

U.S. Department of the Interior Bureau of Land Management

Environmental Assessment DOI-BLM-MT-B050-2015-010-EA
March 2015

Rochester Mining District Abandoned Mine Physical Safety Hazard Abatement



Location:

Various locations within the Rochester Mining District
Madison County, Montana
T2S, R7W Section 32
T3S, R7W, Sections 5, 6, 7, 8, 12, and 21

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1.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.1 Introduction and Background

The BLM Dillon Field Office proposes to eliminate physical safety hazards resulting from historic mining activity in the Rochester Mining District which is located in the lower Big Hole Watershed. The Rochester watershed portion of the Lower Big Hole watershed was analyzed in 2008 and 2009 as part of Environmental Assessment DOI-BLM-MT-050-2009-0003-EA July 15, 2009 Rochester Basin and North Tobacco Roots Watershed Environmental Assessment. The district, which was abandoned in the 1960's, left major abandoned mine-related impacts to health, safety, and general welfare in Madison County, Montana. The hazardous features include vertical drop-offs, excavated pits, open adits, shafts and waste piles. The open adits, shafts, vertical drop-offs and waste rock piles present an immediate danger to visitors and create a hazard to recreational users, livestock, and wildlife.

1.2 Purpose and Need

The purpose of this work is to reclaim abandoned mine features. The need is to protect the public, livestock and wildlife from potential physical injury which could result from encounters with these features. In addition to the physical hazard present to humans entering the adits, there is some information that suggests recreationists have disturbed roosting bats.

Except for some fencing and signing, there is virtually nothing to obstruct entrance to the mines themselves.

This document analyzes closure methods for approximately 150 unsafe mine features in the Rochester area. Safety hazards from potential entry into adits would be eliminated. The project would also improve the visual quality and could enhance site productivity of the lands involved. BLM Instruction Memorandum 2005-231 directs Field Offices to mitigate safety hazards stemming from abandoned mines. In March 2005, the Office of Inspector General issued a Flash Report (No.C-IN-BLM-0013-2005) on Public Safety Issues which identified the need for the BLM to be more proactive in fulfilling this policy.

1.3 Issues

1.3.1 Identification of Key Resource Issues and Resource Concerns

The issues described below have a direct bearing upon the proposed action and the process of how the purpose and need will be achieved. The development of management alternatives are in direct response to the identified issues. Resource concerns do not necessarily drive the development of alternatives, but may be affected by proposed actions in the alternatives.

The Rochester Mining District was abandoned in the 1960's. Major abandoned mine-related impacts to health, safety, and general welfare in Madison County, Montana remain. These impacts include vertical drop-offs, excavated pits, open adits, shafts and waste piles. These present physical safety hazards present an immediate danger to visitors as well as livestock, and wildlife.

A brief description and explanation of the issues and concerns, as well as the management objectives for each issue and resource concern are defined.

1.3.2 Key Issues and/or Resource Concerns considered, but eliminated

Riparian, Wetland, and Aquatic Habitat and Associated Species

Riparian, Wetland and Aquatic Habitat and Associated Species were considered but eliminated from further analysis because these resources are not present in the affected environment. The Thistle tailings (BLM) and Watseca tailings (private) in Rochester Creek were removed and the sites reclaimed. This work has improved riparian, wetland and aquatic habitat in Rochester Creek

Water Quality and Total Maximum Daily Loads (TMDL)

Surface Water Quality and Total Maximum Daily Loads were considered but eliminated from further analysis for the same reason that Riparian, Wetland and Aquatic Habitat and Associated Species were eliminated. Surface water, streams, is not present in the affected environment. Groundwater Quality was considered but eliminated from further analysis because the proposed work will not have groundwater impacts.

1.4 Scope of this Environmental Analysis, Plan Conformance & Critical Elements

1.4.1 Scope

Scope consists of the range of actions, alternatives and impacts to be considered within this document. The scope is determined through consideration of three types of actions: those which may be connected, cumulative, and similar. This document will consider the Proposed Action and the No Action Alternative. Finally this document must consider three types of impacts: direct, indirect, and cumulative. 40 CFR 1508.25, 1502.4(a), and 1502.9)

1.4.2 Conformance with BLM Land Use Plans, Programs, and Policies

BLM's policies are designed to protect public health and safety. This plan has been reviewed to determine if the proposed action conforms to the land use plan's terms and conditions as required by 43 CFR 1610.5. The proposed project is in conformance with the 2006 Dillon Resource Management Plan whose goal is to protect humans and the environment from exposure to abandoned mines.

