium mine workings constitute hazards to the safety and general welfare of the public. This project will be conducted under the Wyoming Abandoned Mine Land Program authorized by W.S. § 35 11 1201 through 1207 and associated regulations. Comments on this project are hereby solicited from the public. Anyone desiring a public hearing on this matter should contact, in writing, the individual below giving reasons for their request. Further information may be obtained from:

Marcia Murdock, AML NEPA Coordinator
Abandoned Mine Land Division
Department of Environmental Quality
510 Meadowview Drive
Lander, Wyoming 82520
(307) 335-6946

Comments and requests must be received by May 10, 2011.