BLM Instruction Memorandum 2005-231 directs Field Offices to mitigate safety hazards stemming from abandoned mines. In March 2005, the Office of Inspector General issued a Flash Report (No.C-IN-BLM-0013-2005) on Public Safety Issues which identified the need for the BLM to be more proactive in fulfilling this policy.

Also considered and adhered to during alternative development were the goals, objectives and management recommendations specified in these documents:

- IM No. MT-2014-067, Montana/Dakotas Special Status Species List.
- BLM Manual 6840 - Special Status Species Management.
- BLM's National Sage Grouse Strategy.

- Greater Sage-Grouse Interim Management Policies and Procedures No. 2012-043
- Management Plan and Conservation Strategies for Sage Grouse in Montana

RELATIONSHIPS TO STATUTES, REGULATIONS AND OTHER PLANS

National and state policies are also designed to protect public health and safety. The proposed action would be conducted within the parameters of the Surface Mining Control and Reclamation Act (1977) and the Montana Strip and Underground Mine Reclamation Act (2008), as well as IM 2007-096 which directs the BLM to prioritize and address hazards associated with Abandoned Mine Lands (AML) sites and IM 2008-190 which directs the BLM to identify and report AML sites and hazards and to implement immediate temporary or permanent measures to mitigate known dangerous sites.

1.4.3 Critical Elements of the Human Environment

The following critical elements have been evaluated against the proposed action and are either; 1) present and potentially impacted and discussed further in the EA; 2) present but not impacted as discussed in the EA; or 3) not present:

CRITICAL ELEMENTS		
Determination*	Resource	Rationale for Determination
PI	Air Quality	NI
NP	Areas of Critical Environmental Concern	NP
PI	Cultural Resources	See Below
NP	Environmental Justice	NP
NP	Farmlands (Prime or Unique)	NP
NP	Floodplains	NP
PI	Invasive, Non-native Species	Disturbed areas would be reseeded. Weeds would be sprayed.
NP	Native American Religious Concerns	NP
PI	Threatened, Endangered or Candidate Animal Species	Greater sage grouse are listed as a candidate species and discussed below. Biological Evaluation attached Appendix B
NP	Threatened, Endangered or Candidate Plant Species	NP
NP	Wastes (hazardous or solid)	To our knowledge none present, however potential hazardous waste would be removed if any exists.
NP	Water Quality (drinking/ground)	NP
NP	Wetlands/Riparian Zones	NP
NP	Wild and Scenic Rivers	NP
NP	Wilderness	NP

*Possible determinations:

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present and may be impacted to some degree. Would be analyzed in affected environment and environmental impacts. (NOTE: PI does not mean impacts are likely to be significant in any way).

1.5 Decisions to be Made

The BLM is preparing this EA to allow the Authorized Officer to make a reasoned and informed decision to address physical safety hazards resulting from historic mining activity in the Rochester Mining District.

The Decisions will be implemented in consultation and coordination with agencies having lands or managing resources within the area, and other interested parties. As with all similar BLM decisions, affected parties will have an opportunity to protest and/or appeal these decisions.

2.0 DESCRIPTION OF ALTERNATIVES

2.1 Alternative considered but eliminated from further review.

Under this alternative all existing features would have been closed with adjacent waste rock, without bat gates or culverts and without maintaining the historical features. All mines that have the potential to host bats will be covered with tarps for at least 3 days before backfilling to ensure that the bats leave the site. Eliminating bats from unstable sites ensure that they are not killed by caving adits.

2.2 Proposed Action

The proposed action includes closure and initial reclamation of approximately 150 abandoned mines (see attached map). None of the mines are being actively worked by claimants. The BLM will work with claimants on a case by case basis to ensure that mines with active claimants would be secured in a manner that ensures public safety. Site specific descriptions and project plans for each mine site are discussed below and are included in more detail in design reports prepared by MCS Environmental Incorporated (2005 and 2006). The project plans for each mine site deal primarily with closing the adits, shafts and open stopes and making the sites less user friendly to visitors.

A variety of closure methods could be implemented at each site with the objective to be either gate the feature for bat use or permanently close the feature. To ensure safety and eliminate long term maintenance the preferred closure method is backfilling. If the site hosts significant bats or has good safe potential to host bats is has been designated for a bat gate closure. Site that are inaccessible with equipment and are not bat habitat would be closed with polyurethane foam.

A backhoe and a small bulldozer would be used to backfill borrow and if necessary waste rock piles into the adits or shafts. As little as possible of the original feature will be impacted and footprint of the feature will be left on site to ensure as much preservation of the cultural feature as possible. All equipment would be power-washed and cleaned before moving to and from the area to prevent the spread of invasive and noxious weeds.

Bat friendly closures would be installed on four features. These are N1-23, N7-11, R21-1 and R21-21. The choice of bat friendly closure methods depends on site-specific conditions. The two types of bat friendly closures that would be used are steel bat gates or culverts with a steel

gate inside. The culvert closures would be used where stability of the mine entrance does not permit installation of a metal bat gate.

Revegetation methods would consist of seeding weed seed free) disturbed areas. Disturbed areas would be seeded using broadcast methods. Seed mixes would be **certified weed seed free**. The following seed mix would be used:

Common Name	Scientific Name	Seeding Rate (lbs/ac)
Bluebunch Wheatgrass	<i>Pseudoroegneria spicata</i>	4
Slender Wheatgrass	<i>Elymus trachycaulus</i>	4
Thickspike Wheatgrass	<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>	4
Lewis Flax	<i>Linum lewisii</i>	1
Yellow Owl's Clover	<i>Orthocarpus luteus</i>	0.5
Rocky Mountain Beeplant	<i>Cleome serrulata</i>	2
Scarlet Globemallow	<i>Sphaeralcea coccinea</i>	0.5
Wyoming Big Sagebrush	<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>	0.5
Total		16.5

Back filling adits and shafts utilizes small amounts of dirt moving, potential dust is minor and temporary. The equipment operator is protected by the cab of his equipment and anyone on site would position themselves outside of the dust.

The closure and reclamation activities are expected to begin on June 15, 2015. All work would be conducted in the spring, summer or early fall during daylight hours. Night time operations would not be permitted. The mine sites are remote with difficult access. Snow and frozen ground prevent the work from occurring in the winter. Access is difficult to impossible when muddy conditions exist.

2.3 No Action

Under this alternative, none of the mine adits would be closed or gated and no site specific reclamation of any type would take place at the mines.

3.0 AFFECTED ENVIRONMENT

3.1 General Setting

Rochester is located approximately nine miles northwest of Twin Bridges, Montana. The area is arid and consists of rolling hills. Vegetation in the area consists of sagebrush and grasses. Extensive mining has taken place in the area going back over 130 years and historic mine features are prevalent all through the area. Roads in the area range from wide gravel to rugged two tracks. The elevation in the area is approximately 5,800 feet.

The proposed project is located in the Rabbit/Rochester Historic Mining District. Mining in the district began in 1866 with early placer mining and continued into the early 20th century with various underground ventures. It is estimated that the Rabbit Mining District's cumulative production to be \$2.5 million. Slightly over \$900,000 of that total stemmed for mining operation prior to 1898, while slightly less than \$1.1 million was produced by the Watseca Mine during its heyday between 1898 and early 1905. Thus, over the next 28 years

of the early twentieth century, mining in the district yielded only about \$500,000 worth of ore. The Mining District as a whole is eligible to the National Register of Historic Places for its importance to Montana's mining history. Each individual mining site, though a contributing element to the overall district, is regarded on its own merits for inclusion to the National Register.

The affected environment of the Proposed Action and the No Action alternatives were considered and analyzed. Critical Elements of the Human Environment are those elements that are subject to the requirements specified in statute, regulation, or executive order, and must be considered in all Environmental Assessments (BLM H-1790_1, Appendix 5). The existing condition and potential impacts are described for resources, including Critical Elements, which are potentially affected by the proposal.

3.2 Description of Affected Issues/Resources

Vegetation

Some of the prominent herbaceous species in the general project area include bluebunch wheatgrass (*Pseudoroegneria spicata*), western wheatgrass (*Pascopyrum smithii*), Sandberg's bluegrass (*Poa secunda*), needle-and-thread (*Hesperostipa comata*), prairie junegrass (*Koeleria macrantha*), blue grama (*Bouteloua gracilis*), Idaho fescue (*Festuca idahoensis*) and pricklypear cactus (*Opuntia polyacantha*). Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*), rubber rabbitbrush (*Ericameria nauseosa*), green rabbitbrush (*Chrysothamnus viscidiflorus*), fringed sagewort (*Artemisia frigida*), and broom snakeweed (*Gutierrezia sarothrae*) are common native shrubs in the area. Scattered patches of cheatgrass (*Bromus tectorum*), an invasive species, are also present throughout the project area.

The public land in the vicinity of the Rochester project area is low probability habitat for plants on the current sensitive plant species list. No impacts to sensitive plants or their habitat are anticipated.

Reseeding the footprint of the waste dumps and any other disturbances would reduce the chance of invasion from surrounding noxious weeds. Also the power washing of equipment before entering the site would reduce the chance of new noxious weeds being brought into the area. Per agencies' policy, weeds would be sprayed by the BLM or a contractor for a minimum of three years or until they are considered under control.

Cultural Resources

A Class III cultural resource inventory was conducted for each historic mining site. In order to fully comply with Section 106 of the National Historic Preservation Act, consultation with the Montana State Historic Preservation Office would need to be completed to decide on the proper mitigation for the project prior to the project going forward.

The proposed action may have an impact on historic mine features as each feature is secured. However, every effort would be made to minimize the impacts of feature closure. Steps taken to reduce impacts include using the preexisting access roads, using borrow material for reclamation where possible and minimizing the amount of dump material needed for backfill and closure from areas cleared for cultural resources.

Recreation

Recreation in the proposed general project area is primarily of a dispersed nature and includes activities such as hunting, sightseeing, driving for pleasure, and occasional horseback riding. There are no developed recreation sites such as picnic areas or campsites in this general area, nor are there developed recreational trails.

The project is located in a steep mountainous area, and much of the activity would not be visible to visitors.

It is anticipated there would be minimal impacts to recreation. The project would only last one to two summer seasons. Most of the recreation use in this area occurs during the hunting season. Since the proposed activity would be confined to the summer months, there would be very little impacts to the high use season for recreation.

Public Safety

There is some use of the area for off-highway vehicles (OHVs) during the summer months when mining activity is proposed to occur, however, OHVs are limited to designated routes so conflicts should not occur.

Wildlife

Abandon Mines serve as important year-around sanctuaries for bats. Depending on the feature, especially the temperature, the microclimate created can provide roost sites and hibernacula similar to caves. Approximately one quarter of the bat species in the U.S are known to use old mines for hibernacula (Tuttle and Taylor 1994.) Of the 14 bat species known or expected to occur in Montanan, 11 species occur in southwest Montana. Six of these have been documented in the project area or surrounding habitat using abandoned mine features or existing rock and cliff features for roosting and water sources for foraging. Three of these species, the Fringed myotis (*Myotis thysanodes*), Spotted bat (*Euderma maculatum*) and Townsend's big-eared bat (*Plecotus townsendii*) are listed as Sensitive by the BLM. The Townsend's big eared bat is the only sensitive species that has been documented in the project area through surveys; however the other two species have been documented nearby in the adjacent Butte Field Office.

Greater sage grouse are currently listed as a candidate species under the ESA (Federal Register March 5, 2010). The FWS determined that listing was warranted but precluded by other priority listing actions. Greater sage grouse are found in or near the project area and the project area is mapped as preliminary general management areas (PGMA) for sage grouse. The PGMA for sage grouse was adopted from *Distribution of sage grouse in North America* (Schreder et.al. 2004.) and is based on existing sagebrush habitat but not all PGMA's are occupied by sage grouse. Two known active leks do occur in the project area. They are both about 1 mile north - north east to the nearest features slated to be closed. Due to the availability of suitable nesting habitat, most of the sage grouse nesting occurs to the north of the occupied leks, and early brood rearing occurs in the moist swales and riparian areas adjacent to sagebrush habitat.

The project area also provides summer habitat for pronghorn antelope, raptors, rodents and migratory song birds as well as winter habitat for mule deer and elk. Other BLM sensitive status species that are known to frequent the area include gray wolf, golden eagle, ferruginous hawk, Brewer's sparrow and sage thrasher. Species that are not documented in the PA, but

habitat exists include the loggerheaded shrike, long-billed curlew, McCown's longspur, and sagebrush sparrow.

Visual Resources

The proposed project is located in an area identified to be managed for Visual Resource Management (VRM) Class IV, largely due to the existence of significant disturbance from past mining activities. The objective for management activities in VRM Class IV is to "...provide for management activities which require major modification of the existing character of the landscape. Changes may attract attention and be dominant landscape features but should reflect the basic elements of the existing landscape..."

Invasive, Non-Native Species

There is some evidence of noxious weeds present on several of the mine sites addressed in the proposed action, but most have not been thoroughly inventoried. There have been sightings of isolated patches of Canada thistle (*Cirsium arvense* L.), cheatgrass (*Bromus tectorum*), houndstongue (*Cynoglossum officinale* L.), and spotted knapweed (*Centaurea maculosa* Lam) along access and road ways throughout the area.

4.0 ENVIRONMENTAL IMPACTS

The following discussion outlines the potential impacts (by alternative) to critical elements and other affected elements of the human environment.

4.1 Alternative 1 - Proposed Action

Vegetation

There could be some vegetation removed in isolated areas from the closure activities and road obliteration. However, most of the sites are relatively devoid of perennial vegetation. The proposed reclamation activities would mitigate any potential impact to vegetative resources.

Cultural Resources

Direct impacts to cultural resources could occur when heavy equipment is used to close and/or landscape the selected mine features. Through consultation with the Montana State Historic Preservation Office a determination of mitigation would be completed prior to the undertakings initiation. In order to protect existing on-the-ground cultural resources the operator would avoid all historic features not associated with the proposed project. This includes on-the-ground historic debris. If historic artifacts are inadvertently discovered during the course of the project the operator would stop work and contact the Dillon Field Office for further direction.

Recreation

Some recreational users could be impacted by the proposed action. There is evidence that people have camped at some of the sites and also entered open adits. The proposed closures and reclamation activities would make the actual mine sites inaccessible and waste rock areas less user friendly. However, the benefits to human health and safety far outweigh the impact to individual recreational users.

Public Safety

The closure and reclamation activities described in the proposed action deal primarily with closing the adits to minimize physical hazards and making the flat areas near the sites less user friendly to recreationists.

Wildlife

The proposed project is not expected to have any significant impact on special status wildlife. Refer to the Biological Evaluation, Appendix B for a list of all BLM sensitive status species that were reviewed for this project and potential impacts to those species that occur in the project area.

The project area is mapped as PGMA for sage grouse, but is currently not occupied due to the low sagebrush canopy cover. The PGMA was adopted from "Distribution of Sage Grouse in North America" (Shroeder et al 2004) which was mapped at a 1:2,000,000 scale. Therefore discrepancies in actual occupied or suitable habitat exist at the local level.

The nearest active leks are outside of the immediate project area within about mile of features identified to be closed. Work will not begin until after the leking season. Most of the nesting occurs to the north of the leks as it provides the highest sagebrush canopy cover and none of the sites are located in brood rearing habitat. Nesting is not known to occur around these sites as sagebrush canopy cover is low on these previously disturbed sites. There are some draws with dense sagebrush canopy in the area and these will not be disturbed. Site disturbance is expected to be minimal and localized to the existing safety hazards. Off road travel to the sites with equipment will range from 100 feet to 600 feet but as the features are closed any disturbance will be reclaimed and seeded with a native seed mix to restore habitat. Overall construction time is not expected to take more than three weeks therefore any disturbance will be short lived.

Identified bat habitat would be preserved and protected from public disturbance where bat gates and/or culverts are installed. Ideally, the entrance to the mine would not be altered other than through placement of a bat gate as changes to the entrance could potentially change the airflow and temperature and affect how bats use a site. Many of the features in the area that have documented bat use have already been fitted with bat friendly closures. This project will complete the closures and reclamation of safety hazards in the Rochester Mining district. By constructing bat friendly grates to fit the four features identified above as having documented bat use, we are ensuring that they will continue to provide roosting and potential hibernacula for bats in the future. Features that could be providing habitat and are not going to be grated would be tarped prior to closing so bats can exit and not return prior to permanently closing the feature.

Habitat exists for the Loggerheaded shrike, Long-billed curlew, McCown's longspur, and sagebrush sparrow within the PA but they have not been documented. These species require a diverse mix of habitat from open grassland to dense sagebrush, all of which exists in the project area to some extent. This project will not alter the habitat for these species to where it would no longer be suitable. Reclamation of the mine spoils and other mining soil disturbance would improve habitat and cover for all species in the long term.

Visual Resources

Activities associated with the proposed action are not expected to change the existing character of the landscape, which will continue to be dominated by the presence of historic mining disturbances. In fact, the proposed activity will remove some of those disturbances and return portions of the landscape to a more natural appearance. These activities are consistent with the visual resource management objectives for this area.

Invasive, Non-native Species

Noxious and invasive weeds generally become established in areas of surface disturbing activities such as road construction and maintenance, vehicular traffic, livestock and big game grazing. Madison County Weed Department has been treating the areas and will continue to treat and/or monitor as funding is available. The proposed action could have some effect in the establishment and/or spread of invasive and noxious weeds. Seeding the disturbed areas should reduce the competitive advantage of invasive and noxious weeds.

Mitigation/Monitoring Measures

- If historic or archaeological materials were to be uncovered during any construction activities, the contractor would stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the BiFO archaeologist. Appropriate mitigation measures could be implemented after consultation with Montana SHPO.
- The areas neighboring the proposed closure sites would be monitored to determine if displaced users begin creating new roads and camping areas. Existing travel management decisions would be enforced.
- Prior to completely closing a mine site currently occupied by bats a tarp will be placed over the opening for a minimum of three days to allow for any existing bats to exit the feature, but not return.

4.3 Alternative 2 – No Action

Under the no action alternative, none of the mines would be closed and no reclamation activities would take place. The impacts discussed for alternatives 1 and 2 above would not occur with the following exceptions:

Public Safety

The open adits, and waste rock piles would continue to exist under this alternative and would continue to present a potential physical and/or health hazard to visitors of the sites. The hazards would include vertical drop-offs, excavated pits, open adits, shafts and waste piles which would present an immediate danger to visitors and recreational users. .

Wildlife

Bats would continue to be disturbed by the recreating public and a possible decline in their populations could occur. Mines and adits could erode, collapse, and bat habitat could be lost in the long term and possibly even entomb bats when they collapse. Wildlife habitat would not be improved from the reclamation following the project.

Mitigation/Monitoring Measures: The sites would be monitored periodically and travel management decisions would be enforced.

4.4 Cumulative Impacts Analysis

Cumulative impacts are those impacts resulting from the incremental impact of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions.

If the sites were made less user-friendly, current users could begin to use other areas that are currently less impacted and create new roads. This could lead to negative impacts to wildlife habitat, invasive plant invasion, increases in erosion and decreases in water quality. However, the potential for these impacts to occur would be mitigated by the existing travel management plan which only allows use of designated roads and trails.

NO ACTION:

There would be no cumulative impacts from taking no action in the area. However, the threat to public health and safety would remain the same.

PROPOSED ACTION:

Loss of exposures of and access to geologic features would be minimized by allowing future geologist / miners to reopen closed features under appropriate approval processes.

5.0 CONSULTATION AND COORDINATION

5.1 Persons, Groups and Agencies Consulted:

Joan Gabelman, BLM Butte Field Office Geologist

On September 14, 2014 certified letters were sent to the claimants in the Rochester area that had features on their claims that could potentially be impacted by this action. Three claimants responded with concerns about closing features. On site meetings were arranged and BLM personnel met with the claimants. It was decided that either the proposed action would not affect their features of concern, they would secure the features of concern themselves or the BLM would potentially delay the closure of the features till a later date. This would give them more time to evaluate the feature(s). In order to possess a valid claim, a discovery needs to be made on each claim. Closing a feature could potentially cover up the discovery and invalidate the claim and thus result in a law suit against BLM.

5.2 List of Preparers:

Peter Bierbach – AML Coordinator

Keith Johnson – Assistant Field Manager

Rick Waldrup - Outdoor Recreation Planner (Recreation, Wilderness, VRM)

Jason Strahl - Archaeologist (Cultural/Paleo, Native American Religious Concerns,)

Kelly Bockting - Wildlife Biologist (Wildlife, T&E Species, Riparian)

Mike Mooney– NRS (Noxious and Invasive Plant Species)

Angela Brown – Realty Specialist (Lands, Realty, ROWs)

Steve Armiger - Hydrologist

6.0 REFERENCES

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